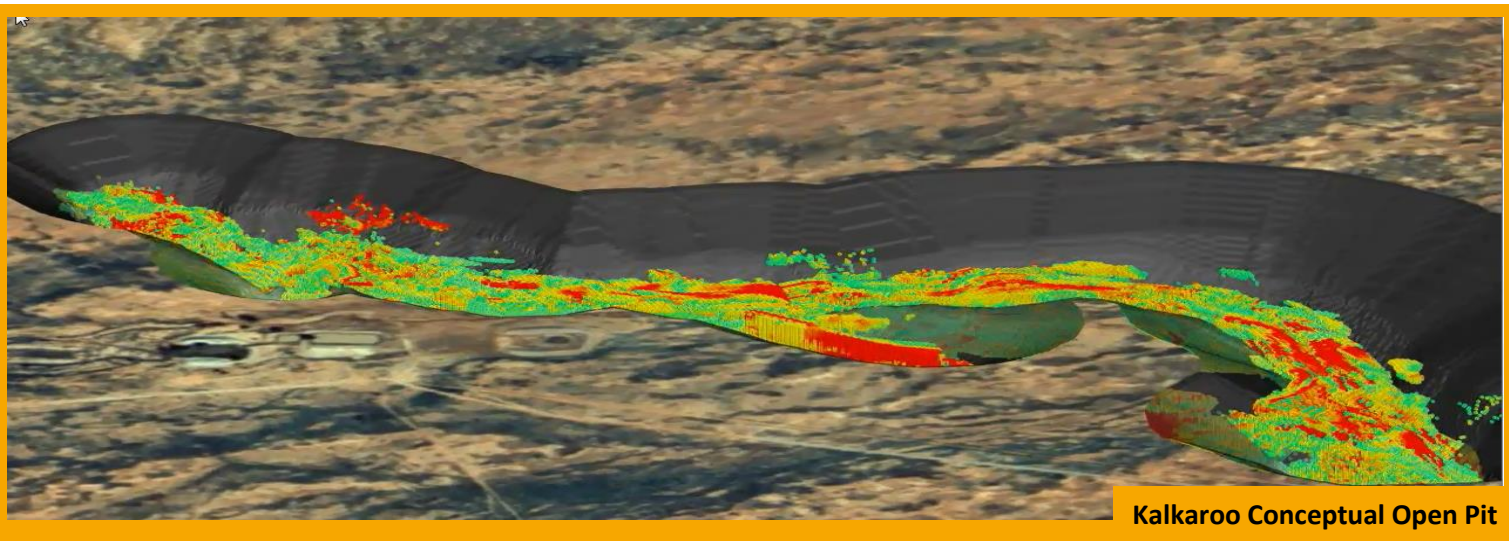
Havilah Resources
A New Mining Force in South Australia

Havilah Resources Limited *plans to sequentially develop its portfolio of gold, copper, iron, cobalt, tin and other mineral resources in South Australia. Our vision is to become a new mining force, delivering value to our shareholders, partners and the community.*

171 million Ordinary Shares -- 33 million Listed Options -- 8 million Unlisted Options

ASX and Media Release: 29 March 2017 **ASX Code: HAV**



Kalkaroo Conceptual Open Pit

KALKAROO COPPER-GOLD PROJECT: RESOURCE UPGRADE

Highlights

- **Kalkaroo contained copper metal increased by more than 80% to 1.14 million tonnes and contained gold by more than 60% to 2.77 million ounces (excluding 0.52 million ounce gold cap).**
- **New resource estimate follows inclusion of data from an additional 74 holes (previously reported) and extensive re-interpretation, block modelling and re-estimation work by an experienced, independent resource geologist.**
- **Kalkaroo copper-gold deposit mineral resource estimate now stands at 232.5 million tonnes at 0.49% copper and 0.37g/t gold (equivalent of 0.79% copper), using a 0.4% copper equivalent lower cut-off.**
- **Resource estimate does not include significant unquantified credits of molybdenum, cobalt and sulphur or the higher grade gold cap.**
- **The deposit remains open at depth and along strike, with considerable scope for expansion.**
- **Represents one of the largest undeveloped copper-gold deposits in Australia.**

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Havilah Resources Limited (Havilah or the Company) is pleased to announce a new Mineral Resource estimate for its 100% owned Kalkaroo Copper-Gold Project situated on the Company owned Kalkaroo Station near Broken Hill.

The new resource estimate is: **232.5 million tonnes at 0.49% copper and 0.37 g/t gold for 1.14 million tonnes of contained copper and 2.77 million ounces of contained gold** (at a 0.4 % copper equivalent lower cut-off) in JORC measured, indicated and inferred resources as summarised in Table 1. This excludes a substantial **gold cap of 21.7 million tonnes at 0.74 g/t gold for 515,000 ounces of contained gold** (using a 0.2 g/t lower cut-off, see Table 1).

The Kalkaroo deposit does not outcrop, and the revised resource incorporates all drillholes in the earlier 2012 resource model plus some additional drillholes that have been previously reported, including:

- 69 infill aircore holes at West Kalkaroo that were designed to improve confidence levels in the saprolite gold and native copper mineralisation (reported in ASX announcement of 29 November 2013).
- 5 diamond drillholes that were designed to test the down-dip depth extensions of the primary sulphide mineralisation in the Kalkaroo main zone area (reported in ASX announcement of 30 November 2012).

An experienced independent resource geologist incorporated the updated geological interpretations and additional drilling data provided by Havilah into the new resource model. A detailed summary of the resource estimation methodology used and all of the supporting data is provided in Appendix 1, which is taken from Table 1 of the 2012 version of the JORC code. During the process extensive consistency checks were run against the 2012 resource model, and for the measured and indicated resources, the contained copper and gold metal contents are within the limits of estimation errors for the two models. The inclusion of a sizeable inferred resource component for the first time brings Havilah's reporting in line with its peers who have reported appreciable inferred resources for their copper deposits (eg Rex Minerals and Altona Mining).

The grade-tonnage curves attached demonstrate the potentially large metal inventory available if mining efficiencies allow lower cut-off grades to be achieved and highlight the very substantial copper potential of the Kalkaroo deposit.

The mineral resource includes both secondary ore and primary sulphide ore as detailed in Table 2. Primary sulphide mineralisation at Kalkaroo consists of chalcopyrite – pyrite below approximately 140 metres depth, which marks the base of total oxidation over most of the deposit. During extended periods of deep weathering the primary sulphide minerals were progressively dissolved and the metals reconstituted and enriched at shallower depths to produce a consistent vertical zonation of secondary ore types comprising from top to bottom: a gold cap (lacking copper and therefore modelled separately), native copper and chalcocite as shown in the picture below. This gold cap provides a potential early cash flow bonus as it will be mined to access the deeper copper-gold resource and better than 97% gold recoveries have been achieved in cyanide bottle roll leach tests.

This resource estimate takes no account of the substantial molybdenum and cobaltian pyrite credits in the Kalkaroo deposit, which it is expected could be recovered in additional flotation cells after the copper concentrate. With increasing cobalt demand, the cobaltian pyrite offers the prospect of deriving additional revenue from Kalkaroo, especially if roasted to recover all the valuable components, including cobalt, gold, sulphur, iron ore and electric power (refer to conceptual chart in ASX release of 7 March 2017).

Earlier scoping studies based on the 2012 resource model and also applicable to the new model indicate that to develop Kalkaroo at its optimum throughput rate will require an estimated capital investment of at least $350 million. The substantial additional inferred resource reported here underscores the potential opportunity to

considerably extend the mine life and thereby enhance the project economics. It is also noteworthy that the Kalkaroo deposit is open at both ends along strike and on all drilling sections at depth, so there is good scope to increase the resource size with further drilling.

Havilah Managing Director, Dr Chris Giles, commented: "With some additional strategic drilling, the Kalkaroo copper and gold resource has been considerably expanded to over 1.1 million tonnes of copper and almost 3.3 million ounces of gold.
"The full extent of the Kalkaroo deposit remains untested and we are confident that further drilling will continue to expand the resource.
"Kalkaroo is somewhat of a rarity these days in being a large undeveloped open pit copper-gold deposit in a low sovereign risk and logistically favourable jurisdiction.
"New copper mining developments have slowed at the very time when copper usage is expanding with the highly copper intensive renewable energy generation and storage revolution, not to mention electric vehicles and antimicrobial applications.
"A copper and gold combination of metals is good to have, as they are natural hedges against each other – gold being driven to a large extent by uncertainty and instability and the so called Dr Copper by stable industrial production and economic development.
"The large metal inventory means that with careful attention to capital and operating costs, Kalkaroo can potentially turn into a multi decade copper-gold mining operation of long term significance to South Australia.
"We would like to attract a partner with suitable expertise and financial ability to help us develop the deposit, and we are willing to trade project equity for finance and development experience with the right partner.
"In the meantime, we will continue to systematically tick off key tasks which to date have included securing land ownership, finalisation of the mining lease proposal and the present resource upgrade".

About the Kalkaroo deposit
Kalkaroo lies 55 km north of the Barrier highway and transcontinental railway line, roughly 100 km west of Broken Hill and 450 km northeast of Adelaide. It is situated on a 550 km^2 pastoral lease, which is owned by Havilah.
Kalkaroo is an extremely continuous and geologically consistent 40 - 80 metre thick stratabound copper-gold deposit that has been drilled over a 3 km strike length. It has a distinctive arcuate shape and a shallow 30 - 45 degree dip owing to replacement of a favourable stratigraphic horizon, that follows the north-plunging nose of a large structural dome. Later faulting and vein emplacement is associated with local displacement and enrichment of the mineralisation, particularly at West Kalkaroo.
Deep weathering of the primary sulphide deposit has produced a consistent sub-horizontal stratification of secondary supergene enriched mineralisation comprising from top to bottom:

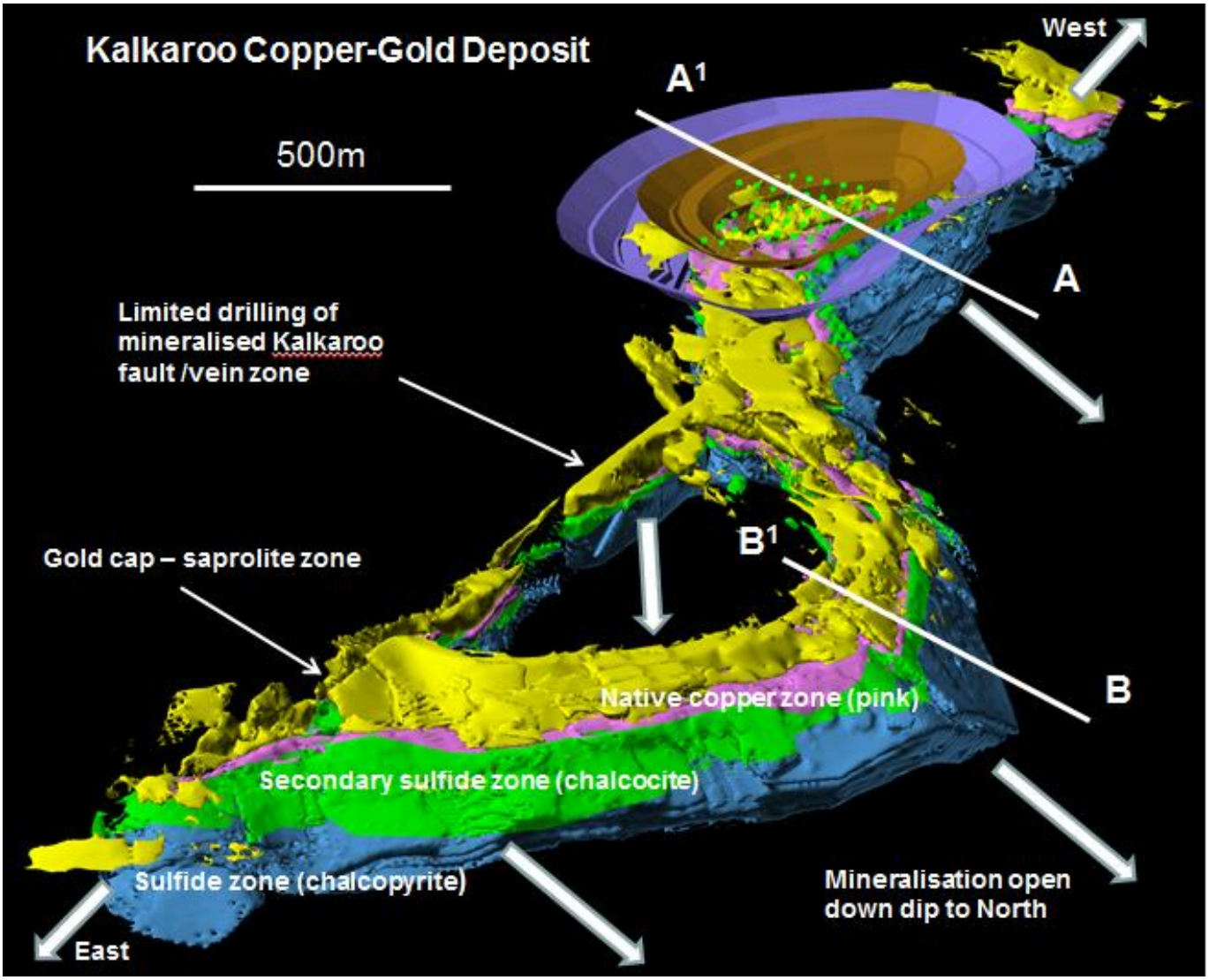
1. Supergene gold in saprolite (gold cap) with insignificant copper.
2. Native copper and gold in saprolite.
3. Chalcocite dominant with gold, recoverable by conventional flotation.
4. Primary sulphide mineralisation - chalcopyrite dominant with gold and locally rich molybdenum, recoverable by conventional flotation to produce a comparatively high grade copper concentrate with no penalty elements (eg uranium and arsenic).

Table 1 Kalkaroo Mineral Resources Summary					
	Tonnes (Mt)	Grade (Cu %)	Grade (Au g/t)	Grade^ (Cu eqv %)	Contained Metal
Gold Cap (Measured)	12.0	-	0.82		
Gold Cap (Indicated)	6.97		0.62		
Gold Cap (Inferred)	2.71		0.68		
Kalkaroo Gold Cap Total	**21.7**		**0.74**		**515,000 oz Au**
Kalkaroo (Measured)	74.5	0.56	0.42	0.90	
Kalkaroo (Indicated)	46.2	0.50	0.34	0.78	
Kalkaroo (Inferred)	111.8	0.44	0.35	0.73	
Kalkaroo Copper-Gold Total	**232.5**	**0.49**	**0.37**	**0.79**	**1,139,000 t Cu 2,770,000 oz Au**
Kalkaroo Total	**254.2**				**1,139,000 t Cu 3,285,000 oz Au**

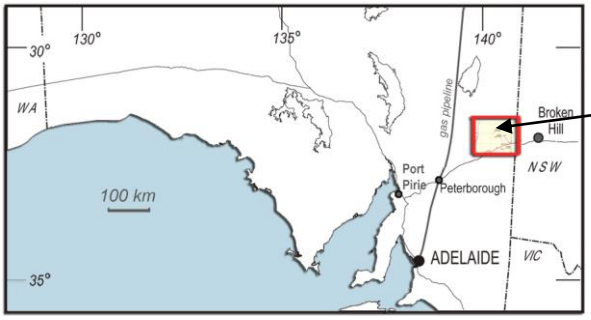
Table 2 Kalkaroo Mineral Resources By Ore Type						
Type	Tonnes (Mt)	% of Tonnes	Grade (Cu %)	Grade (Au g/t)	Grade^ (Cu eqv%)	SG
Saprolite Gold	21.7	8.6		0.74		1.94
Native Copper	14.0	5.5	0.64	0.71	1.22	2.03
Chalcocite	27.0	10.6	0.78	0.39	1.10	2.45
Chalcopyrite*	191.4	75.3	0.44	0.34	0.72	2.69
Total	**254.2**	**100**				

**Primary sulphide ore zone.*

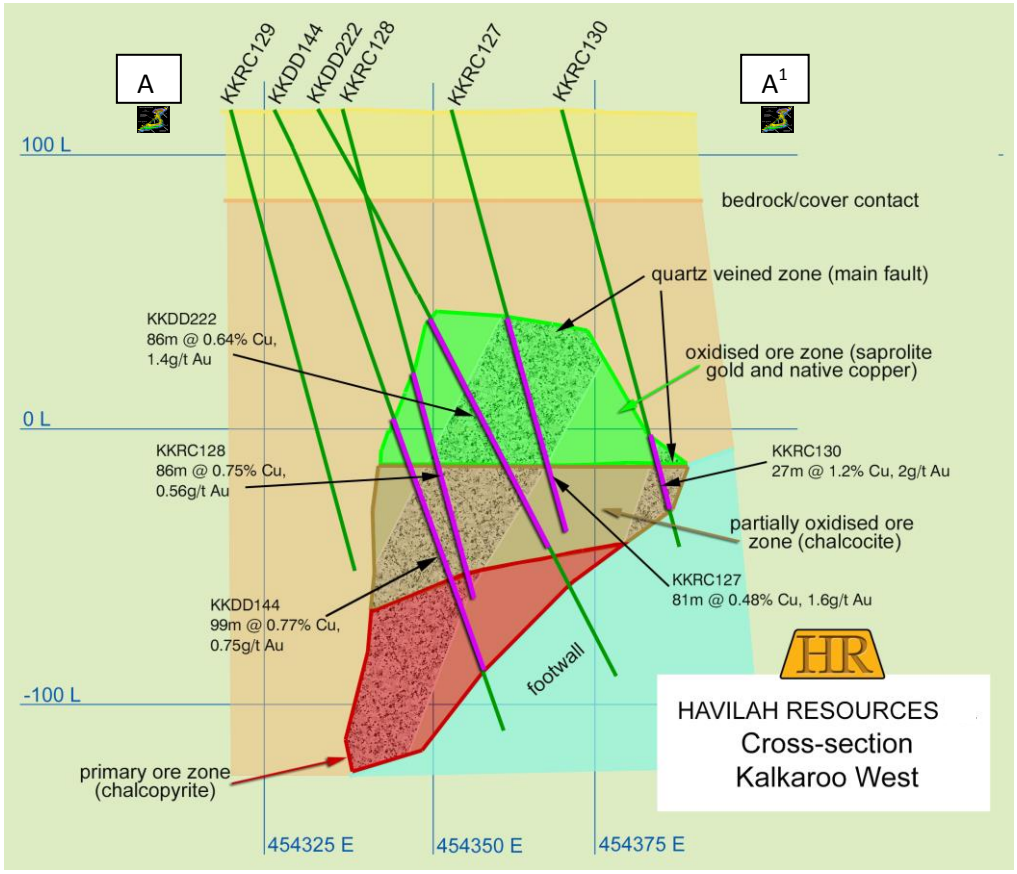
^ Mineral resources have been reported using a copper equivalent grade calculated using a six month average World Bank copper and gold price from 1st July 2016 to 31st December 2016 with gold set at US$1,287/oz (A$1727/oz at AUD = 0.74USD) and a copper price of US$5,030/tonne (A$ 6,797 / tonne at AUD = 0.74 USD) and assuming comparable recoveries for both metals. On this basis, 1 ppm Au = 8169 ppm Cu using a conversion factor of 32151 troy ounces per metric tonne.

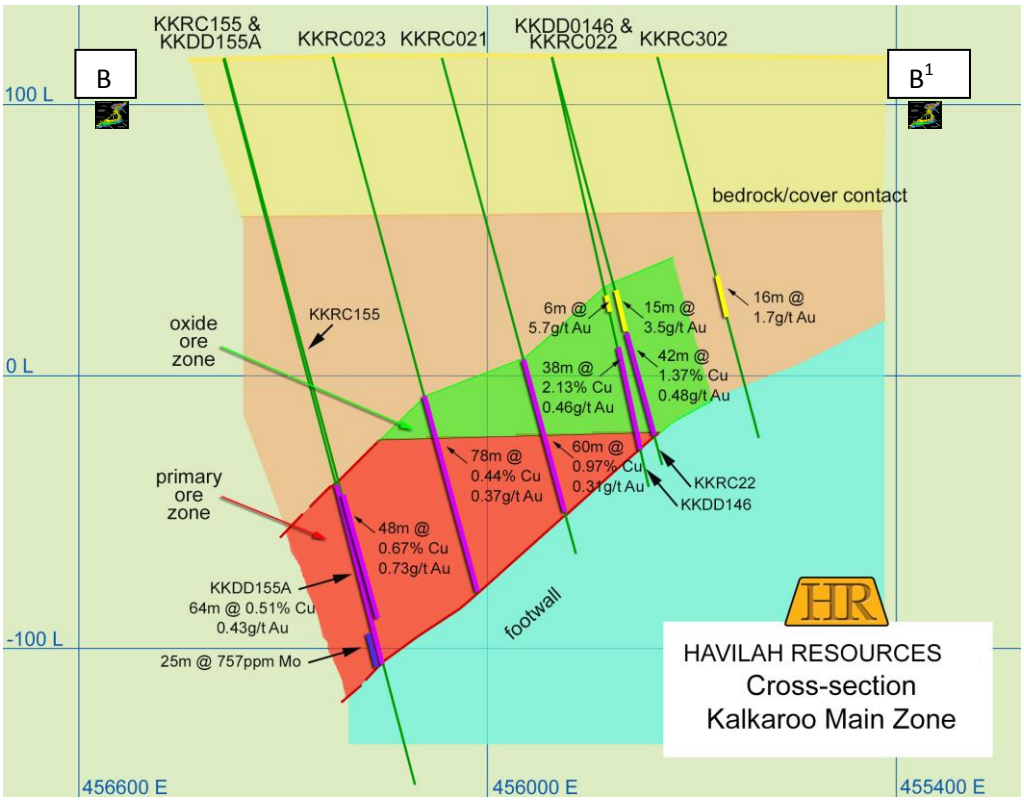


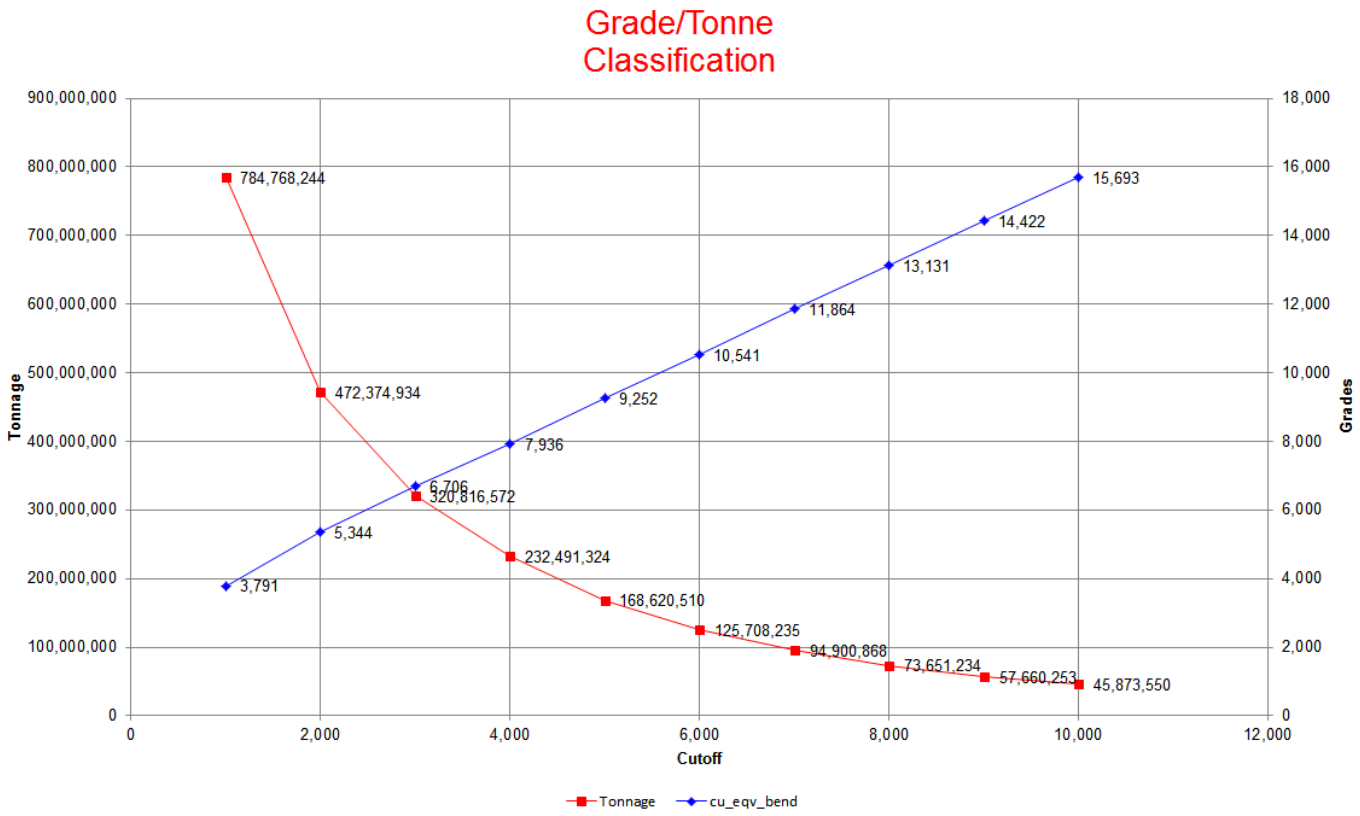
Oblique view of resource block model shell, showing relationship of the four main ore zones. The white arrows indicate the directions in which the orebody is open and essentially undrilled to date. Cross-sections A-A^1 and B-B^1 are attached below.



Location of Kalkaroo in northeastern South Australia


A
A1
KKRC129
KKDD144
KKDD222
KKRC128
KKRC127
KKRC130
100 L
0 L
-100 L
bedrock/cover contact
quartz veined zone (main fault)
oxidised ore zone (saprolite gold and native copper)
partially oxidised ore zone (chalcocite)
KKDD222
86m @ 0.64% Cu, 1.4g/t Au
KKRC128
86m @ 0.75% Cu, 0.56g/t Au
KKRC130
27m @ 1.2% Cu, 2g/t Au
KKRC127
81m @ 0.48% Cu, 1.6g/t Au
KKDD144
99m @ 0.77% Cu, 0.75g/t Au
footwall
primary ore zone (chalcopyrite)
454325 E
454350 E
454375 E
HAVILAH RESOURCES
Cross-section
Kalkaroo West


B
B1
KKRC155 & KKDD155A
KKRC023
KKRC021
KKDD0146 & KKRC022
KKRC302
100 L
0 L
-100 L
bedrock/cover contact
oxide ore zone
primary ore zone
KKRC155
6m @ 5.7g/t Au
15m @ 3.5g/t Au
16m @ 1.7g/t Au
38m @ 2.13% Cu 0.46g/t Au
42m @ 1.37% Cu 0.48g/t Au
78m @ 0.44% Cu 0.37g/t Au
60m @ 0.97% Cu 0.31g/t Au
KKRC22
KKDD146
48m @ 0.67% Cu 0.73g/t Au
KKDD155A
64m @ 0.51% Cu 0.43g/t Au
25m @ 757ppm Mo
footwall
456600 E
456000 E
455400 E
HAVILAH RESOURCES
Cross-section
Kalkaroo Main Zone



Grade –Tonnage classification for the total Kalkaroo copper-gold resource in Table 1, showing the dramatic increase in total resource tonnage with decreasing copper equivalent cut-off grade.

The current resource is based on a 0.4% copper equivalent lower cut-off grade. At a 0.2% copper equivalent lower cut-off grade, the resource tonnage is more than doubled.

Cautionary Statement
This announcement contains certain statements which may constitute "forward-looking statements". Such statements are only predictions and are subject to inherent risks and uncertainties which could cause actual values, performance or achievements to differ materially from those expressed, implied or projected in any forward looking statements. Investors are cautioned that forward-looking statements are not guarantees of future performance and investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

Competent Persons Statement
The information in this announcement that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on data and information compiled by geologist, Dr Chris Giles, a Competent Person who is a member of The Australian Institute of Geoscientists. Dr. Giles is Managing Director of the Company and is employed by the Company on a consulting contract. Dr. Giles has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activities being undertaken to qualify as a Competent Person as defined in the 2012 Edition of 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr. Giles consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

APPENDIX 1: TABLE 1 OF THE 2012 EDITION OF THE JORC CODE

The table below is a description of the assessment and reporting criteria for the Kalkaroo Main copper-gold resource and the Gold Cap gold resource at Kalkaroo, in accordance with Table 1 of The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	• The drilling database includes 411 Havilah drillholes (totaling 68,550 metres) of which there are 25,209 metres of drill core and 43,341 metres of reverse circulation (RC) and aircore (AC). • 47 earlier non-Havilah drillholes completed by major mining companies, namely Placer Dome, Newcrest and MIM totaling approximately 10,718 m were also used in the resource estimation. • RC and AC assay samples averaging 2-3kg were riffle split as 1-2m intervals. • Drill-core samples were mostly collected as half core over 1m intervals, unless the geological boundaries dictated otherwise. • All Havilah samples were collected into pre-numbered calico bags and packed into polyweave bags by Havilah staff for shipment (usually by Havilah staff) to the assay lab in Adelaide.
Drilling techniques	• All RC holes were drilled using standard face-sampling bits, with bit sizes ranging from 120mm to 136mm. All samples were collected via riffle splitting directly from the cyclone • All AC holes used a 121mm blade bit • Diamond core sizes ranged from NQ (50mm) to PQ3 (83mm). Triple tube methods were used where required to maximize core recoveries. • Drill core was routinely orientated where ground conditions allowed, mainly using the spear technique.
Drill sample recovery	• Overall, RC sample recoveries and diamond drill core recoveries were considered to be quite acceptable for interpretation and modelling purposes. • Core recovery for Havilah diamond drillholes was measured directly and averaged 93 %. • The sample yield and wetness of the RC and AC samples was routinely recorded in drill logs. Very few samples were too wet to split. No evidence of RC sample bias due to preferential concentration of fine or coarse material was observed. • Sample recoveries were continuously monitored by the geologist on site and adjustments to drilling methodology were made to optimize sample recovery and quality where necessary. •
Logging	• All RC and AC samples and drillcore was logged by experienced geologists directly into a digital logging system with data uploaded directly into an XL spreadsheet and transferred to a laptop computer. • All drillcore and RC chip trays have been photographed. • All drillcore and RC chip sample trays and some back-up samples are stored on site at Kalkaroo. All RC and AC samples were logged in detail by experienced geologists directly into a digital logging system with data uploaded. • Logging is semi-quantitative and 100% of reported intersections have been logged. • Logging is of a sufficiently high standard to support any subsequent interpretations, resource estimations and mining and metallurgical studies.
Sub-sampling techniques and sample preparation	• RC or AC drill chips received directly from the drilling rig via a cyclone were riffle split as 1-2m intervals to obtain 2-3kg samples. • Half core samples were collected at 1m intervals, unless otherwise dictated by the geology. • Sampling size is considered to be appropriate for the style of mineralisation observed. Assay repeatability for gold and other metals has not proven to be an issue. • All Havilah samples were collected in numbered calico bags that were sent to ALS assay lab in Adelaide. • At ALS assay lab the samples are crushed in a jaw crusher to a nominal 6mm (method CRU-21) from

Criteria	Commentary
	which a 3 kg split is obtained using a riffle splitter. The split is pulverized in an LM5 to 85% passing 75 microns (method PUL-23). These pulps are stored in paper bags. • All samples are then analysed for a 33 element package using ALS's ME-ICP61 suite, whereby samples undergo a 4 acid digest and analysis by ICP-atomic emission spectrometry and ICP mass spectrometry. Over limit Cu, Pb and Zn are re-assayed using ME-OG62. • Gold is analysed by 50g fire assay, with AAS finish using ALS method Au-AA26. • The total assay methods are standard ALS procedure and are considered appropriate for the main economic elements sought (ie Cu and Au).
Quality of assay data and laboratory tests	• A range of elements were analysed by a range of slightly different techniques by the four companies, all of which are considered acceptable. • Havilah samples were also subjected to the following additional check assaying to provide more reliable results where coarser grained native copper and to a lesser extent, gold, was present. • Screen copper analyses were routinely carried out for samples where native copper had been identified during geological logging. • Screen fire gold analyses were routinely carried out where the initial gold assays were in excess of 0.5ppm. • Assay data accuracy and precision was continuously checked through submission of field and laboratory standards, blanks and repeats which were inserted at a nominal rate of approximately 1 per 20 drill samples. • Assay data for laboratory standards and repeats were statistically analysed and any samples that lay outside of a two standard deviation benchmark were re-assayed. No systematic data quality issues of significance were identified.
Verification of drilling sampling and assaying	• Ten pairs of twinned RC/DD holes were analysed with comparisons made for the relative intersection widths, hole size, volume differences, metre x %Cu and metre x gm Au, RC sample size and quality and any possible contamination issues. It was found that although there were wide variations in total copper metal and gold metal calculations between twinned holes, the overall average RC and drillcore metal calculations produced similar results (within 8% for copper and within 6% for gold). There was no observed bias between the drill methods and no significant differences in intersection widths. • Rigorous internal QC procedures are followed to check all assay results (see section 3) • All data entry is under control of the responsible geologist, who is responsible for data management, storage and security. • No adjustments to assay data are carried out.
Location of drillholes	• Diamond drillholes were surveyed at approximately 30m downhole intervals using an Eastman single or multi-shot down-hole camera or a digital camera. • Earlier Havilah RC holes were not surveyed and were assumed not to have deviated significantly from their collar azimuth and inclination. Most later RC holes were surveyed in the rods with only dip measurements recorded. The last RC program used non magnetic drill rods to allow dip and azimuth readings to be collected with only minor (±1º) deviations noted. • Drillhole collar coordinates are surveyed in UTM coordinates using a differential GPS system with an x:y:z accuracy of 20cm:20cm:40cm and are quoted in ADG 66 datum.
Data spacing and distribution	• Havilah drilling was completed on nominal 25m sections perpendicular to the strike of the primary copper-gold mineralisation at Kalkaroo West and on nominal 100m sections perpendicular to the strike of the Kalkaroo Main Dome mineralisation. Holes were drilled towards the south at -60 to -75º. • Earlier non-Havilah holes were drilled at various oblique angles and directions including to the north. • The intersection angle is between 60 and 90 degrees through the Kalkaroo Main Dome style mineralisation and between 20 and 45 degrees through the more steeply dipping Kalkaroo West vein style mineralisation. • Resource drilling is predominantly concentrated between 453800E and 456600E and between

Criteria	Commentary
	6488500N and 6490000N. The deposit is largely untested deeper than 250m below surface. • Sample compositing was not used.
Orientation of data in relation to geological structure	• The drillhole azimuth and dip was chosen to intersect the mineralized zones as nearly as possible to right angles and at the desired positions to maximize the value of the drilling data. • At this stage, no material sampling bias is known to have been introduced by the drilling direction.
Sample security	• RC and AC chip samples are directly collected from the riffle splitter in numbered calico bags. • Several calico bags are placed in each polyweave bag which are then sealed with cable ties. The samples are transported to the assay lab by Havilah personnel at the end of each field stint. • There is minimal opportunity for systematic tampering with the samples as they are not out of the control of Havilah until they are delivered to the assay lab. • This is considered to be a secure and reasonable procedure and no known instances of tampering with samples occurred during the drilling programs
Audits or reviews	• Ongoing internal auditing of sampling techniques and assay data has not revealed any material issues.

Section 2 Reporting of Exploration Results

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

Criteria	Commentary
Mineral tenement and land tenure status	• Security of tenure is via current mining lease applications and an underlying exploration licence (EL 5800) owned 100% by Havilah
Exploration done by other parties	• Kalkaroo was explored by a number of major mining groups in the past including Placer, Newcrest Mining and MIM Exploration, who completed more than 45,000 metres of drilling in the region. • All previous exploration data has been integrated into Havilah's databases.
Geology	• Kalkaroo consists of stratabound replacement and vein style copper-gold mineralisation within Willyama Supergroup rocks of the Curnamona Craton • The stratabound mineralization is uniformly distributed along more than 3 km of strike that follows an arc around the 35 degree dipping northern nose of the Kalkaroo south dome. It is hosted by an 80m -120m thick mineralised horizon that is sandwiched between psammitic footwall rocks and a thick pelitic hangingwall sequence. • In part, the mineralization is associated with near-vertical, mineralised quartz vein breccia fracture/fault fillings, which probably formed channel ways for the mineralising fluids. Interference folding resulted in dome structures which probably acted as structural traps for the rising mineralising fluids carried by these vertical structures. • The mineralising events were associated with iron-rich and sodium-rich alteration fronts, which are manifest as widespread fine-grained magnetite in the lower sandy formations and as pervasive albite alteration. • Erosion in the Mesozoic and Tertiary period exposed the Kalkaroo deposit to prolonged and deep weathering. Consequently, the deposit shows typical supergene enrichment features in its upper part, caused by oxidation of the primary sulphides in the weathering zone, forming a soft clay rich rock called saprolite. This is manifest in a sub-horizontal stratification of the ore minerals from top to bottom, forming four main ore types as follows:

Criteria	Commentary
	1. Supergene free gold in saprolite, with generally minor copper, recoverable by gravity and cyanide leaching methods. 2. Native copper and gold in saprolite, largely recoverable by gravity methods. 3. Chalcocite dominant with gold, recoverable by conventional flotation. 4. Chalcopyrite dominant with gold and locally rich molybdenum, recoverable by conventional flotation.
Drill hole Information	• A total of 493 Havilah drillholes totaling approximately 82,434 metres were used in the resource estimation of which there are 25,209 metres of drill core and 57,225 metres of reverse circulation (RC) and aircore (AC). • 65 earlier non-Havilah drillholes totaling approximately 15,047 metre were also used in the resource estimation. • This includes three generations of pre-Havilah drillholes, completed by major mining companies, namely Placer Dome, Newcrest and MIM. • There is good correlation of the geology and assay data between these earlier drillholes and Havilah drillholes..
Data aggregation methods	• Exploration drilling results are not being reported for the Mineral Resource area.
Relationship between mineralisation widths and intercept lengths	• Down-hole lengths are reported. Drillholes are always oriented with the objective of intersecting mineralisation as near as possible to right angles, and hence down-hole intersections in general are as near as possible to true width. • For the purposes of the geological interpretations and resource calculations the true widths are always used.
Diagrams	• Refer to figures in the accompanying text.
Balanced reporting	• Exploration drilling results are not being reported for the Mineral Resource area.
Other substantive exploration data	• Exploration drilling results are not being reported for the Mineral Resource area.
Further work	• Additional infill drilling may be carried out in the future to upgrade Inferred and Indicated Resources to Measured Resources and also to explore strike and depth extensions outside of the current resource envelope

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	Commentary
Database integrity	• All drill data is directly logged into a field based digital logging system and then uploaded to an Access database by the responsible geologist, who also carries out verification and data checking at the time. • Laboratory assay data is received digitally and uploaded to the database electronically with relevant QC checks. • All data in the database is validated for consistency and accuracy. Various powerful QC checks for

Criteria	Commentary
	overlapping data, missing assays and other errors are performed at the time the data is transferred into the Vulcan 3D database for the resource modelling work. Errors identified are immediately fixed and cross-checked to ensure there are no systemic errors. • All original assay data sheets, logging files, drill chips and half or quarter core are retained for validation purposes. • Standard deviation plots of all data (eg assays, densities, recoveries, sample quality) were used to identify outliers for subsequent investigation for errors. • Drillhole collar locations were checked for consistency on cross sections. • Drillhole plots were examined to ensure consistency of surveys. • Examination of the database has not revealed any systemic issues of concern that could significantly affect the current resource estimation.
Site visits	• The Competent Person has worked on this project for the past decade and is very familiar with the drilling, sampling, geology and modelling of the Kalkaroo project. • The copper-gold mineralisation does not outcrop at surface, so much information comes from drillcore inspection and logging, which the competent person has been closely involved with
Geological interpretation	• There is a high level of confidence in the geological interpretation of the Kalkaroo deposit, in large part because of the detailed logging undertaken and the experience of the geologists involved. This has allowed a consistent picture of the stratigraphic and structural controls on alteration and mineralisation to be developed for the entire deposit, that accords with a comprehensive regional geological understanding, as described in Section 2. • It is important to note that the Kalkaroo mineralisation does not outcrop, so virtually all geological information about the deposit is either gained from drilling data or geophysics. • The main component of the copper-gold mineralisation is replacement style hosted in a favourable stratigraphic horizon which has been displaced and enriched in places with later faulting and vein emplacement. • Superimposed on the primary chalcopyrite copper mineralisation is deep weathering that has produced a vertical zonation in the mineralogy, from gold only in a secondary weathering cap, through native copper and chalcocite • The Dome is transected by a major E-W trending, subvertical, quartz-carbonate vein breccia system. A later shear offsets the mineralisation and vein/breccia system by 200m to the north along the western limb of the Dome. • In general the stratigraphy and mineralisation of the Kalkaroo deposit is remarkably uniform over the entire strike length of the Main Dome. • Greater complexity occurs at the western (Kalkaroo West) and eastern ends of the deposit, where considerable disruption occurs due to faulting, and this has required adjustments to the search ellipsoid orientations to avoid biasing errors. • The geology is a major control in guiding the resource estimation. Firstly, in guiding the search ellipsoid orientations and secondly, in outlining different ore types and domains within the overall deposit. • Mineralised envelopes for copper mineralisation were interpreted on drill section using geological logs, copper grades ≥0.2% copper. • Mineralised envelopes for gold mineralisation were interpreted on drill section using geological logs, gold grades ≥0.2ppm. • Along strike mineralisation outlines were generally terminated at half the drill hole spacing beyond the last known section of mineralisation. • Down dip mineralisation extrapolation is generally less than 100m below the deepest sectional intercepts, unless strike geological continuity is being interpreted across undrilled sections from one deeply drilled section to another. • The interpreted geological domains are used to control the resource estimation process. • Alternative interpretations will result in similar tonnage and grades for the Kalkaroo deposit due to the significant width and strike extent of the deposit.

Criteria	Commentary
Dimensions	• The Kalkaroo mineralisation exists around an arcuate domal structure which has been drilled more than 3km along strike. Copper-gold mineralisation is continuous throughout this strike length and is open at depth along its entire length and is open at both ends. • The true width of mineralisation ranges from 40-80 metres thick, while the plan width of mineralisation above cutoff varies from 50 to 200 metres. • Mineralisation generally has an upper bound 50 metres below the topography and at its deepest has been intersected in a single drillhole 500 metres below the topographic surface.
Estimation and modelling techniques	• Polygons and hence triangulations are based on interpretations completed on nominal 25m sections for Kalkaroo West and nominal 50-100m sections for Kalkaroo Main Dome. Sectional interpretations are made perpendicular to the strike. • Triangulated interpretations have been generated for the following lithological domains: ➢ Namba ➢ Eyre ➢ Saprolite (sap) ➢ Kalkaroo Main Dome (k), subdivided into k2.2, k2.5, k2.8, k3.2 and k3.5 ➢ Kalkaroo West (kw), subdivided into kw2.2, kw2.5, kw2.8 and kw3.5 ➢ Kalkaroo West Vein (kwest_vn) ➢ Kalkaroo West Vein (cent_vn) • Lithological logging of drill cuttings and core defined different oxidation levels with increasing depth. These observations have been used to divide mineralisation into discrete oxidation domains. From top down these are: saprolite, native copper, chalcocite and chalcopyrite. • Statistical analysis was completed for each domain to ascertain the distribution of grades and examine whether any extreme values/outliers existed. Extreme values were investigated and were found to be minimal in number and not deemed to have a material impact on estimated grades. Variogram modelling was completed for each element in each domain. • The block model was constructed in Vulcan 10.0 software with parent blocks of 10mE by 10mN by 10mRL. • Compositing used 1m downhole sample lengths with length weighted assay composites used during estimation to account for small composite intervals at domain boundaries. • Estimation was performed using ordinary kriging and inverse distance techniques. • Estimation passes for the Kalkaroo deposit were generally as follows: First pass search was 50 metres. If interpolation did not fill all blocks on the first pass, then the search ellipsoid was increased to 100m. If interpolation did not fill all blocks on the second pass, then the search ellipsoid was increased to 200m. Domains estimated using unfolding had a search perpendicular to dip and strike of mineralisation set to a ratio of 0.2 of the domain width. • Cu, Au and specific gravity were estimated separately for each combination of lithology and oxidation domains. Estimation domain boundaries relate to mineralised boundaries and were used as hard estimation boundaries. • Up to three estimation passes with increasing search neighbourhood size was used. • Search ellipsoid orientation was controlled using stratigraphic surfaces during estimation with unfolding methods. • An octant based search was used for sample selection during grade estimation. • A minimum of 4 and maximum of 32 composites were used per block estimate. • Estimates and calculations were validated visually in Vulcan software to ensure blocks contained all required variables, default codes were correctly applied to blocks and that all domain and oxidation codes were represented. The domain variables were correctly assigned according to priority order within defined triangulations, examination of code allocation within overlapping areas to ensure proper priority order application, inspection for evidence of blocks leaking from a domain due to triangulation errors such as openings, crossing or inconsistency and comparison of domain wireframe volumes to block model domain volumes to ensure block parent and sub-block size is appropriate.

Criteria	Commentary
	• Statistical comparisons of raw sample data versus declustered data versus block model data were completed. Drift plots were generated on 200 metre section spacing to check block estimation versus original drill sample grade. • The Kalkaroo resource estimate as at March 2017 was compared to the previous resource estimate from March 2012. Variances identified were primarily due to additional infill drilling providing clarification of previous measured and indicated resources and down dip drilling which allowed reporting of inferred resource classification.
Moisture	• Tonnes have been estimated on a dry basis through the determination of dry specific gravity using the Archimedes principle.
Cut-off parameters	• Gold Cap resource has been calculated using a 0.2g/t gold lower cutoff grade. • For the Kalkaroo main copper-gold resource a 0.4% copper equivalent lower cutoff grade was applied. Mineral resources have been reported using a copper equivalent grade calculated using a six month average World Bank copper and gold price from 1st July 2016 to 31st December 2016 with gold set at US$1,287/oz (A$1727/oz at AUD = 0.74USD) and a copper price of US$5,030/tonne (A$ 6,797 / tonne at AUD = 0.74 USD) and assuming comparable recoveries for both metals. On this basis, 1 ppm Au = 8169 ppm Cu using a conversion factor of 32151 troy ounces per metric tonne. • Copper equivalent grades in the saprolite mineralisation have been set to zero.
Mining factors or assumptions	• The Kalkaroo resources are expected to be mined as a conventional open pit mining operation using excavators and large trucks. • The broad nature of the mineralisation lends itself to an open pit mining operation, initially as a free dig operation due to soft and weathered nature of the host material, as evidenced in the neighbouring Portia gold mine. • No assumptions have been made about mining selectivity for specific material types or quality. • No external mining dilution or other factors have been applied to the resource estimate. • Previously reported prefeasibility studies indicate that there is a sound basis for determining reasonable prospects for eventual economic extraction of the Kalkaroo copper-gold mineralisation.
Metallurgical factors or assumptions	• No metallurgical assumptions have been applied to the resource model. • Metallurgical testwork to date indicates that gold and copper can be recovered satisfactorily from the four main ore types. Acceptable sulphide concentrate grades can be achieved, without any penalty element issues
Environmental factors or assumptions	• A comprehensive (1400 page) mining lease proposal document, which addresses a range of environmental issues connected with the proposed Kalkaroo mining operation in some detail has been approved by DSD following public comment. • Mining development is subject to the approval of a Program for Environmental Protection and Rehabilitation (PEPR) by the Department for State Development. • This study will comprehensively address all environmental and social impacts and the risk mitigation methodologies to be employed.
Bulk density	• A total of 11,774 core samples were measured for density. • Most SG calculations were made using the weight in air vs weight in water method. • Density of the ore material generally decreases with increasing weathering and this has been taken into account when estimating tonnages for the various ore types.
Classification	• The estimates have been classified into Measured, Indicated and Inferred Mineral Resources according to the JORC 2012 code, taking into account drilling density, geological confidence, estimation pass and confidence and continuity of the mineralisation around the likely economic cut-off grades. Classification of mineralisation with the Kalkaroo project was based on confidence of geological interpretation driven by drill density: ➢ Measured Mineral Resources are restricted to where drill spacing is less than 50 metres. ➢ Indicated Mineral Resources are defined where drill spacing is between 50 and 100 metres. ➢ Inferred Mineral Resources are defined where drill spacing is between 100 and 200 metres.

Criteria	Commentary
	• The current classification of the resource estimation assignment reflects the view of the Competent Person and the resource geology consultant.
Audits or reviews	• The resource estimation work was undertaken by independent resource geologist, Mr Steve Sullivan who has had more than 30 years experience in the mining industry, the majority of which has been spent in resource estimation. • All drilling data and relevant interpretations were supplied to Maptek by Havilah and there were extensive technical discussions during the estimation process between Havilah geologists and Maptek to ensure that all of Havilah's geological knowledge and interpretations were taken into account in generating the block model. • Havilah conducted internal peer review of the resource processes and reporting outcomes numerous times throughout the resource estimation work. Several external parties have reviewed prior work at Kalkaroo and provided feedback which was incorporated into the current resource report.
Discussion of relative accuracy/ confidence	• The relative accuracy of the Mineral Resource is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. • Geological and block models have been validated visually against drilling and statistically against input data sets on a domain and swath basis. • The Mineral Resource estimate is based on the assumption that open cut mining methods will be applied and that grade control sampling will be available for selective material delineation. As such the resource estimate should be considered to represent a global resource estimate. • No production data is available to reconcile results.