



23 October 2018

## **UPDATE - FURTHER SIGNIFICANT COPPER RESULTS HAGENHOF COPPER-COBALT PROJECT, NAMIBIA – ADDITION OF JORC TABLE**

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Pursuant to the announcement made on 16 October 2018 (**FURTHER SIGNIFICANT COPPER RESULTS HAGENHOF COPPER-COBALT PROJECT, NAMIBIA**), Tanga Resources Limited (ASX: TRL) (the **Company**) has updated this announcement with the inclusion of the required JORC table.



## UPDATE - FURTHER SIGNIFICANT COPPER RESULTS HAGENHOF COPPER-COBALT PROJECT, NAMIBIA

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### Highlights

- Surface sampling results from Tanga's recently acquired Hagenhof Copper-Cobalt Project (100%)
- Sampling of the main gossan returned grades of up to 3.54% Cu and 324ppm Co, including three of the eight samples collected returning Cu grades greater than 0.3%
- Numerous historical stream sediment copper anomalies never followed up
- Major north-south regional magnetic structure with no previous exploration outside the main gossan
- These latest results further support the potential of the Hagenhof Copper-Cobalt Project where historical drilling was reported to have intersected significant copper mineralisation

Tanga Resources Ltd (ASX: TRL) ("Tanga" or the "Company") is pleased to announce further encouraging exploration results from the recently acquired Hagenhof Copper-Cobalt Project ("Hagenhof Copper-Cobalt" or the "Project"), in Namibia.

The Hagenhof Copper-Cobalt Project is a highly prospective copper-cobalt project, hosted within a major structural setting, within the Damaran Metallogenic Belt in central northern Namibia.

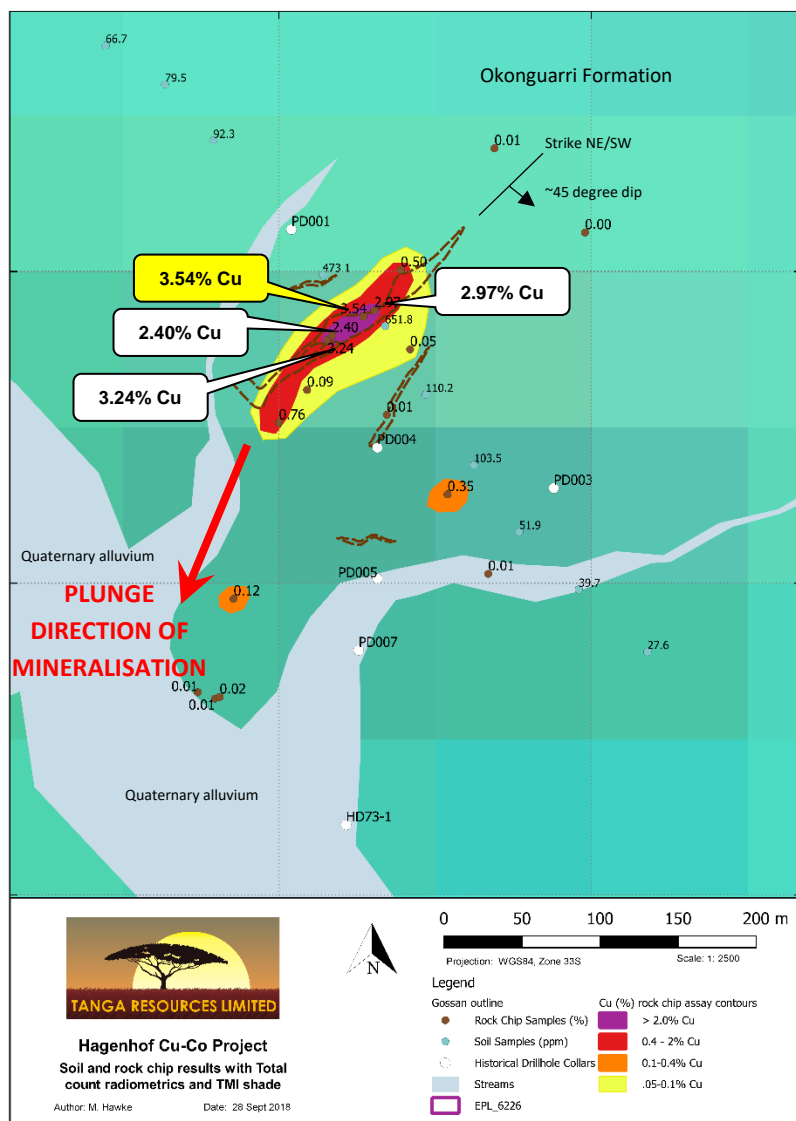
Of the eight latest samples, three samples returned anomalous copper results greater than 0.3%, with a **peak value of 3.54% Cu** (Refer to Table 1). These are **consistent with anomalous cobalt values of up to 324ppm** (see Figures 1 and 2). Soil samples across the Hagenhof Copper-Cobalt Project prospect returned elevated copper results of up to 652ppm Cu in the vicinity of the known outcropping gossan (Fig. 1, 2), indicating soil sampling as an effective means to identify geochemical anomalies across prospective stratigraphy (Table 2).

These latest results further support the potential of Hagenhof Copper-Cobalt Project, identified from historical exploration undertaken by Phelps Dodge Exploration Co. Ltd and TG Exploration in the early 1970's and more recently reported outcropping mineralisation mapped and sampled by Tanga over a 200m strike length, with **visible malachite mineralisation from surface samples returning significant copper, cobalt and gold assays**, which included:

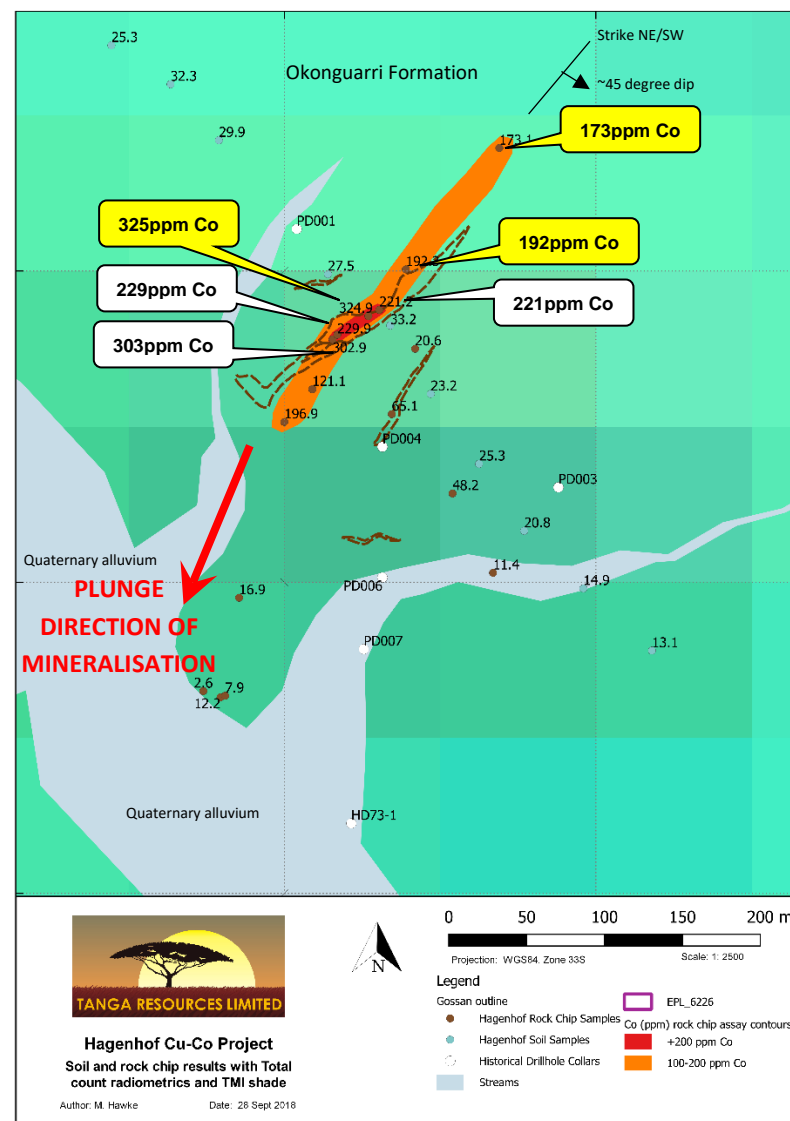
- **3.24% Cu and 303ppm Co (Sample 71496)**
- **2.97% Cu and 221ppm Co (Sample 71498)**
- **2.4% Cu and 230ppm Co (Sample 71497)**
- **1.98% Cu, 244ppm Co and 0.6 g/t Au (Sample 71499)**

Refer to ASX Announcement 15 August 2018 for further details.

Historical exploration work undertaken at Hagenhof Copper-Cobalt Project includes seven diamond drill holes drilled by Phelps Dodge Exploration Co. Ltd in 1972, two diamond drill holes drilled by TG Exploration Ltd in 1973, targeted on south-west plunging sulphide-rich shoots (expressed as siliceous, secondary copper-rich gossans at surface). Several of these holes are reported to have intersected copper-cobalt bearing sulphides over significant widths. Refer to ASX Announcement 15 August 2018 for further details.



**Figure 1.** Copper rock chip and soil results, with assay contours overlain with Total Count Radiometrics and TMI Shade.



**Figure 2.** Cobalt rock chip and soil results, with assay contours overlain with Total Count Radiometrics and TMI Shade.

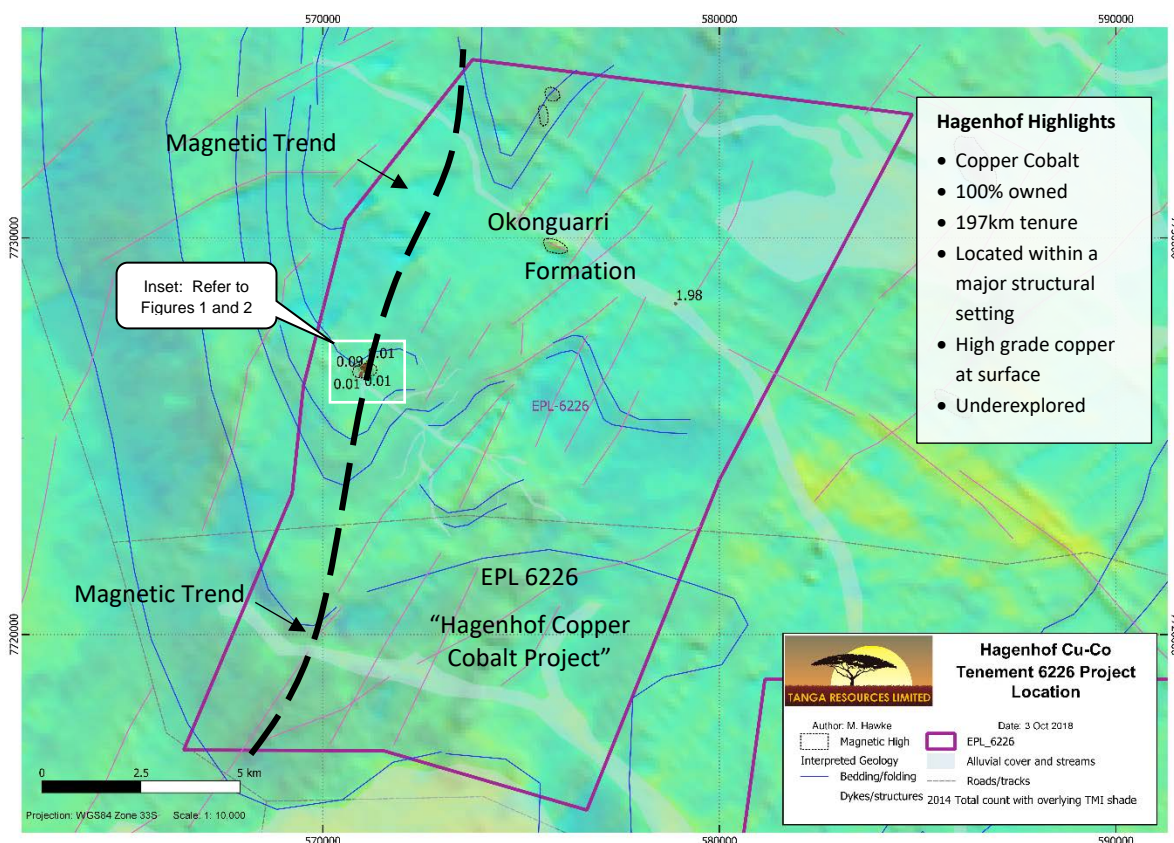


Figure 3: Total Hagenhof Licence (EPL6226) outlining interpreted geological folding and magnetic trend over the 197km². Inset highlights the limited area where the majority of historical and recent exploration undertaken to date.

Sample #	mE	mN	Cu (%)	Co (ppm)	Au (ppb)
130290	571078	7726801	0.50	192	13
<b>130291</b>	<b>571054</b>	<b>7726771</b>	<b>3.54</b>	<b>325</b>	<b>8</b>
130292	571134	7726606	0.01	11	0
130293	571108	7726657	0.35	48	63
130294	571069	7726708	0.01	65	8
130295	571084	7726750	0.05	21	10
130296	571138	7726879	0.01	173	47

Table 1. Significant geochemical results for Hagenhof rock chip program. Analysis by 4 acid digest with ICP-MS finish at Intertek/Genalysis, Perth, Australia. Gold by 25gm Fire Assay.

Sample #	mE	mN	Co (ppm)	Cu (ppm)
1001	571154	7726633	21	52
1002	571192	7726596	15	40
1003	571236	7726556	13	28
1004	571028	7726798	28	473
1006	570958	7726884	30	92
1007	570927	7726920	32	80
1008	570889	7726945	25	67
1998	571068	7726765	33	652
1999	571094	7726721	23	110
2000	571125	7726676	25	104

Table 2. Significant geochemical results for Hagenhof soil sampling program. Samples collected at -80 mesh



## About Hagenhof Copper-Cobalt Project

The Hagenhof Copper-Cobalt Project is a granted exploration permit covering 197.26km<sup>2</sup> in central northern Namibia, approximately 200km northwest of the capital, Windhoek and approximately 80km west of the Joubira Zinc Project.

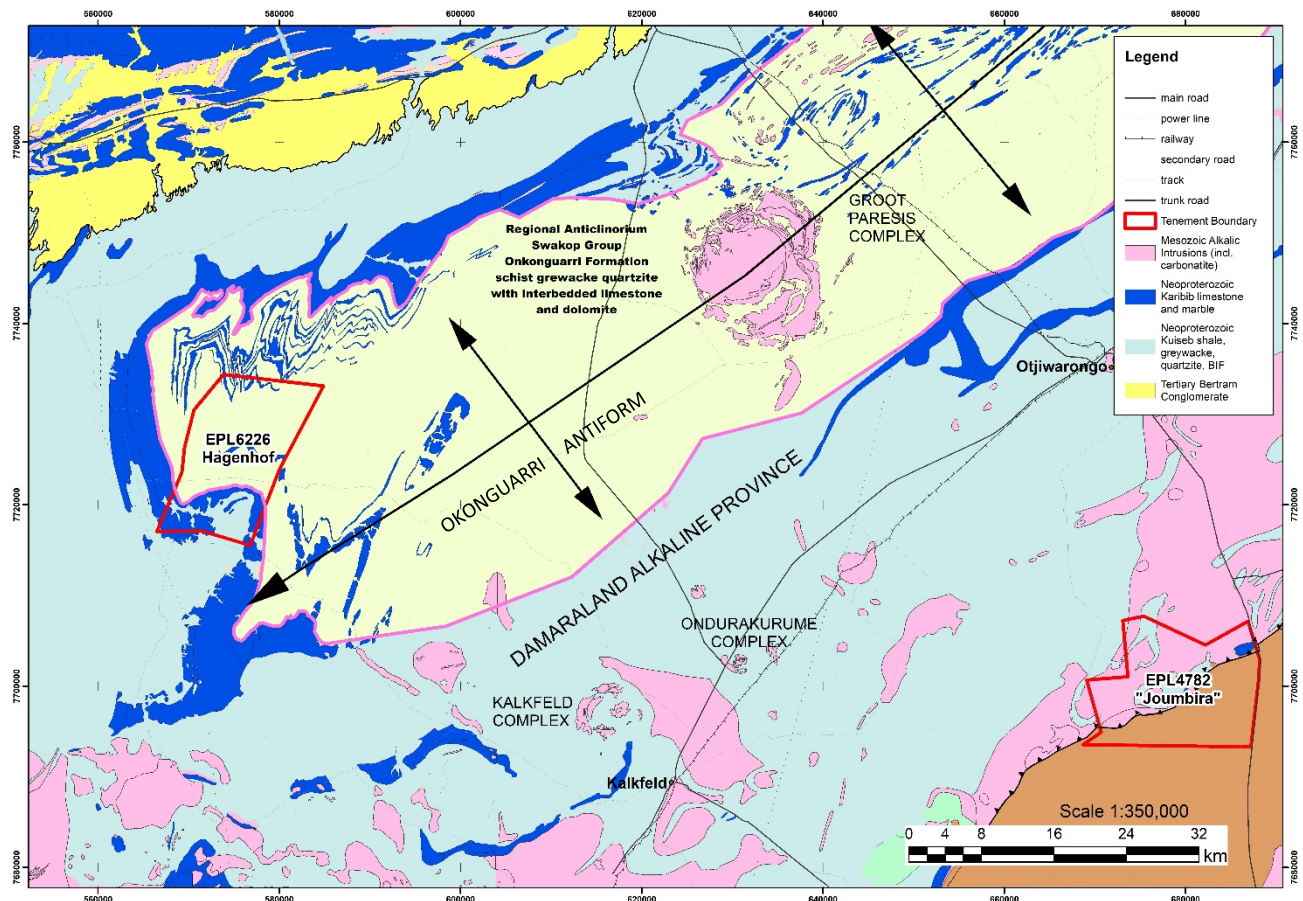


Figure 4. Location of Hagenhof Project (EPL6226), within the Damara Belt and proximity to the Joubira Zinc Project, Namibia.

The copper-cobalt mineralisation at Hagenhof is hosted within calc-silicate rocks, quartz-biotite schists, black shale and folded dolomite, within the Okonguarri Formation of the NeoProterozoic Swakop Group of the Damaran Metallogenic Belt, which runs through central Namibia.

Structural mapping completed at Hagenhof by Phelps Dodge Exploration Co. Ltd and TG Exploration Ltd shows the copper mineralisation to be hosted within the axial planes of steep, overturned east-north-east striking anticlines, cut by later north-north-east trending cross folds.

The host rock is sheared with tight, asymmetric fold patterns which can be seen from the regional satellite imagery over Hagenhof Copper-Cobalt Project (Refer to Figure 3), with the regional aeromagnetic data showing a major north-south trending structure with north-east trending cross faults.

The recent acquisition of the Hagenhof Copper-Cobalt Project expands Tanga's presence in Namibia, adding to the Joubira Zinc Project and provides shareholders with greater exposure to highly sought after metals, including copper and cobalt, for which strong demand is forecast with the rising uptake in electric vehicles.



### **Follow up exploration**

The Company is continuing to assess these latest results, in addition to the radiometric and magnetic data, in conjunction with the historical exploration data over the Hagenhof Copper-Cobalt Project.

Based on outcome of this interpretation the Company will develop a follow up exploration programme for Hagenhof Copper-Cobalt Project that is likely to include RC drilling and down-hole electro-magnetic (EM) geophysics to target high grade copper-cobalt mineralisation and to test the reported grade and tenor of the historical copper mineralisation reported from holes PD006/7. Refer to ASX Announcement 15 August 2018 for further information.

For additional information on Tanga and the Company's project please visit: [www.tangaresources.com.au](http://www.tangaresources.com.au)

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### **Competent Person Statement**

The information in this report that relates to the exploration results, geology and geophysical interpretation was based on material compiled by John Stockley. Mr Stockley is a Member of the Australian Institute of Geoscientists and is a Director of Tanga Resources Limited. Mr Stockley has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which was being undertaken to qualify as Competent Person as defined in the 2012 Edition of the JORC "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (the JORC Code). Mr Stockley consents to the inclusion in this report of the matters based on his information in the form and content in which it appears and confirms that the information in this report is an accurate representation of the available data and studies for the project.

## JORC TABLE

### Section 1 Sampling Techniques and Data

Criteria		Comments
<b>Sampling Techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>A minimum 1kg rock chip sample was collected by the geologist in the field. This is labelled and placed into a labelled bag for transport to the analytical laboratory.</li> <li>Hagenhof Soils methodology: <ol style="list-style-type: none"> <li>Steel tools were used to dig a 40cm pit, plastic trowel used to place 1kg sample into a 180 micron brass and stainless steel sieve.</li> <li>This sample was sieved by hand into a plastic bowl then fine fraction was decanted into a standard 100g KRAFT soil sample bag, into which a standard paper number ticket was placed. Black marker pen was used to label the KRAFT bag.</li> <li>The sample was taken on foot to a central storage facility then trammed by vehicle 300km to the Intertek sample prep facility at Tschudi in Namibia in custody of a company employee during transit.</li> </ol> </li> </ul>
<b>Drilling Techniques</b>	<ul style="list-style-type: none"> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>No drilling conducted</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling conducted</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Rock types logged and recorded in the Tanga Resources database maintained in Perth, W.A.</li> </ul>

<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>• For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>• Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>• Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>• All samples transported to Intertek's Sample Prep Facility at Tschudi, Namibia, for crush &amp; pulverize, then sent to Intertek/Genalysis Laboratory in Perth, Australia for 25gm fire assay for gold and multi-element analysis by 4 acid digest.</li> <li>• Samples were packaged to transfer for assay.</li> </ul>
<b>Quality of assay data and laboratory test</b>	<ul style="list-style-type: none"> <li>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>• Samples were prepared using standard crushing and pulverising (-75#) at Intertek's Sample Preparation Facility at Tschudi Mine, Tsumeb, Namibia. The remaining sample pulp is transported to Intertek/Genalysis Laboratories in Perth Australia and is assayed by method FA25/OE04 (25gm fire assay with OES finish) and 4A/MS48 (48 element four acid digest)</li> <li>• Laboratory and assay procedures are appropriate for mineral exploration.</li> <li>• Standard Intertek protocols re blanks, standards &amp; duplicates applied.</li> <li>• Referee sampling has not yet been carried out.</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>• The verification of significant intersections by either independent or alternative company personnel.</li> <li>• The use of twinned holes.</li> <li>• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>• Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>• Rock chip sampling was completed by a geologist in the field.</li> <li>• Sampling and assay data is collected in excel and then loaded directly into the Datashed database, hosted and maintained by Tanga resources staff in the Perth office.</li> <li>• Below detection limit values (&lt;0.01ppm) were replaced by negative values (ie. -0.005).</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• Rock chip locations were collected by hand held Garmin GPS (<math>\pm 3</math>m horizontal, up to 12m vertical error), including the elevation of the sample.</li> <li>• Grid: WGS84, Zone 33S</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <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> </ul>	<ul style="list-style-type: none"> <li>• Rock chip samples were collected over the known Hagenhof gossan were appropriately spaced in order to identify if the gossan contains anomalous geochemistry.</li> <li>• The line of soil samples were spaced at ~50m NW-SE across in a direction perpendicular to the Hagenhof gossan.</li> <li>• Exploration results only, mineral resource and ore reserve estimation not yet appropriate.</li> <li>• No sample compositing applied.</li> </ul>



	<ul style="list-style-type: none"> <li>Whether sample compositing has been applied.</li> </ul>	
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>Representative samples taken from the outcropping Hagnehof gossan.</li> <li>Soil samples collected NW-SE perpendicular with the strike of the anomalous Hagnehof gossan.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Labelling and submission of samples complies with industry standard.</li> <li>All samples remain in the custody of Damaran Resources (Namibia) Ltd staff until arrival at Intertek's Tshudi sample preparation facility</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>No audits have been carried out at this stage.</li> </ul>

## Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul style="list-style-type: none"> <li>Exclusive Prospecting License (EPL) 6226 is located in the Otjiwarongo District, in the north-central part of Namibia, and is registered to Aloe Investments One Hundred and Ninety Two (Proprietary) Ltd.</li> <li>The license area covers three main farm properties – Hagenhof 91, Elim 92, Gifputs 5, and parts of Okoronjona 6 and Omapaniehoek 7.</li> </ul> <p>No other known overriding royalties, historical sites, wilderness or national park exist.</p>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<p>Work was previously completed by Phelps Dodge and TG Exploration during the period 1971 to 1973.</p> <p>See Tanga ASX release dated 15 August 2018</p>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<p>The Hagenhof copper deposit is a structurally controlled, stratabound sulphide deposit hosted by dolomite, quartzite, and biotite schist of the Okonguarri Formation of the NeoProterozoic Swakop Group.</p>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<p>Refer Tanga ASX dated 15 August 2018</p>

Criteria	JORC Code Explanation	Commentary
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<p>No data aggregation methods have been used.</p> <p>Minimum values as per Intertek assay methods stated above. No top cut.</p> <p>This has not been applied</p>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	No drilling conducted
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	Applied
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	Balanced reporting has been applied.
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	No other substantive exploration data.
<b>Further work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <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>	No reporting-commercially sensitive at this stage.