24 June 2020

# MORE POSITIVE GOLD RESULTS FROM KALKAROO

### **HIGHLIGHTS**

- Assays for the saprolite gold zone continue to exceed the resource grade in many drillholes, and include several long ore-grade intersections such as 65 metres of 1.20 g/t in KKAC0536.
- Widespread base of Tertiary gold mineralisation confirmed, including 5 metres of 4.84 g/t gold.
- Prospects for a viable gold-only start up open pit enhanced by recent drilling results.

**Havilah Resources Limited** (**Havilah** or **Company**) is pleased to report new gold assay results received for its ongoing shallow gold resource drilling at West Kalkaroo. This drilling is being carried out by Havilah's drilling crew using the aircore (**AC**) drilling method, which is suited to clayey material and soft decomposed rock. The specific objectives are to define a gold resource in Tertiary age Namba Formation clays and to better define the underlying saprolite gold mineralisation within the confines of a conceptual starter open pit at West Kalkaroo (Figure 1).

Significant new base of Tertiary gold assay results include:

**KKAC0506**: 4 metres of 2.47 g/t gold from 26-30 metres.

**KKAC0512**: 5 metres of 4.84 g/t gold from 49-54 metres.

KKAC0522: 2 metres of 3.23 g/t gold from 53-55 metres.

**KKAC0524**: 11 metres of 1.51 g/t gold from 51-62 metres.

**KKAC0525**: 4 metres of 3.07 g/t gold from 62-66 metres.

**KKAC0527**: 4 metres of 1.84 g/t gold from 59-63 metres.

**KKAC0528**: 2 metres of 4.25 g/t gold from 55-57 metres.

**KKAC0529**: 2 metres of 4.79 g/t gold from 54-56 metres.

This gold mineralisation occurs in a near horizontal layer at the base of the Tertiary age Namba Formation clays, that lie unconformably on the ancient (ca 1700 Ma) metamorphosed bedrock that is the primary source of the gold (Figures 2 and 3). While this gold mineralisation is not included in the Kalkaroo JORC Mineral Resource at this stage, as drilling progressively expands its lateral extent in what was previously considered to be barren overburden, it is assuming increasing importance in establishing the viability of a gold-only start up open pit mining operation.

Most aircore drillholes were continued into the underlying saprolite gold zone until the rock became too hard for the aircore blade bit to penetrate further (Figures 2 and 3). Significant new gold intercepts in the saprolite gold zone, unless otherwise stated include:

**KKAC0500**: 11 metres of 1.68 g/t gold from 71-82 metres and

31 metres of 2.60 g/t gold from 92-123 metres (in native copper-gold zone).

**KKAC0501**: 23 metres of 2.17 g/t gold from 60-83 metres.

**KKAC0511**: 6 metres of 5.26 g/t gold from 81-87 metres (ended in gold mineralisation).

**KKAC0513**: 34 metres of 1.77 g/t gold from 91-125 metres.

**KKAC0528:** 15 metres of 3.87 g/t gold from 85-100 metres.

**KKAC0535:** 8 metres of 2.33 g/t gold from 73-81 metres (ended in gold mineralisation).

KKAC0536: 65 metres of 1.20 g/t gold from 77-142 metres (in saprolite gold zone and native copper zone,

ended in mineralisation),

including 20 metres of 1.77 g/t from 98-118 metres.

**Havilah Resources Limited** 

ASX: HAV

**ABN 39 077 435 520** Tel: +61 (08) 7111 3627

Website: www.havilah-resources.com.au Email: info@havilah-resources.com.au



Assays show frequent long runs of >1.5 g/t, which is more than double the 0.74 g/t average gold resource grade of the saprolite gold (Oxide Gold Cap) zone (refer to Kalkaroo Oxide Gold Cap JORC Mineral Resource Table on page 10, Havilah 2019 Annual Report). Many drillholes ended in gold mineralisation at bit refusal, indicating the gold mineralisation continues on into the underlying native copper zone.

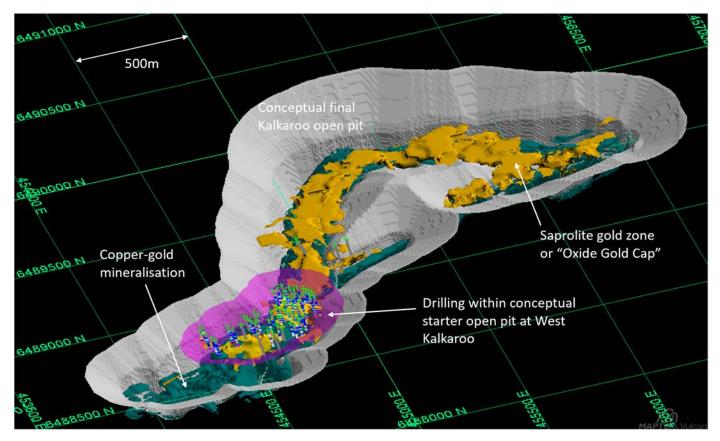
Drill intersections generally improve in grade and width near to the major Kalkaroo fault zone as typified by drillhole KKAC0536, which has a 65 metre continuously gold mineralised interval (Figure 2). Appreciable associated copper mineralisation occurs in the lower part of this drillhole and also in KKAC0500, KKAC0509, KKAC0527, KKAC0528 and KKAC0529 based on geological logging and portable XRF assays.

### Commenting on these new gold assay results Havilah's Technical Director, Dr Chris Giles, said:

"There is good continuity of gold mineralisation in the base of Tertiary clays over a large area of the proposed gold-only start up open pit. This shallow gold mineralisation is of key importance in generating potential early revenue for the Kalkaroo project from what was previously classified as barren overburden.

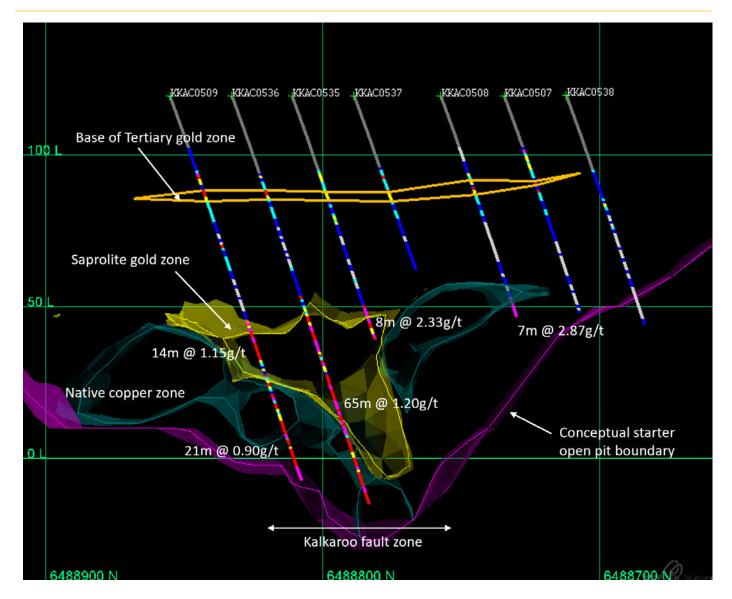
"The trend of better than published resource grades for the saprolite gold zone in recent drillholes continues and is also positive for the conceptual starter open pit economics.

"Our Senior Mine Planning Engineer, Mr Richard Buckley, is presently compiling all drilling, resource and mining data in order to generate an optimum design for the gold-only start up open pit." he said.



**Figure 1** Area of drilling within the confines of the conceptual starter open pit at West Kalkaroo in relation to the greater Kalkaroo copper-gold deposit.





**Figure 2** Cross-section through recent West Kalkaroo aircore drillholes KKAC0509-KKAC0538, showing gold mineralised intervals in the saprolite gold zone and native copper zone in the drillholes. Drillholes KKAC508, KKAC0535, KKAC0536 and KKAC0509 ended in gold mineralisation at bit refusal. In general, the tenor of gold mineralisation increases in proximity to the wide Kalkaroo fault zone as indicated on this section.

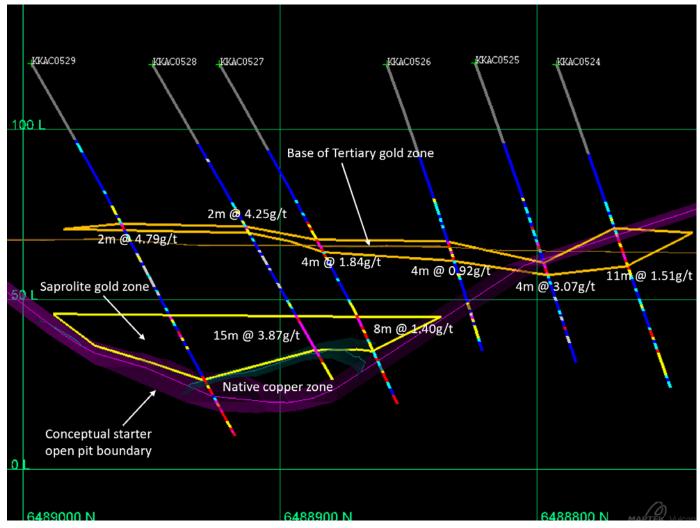
This release has been authorised on behalf of the Havilah Resources Limited Board by Mr Simon Gray.

For further information visit www.havilah-resources.com.au

Contact: Dr Chris Giles, Technical Director, on (08) 7111 3627 or email <a href="mailto:info@havilah-resources.com.au">info@havilah-resources.com.au</a>

Registered Office: 107 Rundle Street, Kent Town, South Australia 5067





**Figure 3** Cross-section through recent West Kalkaroo aircore drillholes KKAC0529-KKAC0524, showing the significant thicknesses and grades of gold mineralisation in the horizontal base of Tertiary gold zone in the Namba Formation clays. Drillholes KKAC0527, KKAC0528 and KKAC0529 ended in gold and copper mineralisation of the native copper zone.

#### **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 Person's Statements**

The information in this announcement that relates to Exploration Targets, Exploration Results, Mineral Resources and 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 Technical Director of the Company, a full-time employee and is a substantial shareholder. 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**

Sections 1 and 2 below provide a description of the sampling and assaying techniques in accordance with Table 1 of The Australasian Code for Reporting of Exploration Results. Havilah confirms that it is not aware of any new information or data and that all material assumptions and technical parameters underpinning results published in the earlier market announcements continue to apply and have not materially changed.

#### Details for drillholes cited in the text

				Grid	Dip	EOH depth
Hole Number	Easting m	Northing m	RL m	azimuth	degrees	metres
KKAC0500	454533	6488752	120	154	-60	123
KKAC0501	454605	6488731	120	154	-70	83
KKAC0506	454633	6488781	120	154	-75	124
KKAC0507	454724	6488708	120	155	-70	76
KKAC0508	454715	6488727	119	155	-70	77
KKAC0509	454667	6488804	119	155	-70	134
KKAC0511	454748	6488774	119	155	-70	87
KKAC0512	454733	6488800	119	155	-80	95
KKAC0513	454704	6488818	119	155	-70	126
KKAC0522	454767	6488864	119	138	-75	95
KKAC0524	454837	6488821	119	139	-70	101
KKAC0525	454822	6488839	120	139	-70	93
KKAC0526	454804	6488858	119	139	-70	89
KKAC0527	454772	6488895	119	139	-60	113
KKAC0528	454759	6488910	119	139	-60	107
KKAC0529	454735	6488937	119	139	-60	125
KKAC0535	454693	6488771	119	155	-70	85
KKAC0536	454676	6488785	119	155	-70	142
KKAC0537	454702	6488753	120	155	-70	61
KKAC0538	454720	6488685	120	155	-70	80
Datum: AGD66 Zone 54						



## Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Sample data was derived from aircore ('AC') drillholes as documented in the table above.</li> <li>AC assay samples averaging 2-3kg were riffle split at 1 metre intervals.</li> <li>All AC drill samples were collected into prenumbered calico bags and packed into polyweave bags by Havilah staff for shipment to the assay lab in Adelaide.</li> </ul>
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	All AC holes were drilled using a 121mm blade bit. All samples were collected via riffle splitting directly from the cyclone.
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Overall, AC sample recoveries were considered to be quite acceptable for interpretation and modelling purposes.</li> <li>The sample yield and wetness of the AC samples was routinely recorded in drill logs. Very few samples were too wet to split. No evidence of sample bias due to preferential concentration of fine or coarse material was observed.</li> <li>Sample recoveries were continuously monitored by the geologist on site and adjustments to drilling methodology were made to optimise sample recovery and quality where necessary.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc)</li> </ul>	<ul> <li>All AC samples were logged by an experienced geologist directly into a digital logging system with data uploaded directly into an Excel spreadsheet and transferred to a laptop computer.</li> <li>All AC chip sample trays and some back-up samples are stored on site at Kalkaroo.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Logging is semi-quantitative and 100% of reported intersections have been logged.</li> <li>Logging is of a sufficiently high standard to support any subsequent interpretations, resource estimations and mining and metallurgical studies.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all subsampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>AC drill chips were received directly from the drilling rig via a cyclone and were riffle split on 1 metre intervals to obtain 2-3 kg samples.</li> <li>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 in the past and is checked with regular duplicates.</li> <li>All Havilah samples were collected in numbered calico bags that were sent to ALS assay lab in Adelaide.</li> <li>At ALS assay lab the samples are crushed in a jaw crusher to a nominal 6mm (method CRU-21) from which a 3kg 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.</li> <li>All samples were analysed for gold by 50g fire assay, with AAS finish using ALS method Au-AA26.</li> <li>All sample pulps are retained by Havilah and other elements (such as copper and rare-earth elements) will be assayed using these pulps as required in the future.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>Fire assay method Au-AA26 is a total gold analysis.</li> <li>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 25 drill samples.</li> <li>Assay data for laboratory standards and repeats for Kalkaroo were previously statistically analysed and no material issues were noted.</li> </ul>
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.  The use of twinned holes.  Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	<ul> <li>Checking of the new Au assays against Au assays from adjacent earlier drillholes indicated good overall correlation.</li> <li>Rigorous internal QC procedures are followed to check all assay results.</li> <li>All data entry is under control of the responsible geologist, who is responsible for data management, storage and security.</li> </ul>



Criteria	JORC Code explanation	Commentary
	Discuss any adjustment to assay data.	
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>The holes were surveyed using an electronic downhole camera in a stainless steel rod and inner tube.</li> <li>Present drillhole collar coordinates were surveyed in UTM coordinates using a differential GPS system with an x:y:z accuracy of 20cm:20cm:40cm and are quoted in AGD66 Zone 54 datum.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Havilah drilling is aiming for a nominal 25m x 25m spacing of drillholes to define a resource in the base of Tertiary clays and to upgrade confidence levels in the saprolite gold zone. In general drillholes are angled perpendicular to the strike of the primary copper-gold mineralisation at West Kalkaroo.</li> <li>Sample compositing was not used.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The drillhole azimuth and dip was chosen to intersect the mineralised zones as nearly as possible to right angles and at the desired positions to maximise the value of the drilling data.</li> <li>At this stage, no material sampling bias is known to have been introduced by the drilling direction.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>AC chip samples are directly collected from the riffle splitter in numbered calico bags.</li> <li>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.</li> <li>There is minimal opportunity for systematic tampering with the samples as they are not out of the control of Havilah personnel until they are delivered to the assay lab.</li> <li>This is considered to be a secure and reasonable procedure and no known instances of tampering with samples occurred during the drilling programs.</li> </ul>
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>Ongoing internal auditing of sampling techniques and assay data has not revealed any material issues.</li> <li>Robert Dennis who was formerly employed by consulting firm RPM Global Asia Limited ('RPM') visited Kalkaroo during November 2016 and found field procedures to be of acceptable industry standard.</li> <li>Wanbao Mining and RPM completed independent re-sampling and assaying for Kalkaroo and found results to be reliable.</li> </ul>



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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.</li> </ul>	<ul> <li>Security of tenure is via current mining leases over Kalkaroo, owned 100% by Havilah.</li> <li>Exploration drilling is currently being undertaken on Kalkaroo Mining Lease ML 6498.</li> <li>A Native Tile Mining Agreement is in place for Kalkaroo. The agreement was executed between Havilah and the Ngadjuri Adnyamathanha Wilyakali Native Title Aboriginal Corporation.</li> <li>Havilah owns the Kalkaroo Station pastoral lease on which the drilling is being conducted.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Kalkaroo was explored by a number of major mining groups in the past including Placer Pacific Limited, Newcrest Mining Limited and MIM Exploration Pty Ltd, who completed more than 45,000m of drilling in the region.</li> <li>All previous exploration data has been integrated into Havilah's databases.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>In general the mineralisation style is stratabound replacement and vein style copper-gold mineralisation within Willyama Supergroup rocks of the Curnamona Craton.</li> <li>At Kalkaroo, the stratabound mineralisation 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.</li> <li>In part, the mineralisation 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.</li> <li>The mineralising events were associated with iron-rich and sodium-rich alteration fronts, which are manifest as widespread finegrained magnetite in the lower sandy formations and as pervasive albite alteration, overprinted by later potassic veining and alteration.</li> <li>Erosion in the Mesozoic and Tertiary period exposed the region to prolonged and deep weathering. Consequently, the original sulphide mineralisation 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</li> </ul>



Criteria	JORC Code explanation	Commentary
		manifest in a sub-horizontal stratification of the ore minerals from top to bottom:  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	<ul> <li>A summary of all information material to the under-standing of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	This information is provided in the accompanying table for the relevant drillholes.
Data aggregation methods	<ul> <li>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.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	Not applicable as not reporting mineral resources.
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this</li> </ul>	<ul> <li>Downhole lengths are reported. Drillholes are typically oriented with the objective of intersecting mineralisation as near as possible to right angles, and hence downhole intersections in general are as near as possible to true width.</li> <li>For the purposes of the geological interpretations and resource calculations the</li> </ul>



Criteria	JORC Code explanation	Commentary
	effect (e.g. 'down hole length, true width not known').	true widths are always used.
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	Not applicable as not reporting a mineral discovery.
Balanced Reporting	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.	Not applicable as not reporting mineral resources.
	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	
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.	Relevant geological observations are reported.
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).	Additional drilling may be carried out in the future to explore strike and depth extensions and for resource delineation.
	<ul> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	