MAIDEN MINERAL RESOURCE ESTIMATE FOR THE JUBILEE COPPER-GOLD DEPOSIT

- The **Mineral Resource Estimate for the Jubilee copper-gold deposit** comprises **1.4 million tonnes at 1.4% Cu and 0.62g/t Au** in the Inferred category at a 0.5% Cu cut-off grade.
- The deposit contains an estimated **20,000 tonnes of copper and 28,000 ounces of gold**.
- The deposit extends from surface and is open at depth with excellent potential to extend the resource at depth and along strike.
- Results of the first metallurgical program were very encouraging with a **peak copper recovery of 98% and gold recovery of 80% to a copper concentrate.** (Refer to ASX release of November 13th, 2018.)
- Jubilee is part of the Mt Frosty Joint Venture between Hammer Metals Limited (51% and operator) and Mount Isa Mines Limited (49%) and is located less than 1km from the Barkly highway, midway between Mount Isa and Cloncurry.
  The resource model will now be used as a basis for open pit mining and further metallurgical studies.

Table 1 - Mineral Resources by Category and Weathering Zone

Category	Domain	Tonnes (Mt)	Cu %	Cu (t)	Au g/t CUT	Au (ounces) CUT
Inferred	Mod-Slightly Weathered	0.07	1.51	1,000	0.55	1,200
Inferred	Fresh	1.34	1.41	19,000	0.63	27,100
Inferred	**Total:**	**1.41**	**1.41**	**20,000**	**0.62**	**28,300**

(Totals may not sum exactly due minor rounding errors)

Hammer's Executive Chairman, Russell Davis said: "The completion of the maiden mineral resource estimate for Jubilee brings Hammer another step closer to the commercialisation of the deposit. Much of the mineralisation is primary sulphides, close to surface, and potentially open pittable. The strongly elevated gold content potentially adds significant value to the project.

Within five kilometres of the Jubilee deposit, Hammer holds the Elaine-Dorothy copper-gold deposit and the Lakeview, Black Rock, and Sunset copper-gold prospects, all of which have excellent potential to define additional copper and gold resources.

Hammer has now built up the dominant tenement position in the Mary Kathleen district, a highly mineralised and prospective terrain for copper and gold around the Mary Kathleen uranium and rare earth deposit."

20 December 2018

ASX Code: HMX

CAPITAL STRUCTURE:

Share Price (18/12/2018)	**$0.021**
Shares on Issue	**278m**
Market Cap	**$5.8m**
Options Listed	**165m**
Options Unlisted	**21m**

Significant Shareholders	
Deutsche Rohstoff	**12.6%**
Resource Capital Fund VI	**9.0%**
Management	**8.8%**

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Non-Executive Director

Mark Pitts
Company Secretary

Mark Whittle
Chief Operating Officer

JUBILEE MINERAL RESOURCE ESTIMATE

A summary of the background and information used in the Mineral Resource estimation is as follows:

H&S Consultants Pty Ltd ("H&SC") was commissioned by Hammer Metals ("Hammer") to generate Mineral Resources for the Jubilee Copper Deposit.

The Mineral Resource estimate is reported here in compliance with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves Committee (JORC). Therefore, it is suitable for public reporting.

The geological and mineralization continuity has been assumed with sufficient confidence to allow the majority of the mineralization to be classified as an Inferred Mineral Resource.

The deposit is similar in size and style to other copper-gold deposits in the region that have been successfully mined by small-scale open pit mining techniques which implies that the mineralization may be economically extracted.

Hammer has conducted high level economic studies on similar deposits within the Mount Isa region and found positive results. Preliminary metallurgical studies were undertaken by Hammer in 2018 on sulphide drill samples from a total of three diamond drill holes. The studies concluded that saleable copper-gold concentrates should be able to be recovered.

Ownership

The Jubilee deposit lies primarily within exploration tenement EPM14467, which is owned and operated by Hammer (51%), in joint venture with Mount Isa Mines Ltd (49%). The southern extremity of the resource extends into EPM14022 (Hammer 100%).

The tenements are in good standing and no known impediments exist.

Geology

The Jubilee Project occurs within the Mary Kathleen Fold Belt of the Eastern Succession of the Mid Proterozoic Mount Isa Inlier. The deposit occupies Corella Formation less than 100m from the western contact with Argylla Formation intruded by Wonga Granite. The mineralisation occupies the eastern contact of a quartzite marker unit that separates calc-silicate on the east from banded psammite to mica schist on the west. The deposit occupies a narrow zone of silicification and quartz veining that strikes 165 degrees and dips at 60 to 70 degrees to the west.

Drilling Techniques

A total of 45 holes for 5,736m and 4,392 copper, gold and cobalt assays have been used in the Jubilee resource estimate comprising predominantly RC drilling (5,475m) with three diamond holes (261m). The sampling length varies between approximately 1 (~90%) and 2 (~10%) metres, due to various phases of drilling by different companies. Drill spacing is regular, nominally at 50m centres, comprising 11 section lines. A total of 1,126 one metre composites were extracted from the drill hole database using a grade envelope based on a nominal 0.05% Cu.

Drill holes used in the resource estimate included 42 reverse circulation holes for a total of 5,475m and 3 diamond holes for a total of 261m. Nineteen (19) RC holes were drilled by China Yunnan Copper (CYU), and the remainder were drilled by Hammer Metals Limited (HMX).

Drill holes dip at an average -60° towards the -east to optimally intersect the mineralised zones.

Sampling and Sub-Sampling Techniques

Face-sampling reverse circulation drilling (42 holes) was the primary technique used at Jubilee. 3 NQ standard-tube diamond holes were also drilled.

CYU's 19 RC drillholes were sampled at one metre intervals. A bulk sample was collected at the cyclone and passed through a 12.5% riffle splitter.

Hammer drillholes were sampled at one metre intervals, in the vicinity of mineralization, using an on-rig cone splitter. Intervals distal from the primary mineralisation were sampled as riffle-split 4m composites of 1m samples.

Sample Analysis Methods

Samples were submitted to ALS Mount Isa laboratory for 70% passing 2mm crush followed by 85% passing 75um pulverizing of a 1kg split. A 12-element suite was determined by 4 acid digest - ICPMS method ME-ICP61. Gold was analysed at Townsville laboratory by 50g fusion fire assay – AAS method Au-AA26.

Cut-off Grades

The mineralisation domains were constrained by wireframes constructed using Cu cut-off grade guided by geological and geochemical interpretation. Two domains were constructed, one at a nominal 0.1% Cu and the other at 0.05% in order to run comparative models

The influence of extreme grade values was addressed by applying top-cuts to the data. These cut values were determined through statistical analysis (histograms, log probability plots, CVs, and summary multi-variate and bi-variate statistics).

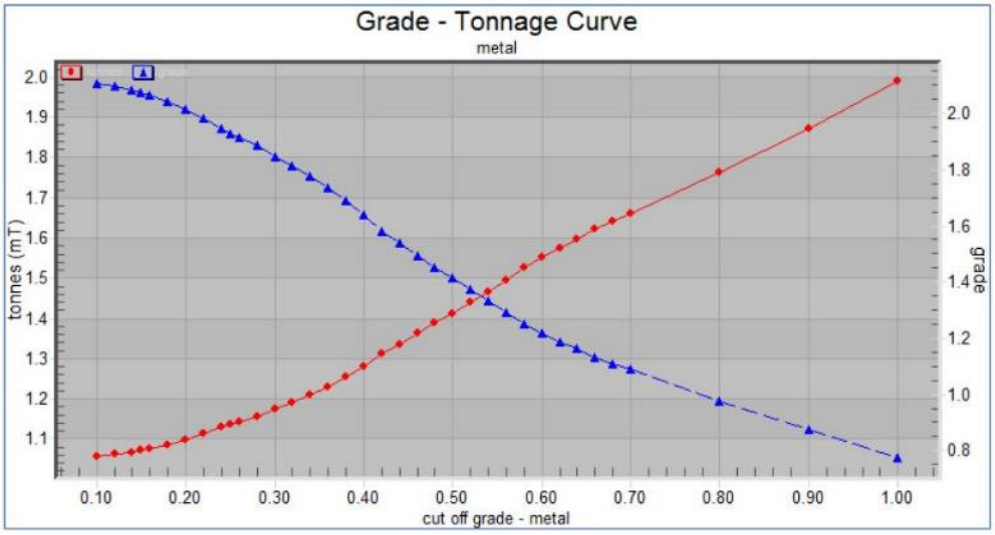
Mineral Resource Estimation Methods

Hammer provided to H&SC interpretative mineralisation string files that outlined their geological model interpretation of the mineralised structure, based on a range of geological and geochemical criteria. This interpretation equates to a fairly strict 0.1% Cu mineralisation, which defines a single zone of higher-grade Cu mineralisation with no or very little intervals with grades below that level. Hammer instructed H&SC to use this interpretation to make a grade block model with a parent block size of 1m by 12.5m by 5m (X, Y & Z) that is an appropriate sizing for a high-grade narrow lode, amenable to a highly selective and controlled mining operation in both underground and open pit scenarios.

Ordinary Kriging ("OK") was used to interpolate block grades for copper, gold and cobalt with a parent block size as described above. The block model was oriented parallel to strike of the mineralisation. The block was then sub-blocked on a 2-2-2 basis using the appropriate mineralisation wireframe. The mineralised zone was modelled as an ellipsoidal shape oriented parallel to the strike and dip of the mineralisation. A three-pass search strategy was used with the initial search ellipse of 75m by 75m by 5m (X, Y & Z) increasing to 125m by 125m by 5m.

Reporting of the resource estimates was for blocks inside Hammer's interpreted mineralisation wireframe, with a partial percent volume adjustment for both topography and the fault intersection. Gold is reported as the modelled top-cut Au results. Default density values were assigned to mineral blocks based on sample averages from within the north and south 'fresh' mineralised zones. There were no density measurements within the weathered zone, so density values within the highly weathered and slightly weathered zone where based on a percentage of the 'fresh' zone average density, assigned at 85% and 90% respectively.

All resources are classified as Inferred based on the lack of grade continuity (i.e. wide drill hole spacing), limited QAQC data, limited density data, and limited RC recovery information. The Inferred Resources were based on the pass 1 and 2 search passes.



Jubilee Grade – Tonnage curve

Competent Person Statements

The data in this report that relates to Exploration Data for the Jubilee Project is based on information evaluated by Mr John Downing who is a Member the of The Australasian Institute of Geoscientists (MAIG) and a consultant to the Company. Mr. Downing who is a shareholder and option-holder, has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

Mr. Downing consents to the inclusion of the exploration data in the report of the Mineral Resource in the form and context in which they appear.

The data in this report that relates to Mineral Resources for the Jubilee Deposit is based on information evaluated by Mr Luke Burlet who is a Member of The Australasian Institute of Geoscientists (MAIG) and who has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (JORC Code). Mr Burlet is a Director of H&S Consultants Pty Ltd and he consents to the inclusion of the estimates in the report of the Mineral Resource in the form and context in which they appear.

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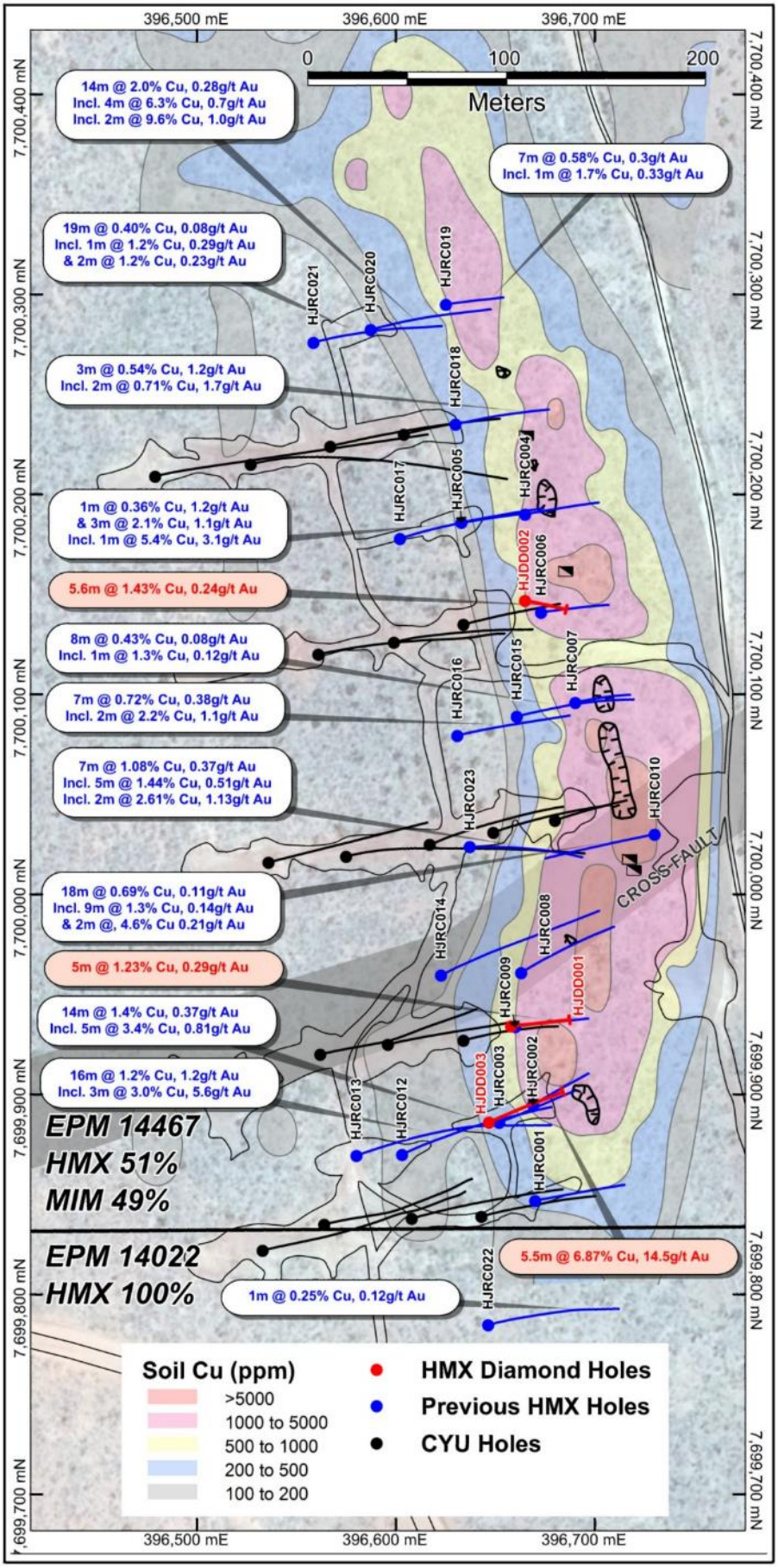
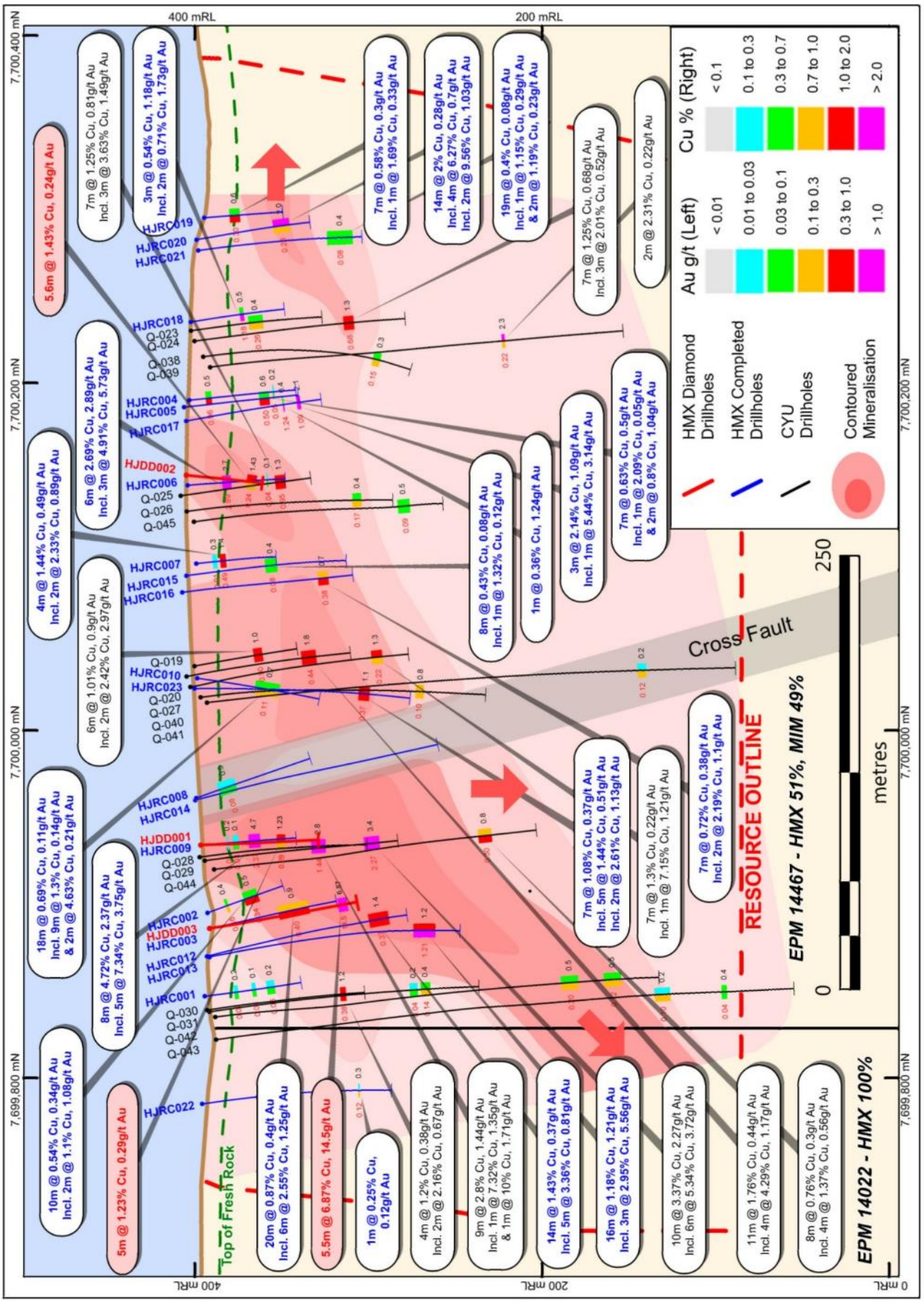
About Hammer Metals

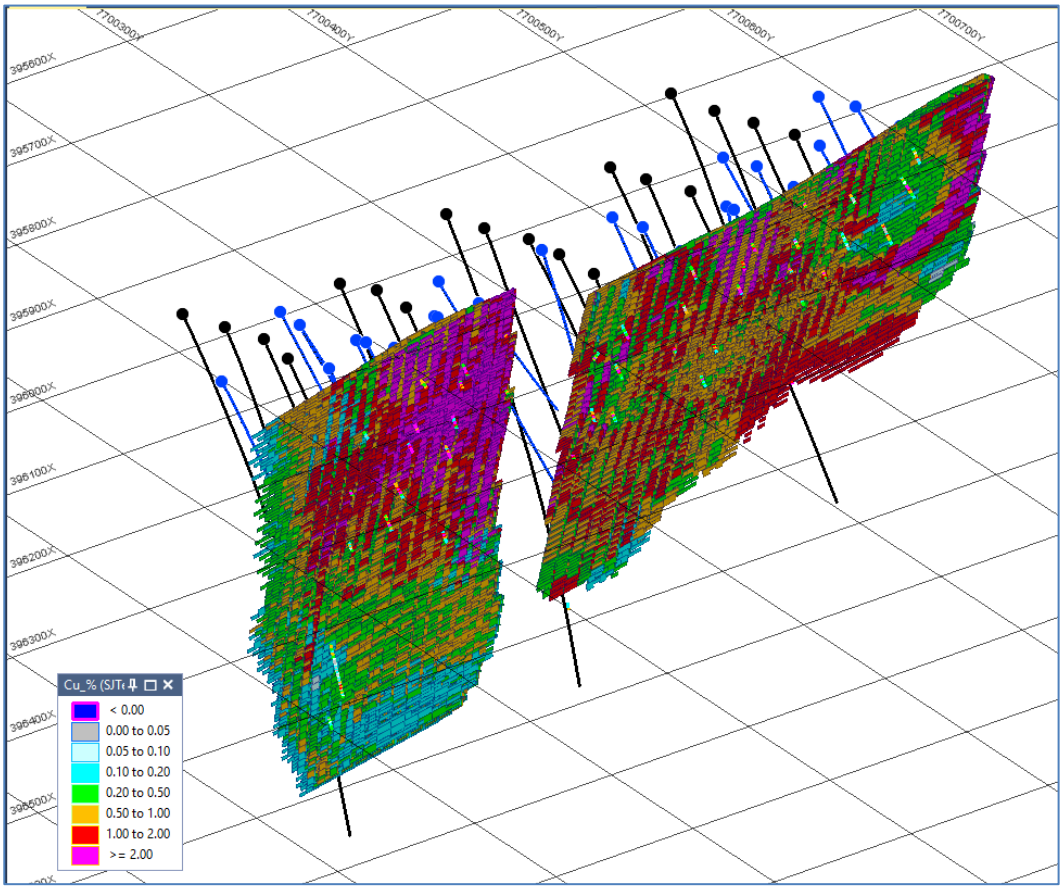
Hammer Metals Limited (ASX: HMX) holds a strategic tenement position covering approximately 3000km^2 within the Mount Isa mining district, with 100% interests in the Kalman (Cu-Au-Mo-Re) deposit, the Overlander North and Overlander South (Cu-Co) deposits and the Elaine-Dorothy (Cu-Au) deposit. Hammer also has a 75% interest in the Millennium (Cu-Co-Au) deposit and a 51% interest in the emerging Jubilee (Cu-Au) project. Hammer is an active mineral explorer, focused on discovering large copper-gold deposits of the Ernest Henry style and has a range of prospective targets at various stages of testing.



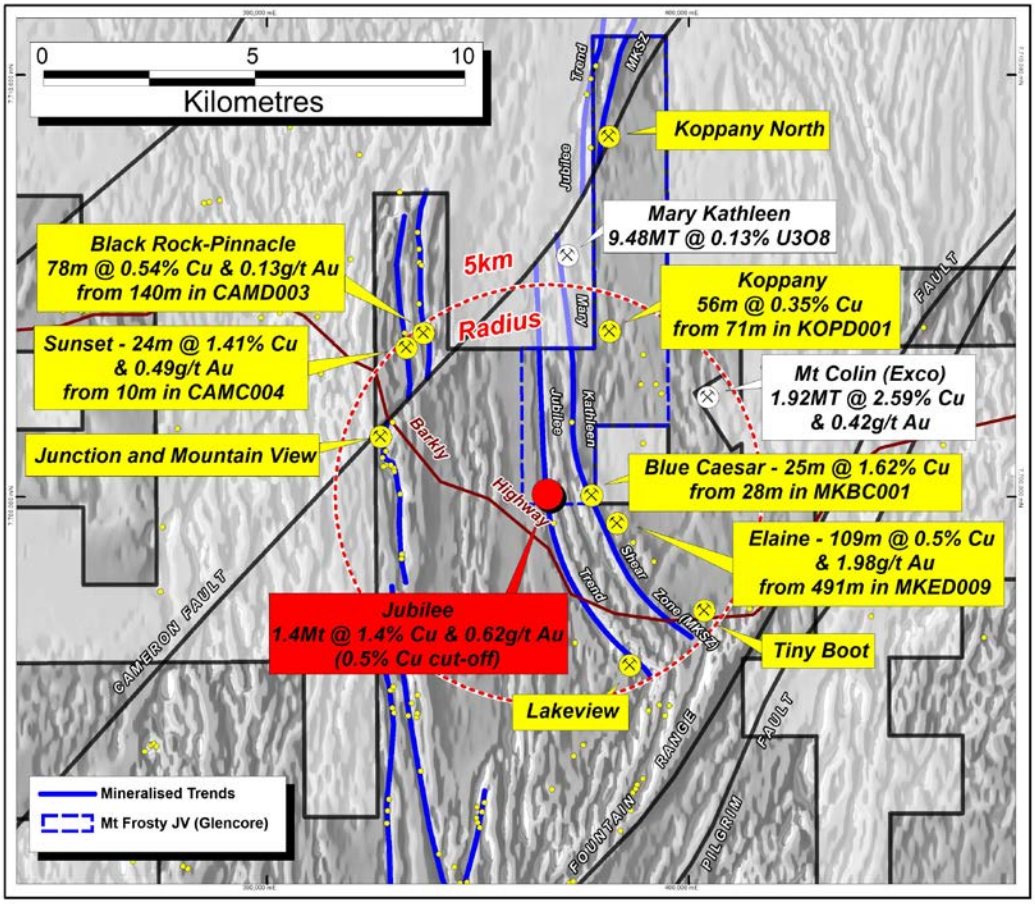
Jubilee Drill Hole Location Plan



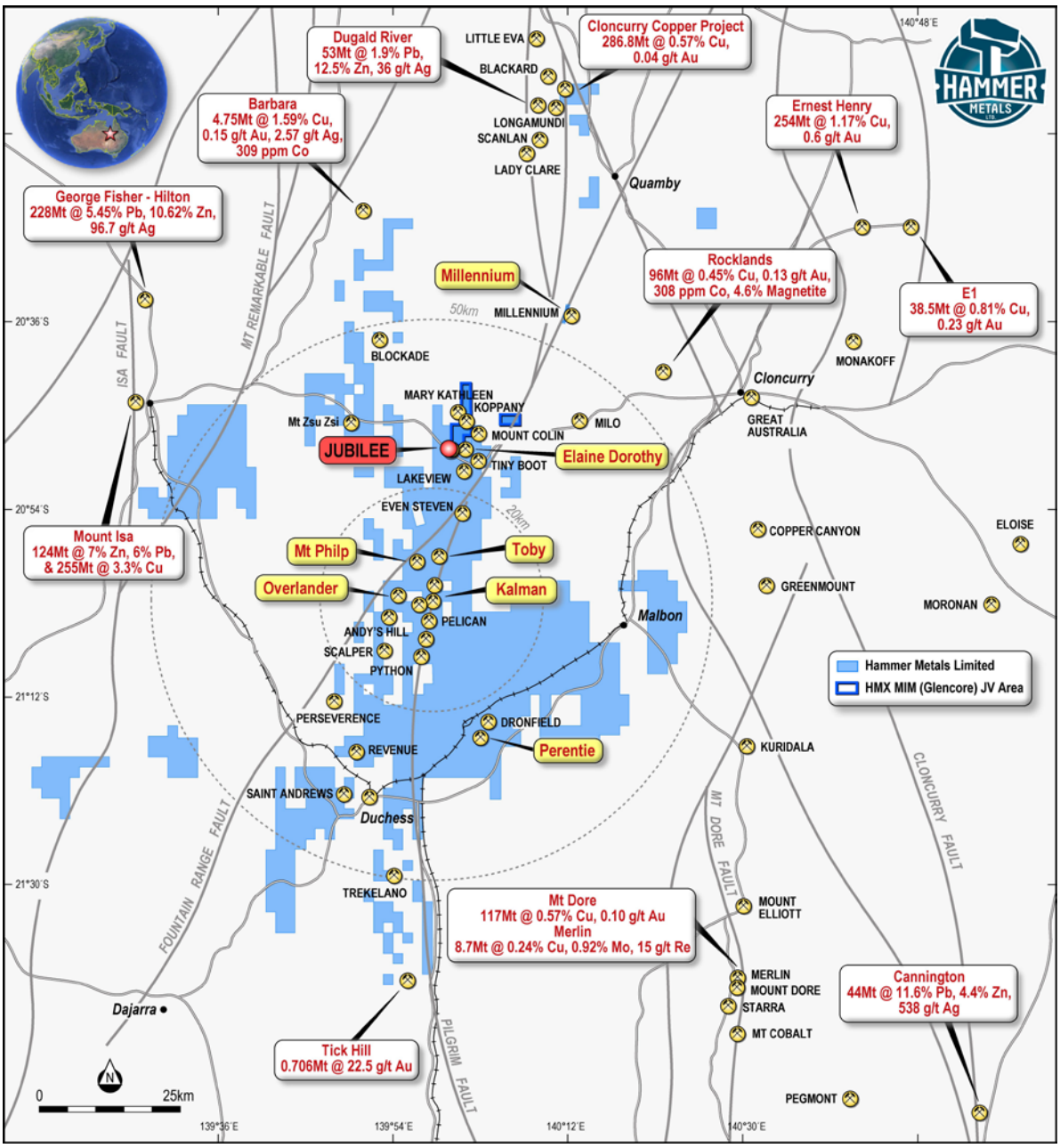
Jubilee Long section (facing west) The extent of the resource estimate is also shown



Jubilee Copper Block Grade Distribution looking northwest



Jubilee Location



Hammer Metals Mount Isa Project Tenements

JORC Code, 2012 Edition

Table 1 report – Jubilee Deposit Resource Update

Mr John Downing supplied the information in Section 1 and Section 2 of JORC Table 1 in this Mineral Resource report and is the Competent Person for those sections. H&SC has included these sections in their entirety to ensure that all relevant sections of Table 1 are included in this report.

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • 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 (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	• The mineralised lodes at the Jubilee deposit were sampled using surface both reverse circulation ("RC") and diamond drilling methods. Drilling was conducted primarily on nominal 50m spacing along strike. Similar (25m to 75m) spacing was achieved down-dip. Holes were drilled on the MGA94 National Grid system. • Drill holes used in the resource estimate included 42 reverse circulation holes for a total of 5475m and 3 diamond holes for a total of 261m. 19 RC holes were drilled by AuKing Mining Limited, formerly known as China Yunnan Copper (CYU), and the remainder were drilled by Hammer Metals Limited (HMX). • Drill holes dip at an average -60° towards the -east to optimally intersect the mineralised zones. • 17 RC holes and 3 diamond holes were down-hole surveyed by a multi-shot tool on a nominal 30m spacing. 25 holes were surveyed by gyro, predominantly at 5m intervals. • Surveys were imported into a central database. Results were plotted and visually scanned for consistency. Survey records containing very high magnetic intensity or anomalous azimuth deviations were removed from the dataset. • CYU's 19 RC drillholes were sampled at 1m intervals. A bulk sample was collected at the cyclone and passed through a 12.5% riffle splitter. Samples were submitted to ALS Mount Isa laboratory for 70% passing 2mm crush followed by 85% passing 75um pulverizing of a 1kg split. A 35-element suite was determined by Aqua Regia ICP-AES method MEICP-41. Gold was analysed at Townsville laboratory by 30g fusion fire assay – AAS method Au-AA25. • Hammer drillholes were sampled at 1m intervals, in the vicinity of mineralization, using an on-rig cone splitter. Intervals distal from the primary mineralisation were sampled as riffle-split 4m composites of 1m samples. Samples were submitted to ALS Mount Isa laboratory for 70% passing 2mm crush followed by 85% passing 75um pulverizing of a 1kg split. A 12-element suite was determined by 4 acid digest - ICPMS method ME-ICP61. Gold was analysed at Townsville laboratory by 50g fusion fire assay – AAS method Au-AA26.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Face-sampling reverse circulation drilling (42 holes) was the primary technique used at Jubilee. 3 NQ standard-tube diamond holes were also drilled. Hole depths ranged from 54m to 354m. 156 core orientations were taken from the 3 diamond holes using a reflex tool. Each orientation was reconciled with its neighbours before being accepted.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • 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.	• Instances of wet, damp or small RC drill samples were recorded by Hammer. Independent analysis of received sample weights noted 848 'good', 146 'moderate' and 9 'questionable' sample weights. • Size differences between primary and duplicate samples were monitored at the rig and remedial action taken immediately. • Any size bias in the collected sample was noted at the rig and corrected immediately. • Sample size vs grade was analysed and no correlation was seen. • Primary and QAQC assays were examined for signs of smearing. None was detected.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All recent drill chips were geologically logged in detail by Company geologists recording lithology, alteration and mineralisation, weathering, colour and structure, and any other features of the sample to a level of detail to support appropriate studies. Logging was primarily qualitative in nature. • 5615m or 98% of drill holes within the modelled area were logged.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• CYU's 19 RC drillholes were sampled at 1m intervals. A bulk sample was collected at the cyclone and passed through a 12.5% riffle splitter. • Hammer RC drillholes were sampled at 1m intervals, in the vicinity of mineralization, using an on-rig cone splitter. Intervals distal from the primary mineralisation were sampled as riffle-split 4m composites of 1m samples. Sampling of RC chips used industry standard techniques. Hammer's diamond core was cut and half-sampled on nominal 1m intervals (determined by geology). • Hammer used systematic standard insertion and field duplicate sampling. A sequence of every 22nd Hammer sample was submitted as a certified standard (OREAS S3) or blank (OREAS 27b). Approximately every 78th sample was inserted as a field duplicate. Half of the duplicates sampled from mineralised zones. Every 20th CYU sample was submitted as a certified standard (GBMS 304). • Sample sizes (2-5kg for chips) are considered appropriate to correctly represent the mineralisation based on: the style of mineralisation, the thickness and consistency of the intersections, the sampling

Criteria	JORC Code explanation	Commentary
		methodology and assay value ranges for the various elements of interest.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • 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. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• The assay methods used for all drill samples were fusion fire assay / AAS for gold and Aqua Regia /ICP-AES for base metals for 19 CYU Ltd holes; and fusion fire assay / AAS for gold and four acid digestion (HF) / ICP-MS for base metals for 26 Hammer holes. • No geophysical tools were used to determine any element concentrations used in this resource estimate. • The various programs of QAQC carried out by CYU and Hammer have produced results that support the sampling and assaying procedures used. Three matrix matched standards representing grades from 0, 0.2 and 0.5% Cu, and 0 and 0.5ppm Au were inserted regularly during the drilling program. QAQC analysis indicates that the Cu and Au assay performance is within acceptable limits and shows no systematic bias.
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. • Discuss any adjustment to assay data.	• H&SC has not independently verified any intervals. • Two senior company personnel independently verified significant intersections. • No twinning of holes was undertaken during the drilling programs. • Geological logging was directly into Excel spreadsheets on a Panasonic Toughbook computer, which were subsequently imported to a Sql Server relational database. The assay data was verified against portable XRF results and sample logs. • Assay values below detection were stored in the database as minus the detection limit. Intervals with no samples were recorded in the sample table and excluded from the assay table in the database.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• 39 of the 45 drill holes had their collar positions surveyed by a certified surveyor using a cm-accuracy DGPS instrument. The remaining 6 collars were surveyed by hand-held GPS. Down hole surveys were conducted using gyro or digital down-hole camera. • LiDAR survey data was used to create a topographic surface; this was confirmed by independent GPS drill hole collar locations.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • 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. • Whether sample compositing has been applied.	• The drill hole spacing throughout the project is approximately 50m along strike. Down-dip intercept spacing is approximately 25m in the top 140m of the resource, extending below that depth to over 100m in places. • The Jubilee deposit shows consistent continuity of mineralisation within well-defined geological constraints which have been confirmed by the recent drilling by Hammer. • The drill spacing is sufficient to allow the grade intersections to be modelled into coherent wireframes for each domain.

Criteria	JORC Code explanation	Commentary
		• For Mineral Resource estimation, samples have been composited to 1m lengths using 'best fit' techniques. • The mineralised domains have demonstrated sufficient continuity in both geology, and geochemistry to support the definition of Inferred Mineral Resources classification applied under the 2012 JORC Code.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • 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.	• Drill hole azimuths average 82 degrees UTM, which is close to perpendicular to the strike of mineralisation. Drill dip averages -60 degrees east, against a dip of mineralisation of -60 to -70 degrees west. Some drill holes targeting deeper mineralisation intersections are drilled at steeper angles. • The orientation of the drilling is typically at a high angle to the strike and dip of the mineralisation. • Structural measurements taken from oriented diamond core indicate that the drilling attacks the mineralisation at close to perpendicular and carries no significant sampling bias.
Sample security	• The measures taken to ensure sample security.	• Drill samples were collected in pre-numbered calico bags and transported by Company personnel to the ALS Laboratory in Mount Isa. ALS transports prepared samples to its laboratories in Townsville or Brisbane when required.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Internal reviews have been undertaken.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Jubilee deposit lies primarily within exploration tenement EPM14467, which is owned and operated by Hammer (51%), in joint venture with Mount Isa Mines Ltd (49%). • The southern extremity of the resource extends into EPM14022 (Hammer 100%) • The tenements are in good standing and no known impediments exist.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Previous exploration over the tenement area has been conducted by a number of parties since 1955, including Rio Tinto, Mary Kathleen Uranium, Uranerz, Mount Isa Mines Limited (MIM), Delta Gold and CYU. • Current tenement EPM14467 was granted to MIM in 2006.

Criteria	JORC Code explanation	Commentary
		• Assessment of the deposit commenced after CYU entered into a JV agreement with MIM in 2012. • CYU drilled 19 RC holes, which have been assessed and deemed suitable for inclusion in the drilling dataset for the current resource estimation.
Geology	• Deposit type, geological setting and style of mineralisation.	• The Jubilee Project occurs within the Mary Kathleen Fold Belt of the Eastern Succession of the Mid Proterozoic Mount Isa Inlier. The deposit occupies Corella formation less than 100m from the western contact with Argylla Formation intruded by Wonga Granite. The mineralisation occupies the eastern contact of a quartzite marker unit that separates calc-silicate on the east from banded psammite to mica schist on the west. The deposit occupies a narrow zone of silicification and quartz veining that strikes 165 degrees and dips at 60 to 70 degrees to the west.

Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
	o easting and northing of the drill hole collar
	o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
	o dip and azimuth of the hole
	o down hole length and interception depth
	o hole length.
	• 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.
		• A complete table of all relevant drill holes is attached to this report as Appendix 2.
		• For further information on previous Hammer Metals Limited drilling the reader is referred to ASX releases by dated:
		  • December 20th, 2017
		  • January 25th, 2018
		  • March 15th, 2018
		  • August 27th, 2018

Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Exploration results are not being reported.

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• Exploration Results are not discussed in this report. • Drill hole azimuths average 82 degrees UTM, which is close to perpendicular to the strike of mineralisation. Drill dip averages -60 degrees east, against a dip of mineralisation of -60 to -70 degrees west. Some drill holes targeting deeper mineralisation intersections are drilled at steeper angles. • The orientation of the drilling is typically at a high angle to the strike and dip of the mineralisation.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Appropriate figures are contained in the body of this report.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Exploration Results are not discussed in this report.
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.	• Exploration Results are not discussed in this report. • A detailed field mapping exercise was undertaken in 2018 by Ian Cook, which has aided in the understanding of the geological terrain. • 19 diamond half core samples were combined into 1 composite sample for metallurgical studies. This was subjected to SMC test, multi-element head analysis, bench rougher flotation tests, comminution tests, gravity tests and mineralogical analysis. The composite head grade was 2.77g/t Au and 2.85% Cu. Chalcopyrite and pyrite were the dominant sulphides. Flotation recovered 99.3% of the Cu and 87.2% of the Au. Gravity recovered 15.0 to 18.9 % of the -80um Au. • For further information on the preliminary metallurgical study the reader is referred to an ASX release dated November 13th, 2018.
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). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Extensional and infill drilling is planned but not finalised at the time of this report.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• Drill logging data and assay results are generated digitally, compiled and validated prior to import to a central database. Assay results are not compiled for import until final QAQC data and certification has been received from the analytical laboratory. A suite of validation routines is carried out across the database on a regular basis. • H&SC understands that Hammer have undertaken detailed and systematic cross checking of historical data to ensure maximum integrity in the data used for Mineral Resource estimation. • H&SC also performed general data audits and checks on the supplied data. Minor corrections were made. • H&SC did not receive, and thus not able to check, the original assay reports for the CYU drilling. • The Jubilee database is considered adequate for resource estimation at the Inferred level.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• A site visit has not been conducted by H&SC as the project is at an early stage.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The interpretations are guided by the broader regional geological setting and local field observations. The geology of the Jubilee deposit has been mapped on-surface and down-hole, to produce a 3D interpretation of the main geological components. Drill hole logging by geologists, through direct observation of samples have been used to interpret the detailed geological setting. The mineralised lodes are clearly defined and continuous; closely constrained by a combination of unique geological attributes, lithochemical indices and multi-element grades. • Drilling and resource modelling suggest the current interpretation is robust. • The detailed spatial distribution of high-grade material within the main lodes is open to alternate interpretations. Further drilling may have some impact on the understanding of grade-continuity within the mineralised lodes. • Lithology contributed to the interpretation and generation of wireframes for the Mineral Resource. • Wireframes were based on copper (and gold) assays, with refinement from multi-element indices and lithology. • The confidence in the geological interpretation is considered to be good. The deposit is similar in style

Criteria	JORC Code explanation	Commentary
		to many polymetallic deposits in Mount Isa Inlier. • The geological logging and the results of the geostatistical analyses have been useful in predicting the continuity of the mineralisation for the Mineral Resource estimation.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The interpreted Jubilee Mineral Resource mineralisation is interpreted to extend over a strike length of 650m and from surface to approximately 325m below surface.

Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.
	• The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.
	• The assumptions made regarding recovery of by-products.
	• Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).
	• In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
	• Any assumptions behind modelling of selective mining units.
	• Any assumptions about correlation between variables.
	• Description of how the geological interpretation was used to control the resource estimates.
	• Discussion of basis for using or not using grade cutting or capping.
	• The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.
		• Ordinary Kriging (“OK”) interpolation with anisotropically oriented ‘ellipsoid’ search was used for the estimate. GS3M software was used for the estimations. Three dimensional mineralised wireframes were used to domain the mineralised data. Samples were composited to nominal 1m intervals for data analysis and resource estimation. This process was carried out while honouring the mineralised domain boundaries with the minimum composite length set to half a metre. The influence of extreme grade values was addressed by applying top-cuts to the data. These cut values were determined through statistical analysis (histograms, log probability plots, CVs, and summary multi-variate and bi-variate statistics).
		• Minor artisanal mining has occurred in the area.
		• H&SC has assumed that the deposit will be mined, and the ore processed for Cu and Au.
		• No assumptions have been made regarding recovery of by-products.
		• No non-grade elements have been estimated.
		• Selective mining units were not modelled.
		• No assumptions were made regarding correlation of variables. Each variable was estimated independently.
		• The mineralisation domains were constrained by wireframes constructed using Cu cut-off grade guided by geological and geochemical interpretation. Two domains were constructed, one at a nominal 0.1% Cu and the other at 0.05% in order to run comparative models
		• H&SC constructed 2 block models for comparative proposes:
		  • Model A: parent block dimensions of 1m E by 15m N by 10m RL with sub-cells of 0.5m E by 7.5m N by 5m RL. This model used a mineralisation domain nominally defined at 0.05% Cu. By definition this encompasses more volume and as such catches ancillary zones of grade as well as the ‘main lode’. It reflects the concept of a higher tonnage/lower grade style of grade model
		  • Model B: parent block dimensions of 1m E by 12.5m N by 5m RL with sub-cells of 0.5m E by 6.25m N by 2.5m RL. This model used a mineralisation domain nominally defined at

Criteria	JORC Code explanation	Commentary
		0.10% Cu. By definition this encompasses less volume. It was interpreted by Hammer to reflect their interpretation of a high-grade main lode. As such it excludes ancillary zones of grade as it focused on the main lode'. It reflects the concept of a high-grade narrow lode, amenable to a highly selective and controlled mining operation in both underground and open pit scenarios. • The parent block size was selected through considering the dimensions of the domains and drill hole spacing. Hammer indicates that Model B is their preferred model based on the mining method they believe can be achieved, • Top-cuts were required for gold, as there were extreme grades which would result in overestimation using ordinary kriging if not addressed. CV and grade continuity were used as guides in selecting cut-off values. • To validate the model, a qualitative assessment was completed by slicing sections through the block model in positions coincident with drilling. A quantitative assessment of the estimate was completed by comparing the average grades of the 1m composite samples against the block model output for all the resource objects. A trend analysis was completed by comparing the interpolated blocks to the composite sample data within all the lodes. Validation plots showed adequate correlation between the composite sample grades and the block model grades. • The previous owner to Hammer, Chinalco Yunnan Copper, did perform an internal resource estimate, albeit not to JORC reporting standards. Although the overall tonnes and grades are roughly comparable, H&SC was only provided with an internal CYU memo which provided only summary information and no full block model. Also, CYU used a different modelling technique and their original eleven RC drillholes. Thus, no direct comparison is possible.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages and grades were estimated on a dry in situ basis. No moisture values were reviewed.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• A cut-off of 0.5% Cu was applied for reporting Mineral Resources.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the	• The deposit is similar in size and style to other deposits in the region that have been successfully mined by small-scale open pit techniques. • No dilution has been applied.

Criteria	JORC Code explanation	Commentary
	assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Preliminary hydrometallurgical studies were undertaken by Hammer on sulphide drill samples from a total of 3 diamond drillholes. They concluded that saleable copper and gold concentrates could be recovered. • 19 diamond half core samples were combined into 1 composite sample for metallurgical studies. This was subjected to SMC test, multi-element head analysis, bench rougher flotation tests, comminution tests, gravity tests and mineralogical analysis. The composite head grade was 2.77g/t Au and 2.85% Cu. Chalcopyrite and pyrite were the dominant sulphides. Flotation recovered 99.3% of the Cu and 87.2% of the Au. Gravity recovered 15.0 to 18.9 % of the -80um Au.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• No assumptions have been made by H&SC regarding possible waste and process residue disposal options.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc), moisture and differences between rock and alteration zones	• The fresh dry bulk density value was derived from 102 bulk density measurements obtained by wet/dry method (Archimedes method) from 3 diamond drillholes spaced through the deposit. • Core samples were air-dried before measurement. • Porosity was consistently very low due to silicification of the mineralised lodes. • Based on wireframed downhole weathering records, proxy density values were assigned to small volumes of oxidised and transitional material near-surface. Average depth to top of fresh rock is less than 20m. • Bulk dry density values applied to the resource model were 2.891 (fresh material within mineralised

Criteria	JORC Code explanation	Commentary
	within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	envelopes), 2.859 (fresh waste material), 2.6 (slightly weathered material), 2.46 (highly weathered material).
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Mineral Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC, 2012 Edition). • The deposit has been tested with high quality drilling, sampling and assaying. Geological logging has defined structural and lithological controls that provide reasonable confidence in the interpretation of mineralisation boundaries. H&SC considers that geological and mineralisation continuity has been assumed and demonstrated with sufficient confidence to allow the Jubilee deposit to be classified as Inferred Mineral Resources. • The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• Internal audits have been completed which verified the technical inputs, methodology, parameters and results of the estimate.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The Jubilee Mineral Resource estimates have been reported with a degree of confidence commensurate with Inferred Mineral Resources. • The data quality is good and the drill holes have detailed logs produced by qualified geologists for all recent drilling. A recognised laboratory has been used for all analyses. • The Mineral Resource statement relates to global estimates of tonnes and grade. • No significant mechanised mining has occurred at the deposit.

Appendix 2 Drill Hole Listing

COLLAR ID	DRILL TYPE	TOTAL DEPTH (M)	COMPANY (1)	EAST (MGA94)	NORTH (MGA94)	RL (AHD)	SURVEY METHOD
HJDD001	DDH	74	HMX	396656.50	7699934.12	352.00	DGPS
HJDD002	DDH	93.5	HMX	396664.41	7700143.91	360.85	DGPS
HJDD003	DDH	93.5	HMX	396644.99	7699883.22	347.76	DGPS
HJRC001	RC	72	HMX	396671.97	7699848.02	350.12	DGPS
HJRC002	RC	54	HMX	396671.03	7699895.26	348.01	DGPS
HJRC003	RC	84	HMX	396651.09	7699886.59	347.66	DGPS
HJRC004	RC	72	HMX	396666.78	7700191.10	359.11	DGPS
HJRC005	RC	78	HMX	396630.28	7700186.26	361.57	DGPS
HJRC006	RC	66	HMX	396671.87	7700145.09	360.33	DGPS
HJRC007	RC	54	HMX	396690.20	7700094.24	355.61	DGPS
HJRC008	RC	84	HMX	396664.49	7699961.84	354.53	DGPS
HJRC009	RC	66	HMX	396659.62	7699934.55	351.87	DGPS
HJRC010	RC	90	HMX	396731.79	7700027.38	354.84	DGPS
HJRC011	RC	68	HMX	396602.40	7699867.24	348.02	DGPS
HJRC012	RC	140	HMX	396601.37	7699867.08	348.00	DGPS
HJRC013	RC	176	HMX	396576.43	7699868.38	346.97	DGPS
HJRC014	RC	164	HMX	396621.67	7699958.07	354.85	DGPS
HJRC015	RC	110	HMX	396654.84	7700088.43	361.30	DGPS
HJRC016	RC	114	HMX	396631.07	7700080.20	362.12	DGPS
HJRC017	RC	101	HMX	396602.00	7700178.00	359.55	GPS
HJRC018	RC	72	HMX	396627.05	7700233.57	358.64	DGPS
HJRC019	RC	54	HMX	396620.69	7700295.13	349.31	DGPS
HJRC020	RC	90	HMX	396586.96	7700283.77	354.34	DGPS
HJRC021	RC	115	HMX	396557.89	7700273.76	353.29	DGPS
HJRC022	RC	128	HMX	396644.43	7699786.08	351.45	DGPS
HJRC023	RC	137	HMX	396637.33	7700025.14	360.50	DGPS
Q-019	RC	70	CYU	396680.00	7700037.00	355.10	GPS
Q-020	RC	112	CYU	396649.00	7700031.00	359.66	GPS
Q-023	RC	90	CYU	396602.53	7700230.08	358.66	DGPS
Q-024	RC	144	CYU	396565.58	7700221.65	355.50	DGPS
Q-025	RC	90	CYU	396637.21	7700134.06	364.22	DGPS
Q-026	RC	138	CYU	396596.30	7700125.74	360.27	DGPS
Q-027	RC	144	CYU	396614.88	7700028.29	358.39	DGPS
Q-028	RC	108	CYU	396634.00	7699927.00	351.54	GPS
Q-029	RC	129	CYU	396597.80	7699926.54	350.61	DGPS
Q-030	RC	108	CYU	396638.73	7699837.13	348.27	DGPS
Q-031	RC	174	CYU	396602.19	7699841.01	347.11	DGPS
Q-038	RC	180	CYU	396526.38	7700215.87	351.54	DGPS
Q-039	RC	276	CYU	396480.07	7700211.78	347.75	DGPS
Q-040	RC	204	CYU	396574.25	7700019.68	353.46	DGPS
Q-041	RC	318	CYU	396533.97	7700015.21	349.99	DGPS
Q-042	RC	271	CYU	396564.00	7699835.00	343.21	GPS
Q-043	RC	354	CYU	396531.07	7699823.89	343.39	DGPS
Q-044	RC	204	CYU	396562.00	7699920.00	343.94	GPS
Q-045	RC	172	CYU	396557.53	7700121.97	355.23	DGPS
Note							
(1) - HMX - Hammer Metals Limited; CYU - AuKing Mining Limited							