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El Palmar Gold-Copper Project, Northern Ecuador Strong surface gold-copper results enhance potential for significant Resource

Latest trenching assays expand shallow mineralisation adjacent to the T1 target while providing more evidence of potential for deeper large porphyry deposits

Key Points

- Trenching at El Palmar continues to expand the area of known shallow gold-copper mineralisation
- The latest results highlight the potential for open pit opportunities at both the T5 and T2 targets; Extensive shallow mineralisation has previously been outlined at T1
- The combined results from T2 and T5, along with previously-released results from T1, outline shallow copper and gold over an area of 600m by 600m; Sunstone has also identified several porphyry targets at depth in this area
- The latest trenching at T5 has delivered high-grade porphyry gold-copper mineralisation
 - 30m at 1.18g/t gold, including a 2m interval at 10g/t gold and 0.11% copper in a strongly stockwork veined porphyry system and a second interval at 10m at 1.1g/t gold and 0.1% copper
- Trenching at the T2 target has delivered epithermal gold mineralisation interpreted to sit above a large porphyry target
 - 13.0m at 0.47g/t gold in trench P7-1e and 8.0m at 0.82g/t gold in trench P7-1f
 - These trench results correlate with multiple gold intersections in EPDD024, located 50m to 100m below¹ the trench

Sunstone Metals Ltd (ASX: STM) is pleased to announce strong gold-copper trench assay results which support its strategy to define both shallow and deeper porphyry deposits at its El Palmar Gold-Copper Project in northern Ecuador.

The latest results are important because they increase the size of the known shallow mineralised footprint and provide more evidence of the potential for additional porphyry deposits at depth at El Palmar.

They also demonstrate that the T1-T2-T5 gold-copper porphyry deposit cluster continues to expand in scale, has a considerable surface footprint (Figures 1 and 2) and contains numerous high-grade zones at surface.

The trenching results are from a broad trenching program (Figure 1) undertaken to enlarge the areas of gold-copper mineralisation at El Palmar in preparation for the next phase of drilling.

¹ see ASX announcement dated 15 February 2023



Sunstone Managing Director Patrick Duffy said: "These results continue to expand the area of known shallow gold-copper mineralisation and support our strategy to establish potential pathways to develop mining operations at El Palmar.

"We have now established shallow gold-copper mineralisation over an area measuring 600m by 600m across T1, T2 and T5.

"We believe this represents an initial gold and copper open pit opportunity as part of a potential staged development opportunity for a multi-decade mining centre at El Palmar.

"We are now planning drilling programs to further define these areas of known mineralisation with a view to establishing a maiden resource at El Palmar that could support an open pit mining development".

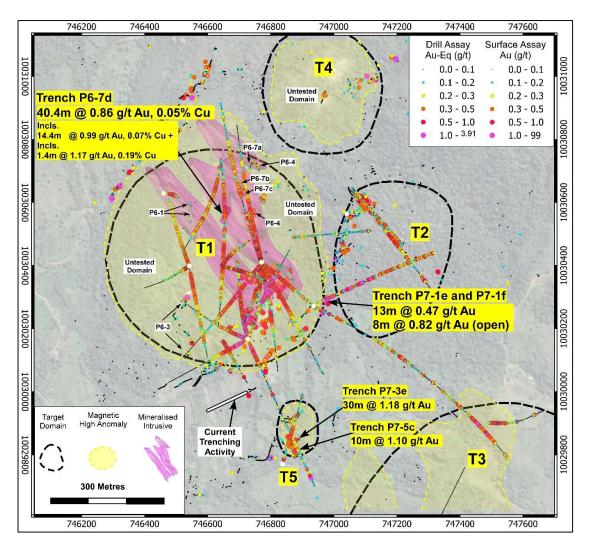


Figure 1: Plan map showing the drilling to date at the T1 target at El Palmar, the location of recent trench results, and the relative locations of the T1-T2-T5 porphyry-epithermal cluster



Detail of Results

Strong stockwork-hosted porphyry gold-copper mineralisation has been uncovered by trench P7-3e at the T5 target (Table 1), immediately south of the large T1 target. Trench sampling intersected 30m at 1.18g/t gold, including a 2m interval of 9.99g/t gold and 0.11% copper in a syn-mineral diorite with intense porphyry stockwork veining. A second interval of 10m at 1.1g/t gold and 0.1% copper was also identified in trench P7-5c. It is interpreted that copper is leached in surface oxidised samples.

Porphyry-related epithermal mineralisation was also identified in trench P7-1 at the T2 target (Table 1), located immediately east of the large T1 target. Trench sampling intersected 13.0m at 0.47g/t gold in trench P7-1e and 8.0m at 0.82g/t gold in trench P7-1f.

This mineralisation correlates well with drill hole EPDD024² which intersected shallow intervals of:

- 2m at 3.2g/t gold from 72m,
- 13.5m at 1.1g/t gold from 97.5m,
- 7.4m at 0.91g/t gold from 132m, and
- 20m at 0.62g/t gold from 235m,

within a broad epithermal and porphyry interval of 767m at 0.21g/t gold and 0.04% copper from 24m. There is a clear transition from high-level epithermal gold to deeper gold-copper porphyry mineralisation hosted in hydrothermal breccias with clasts of porphyry gold-copper mineralisation.

These are very exciting early-stage results from compelling targets that are directly adjacent to T1. These results from targets at T2 and T5 come on the back of strong results from trench P6-7d in the T1 target, where two fresh rock samples, each over 0.7m, returned assays of 1.36g/t gold and 0.22% copper, and 0.97g/t gold and 0.16% copper within 40.4m @ 0.86 g/t Au. A second major locus of higher-grade mineralisation within the broader T1 mineralised system was identified with trench P6-3 with high-grade porphyry gold up to 1.13g/t gold over a 2m interval within a broader open-ended 10m mineralised interval.

Trench Number	From	То	Interval	Au (g/t)	Ag (g/t)	Cu (ppm)	Notes
	(m)	(m)	(m)				
P7-1e	2	15	13	0.47	0.39	49	epithermal
P7-1f	2	10	8	0.82	0.79	73	open; epithermal
P7-3e	8	38	30	1.18	0.53	823	open; porphyry
incl.	28	30	2	9.99	1.54	1066	porphyry
P7-5c	0	10	2	1.08	0.60	972	open; porphyry

Table 1: Assay results from the recent trenching program (note 1000ppm = 0.1%)

² see ASX announcement dated 15 February 2023



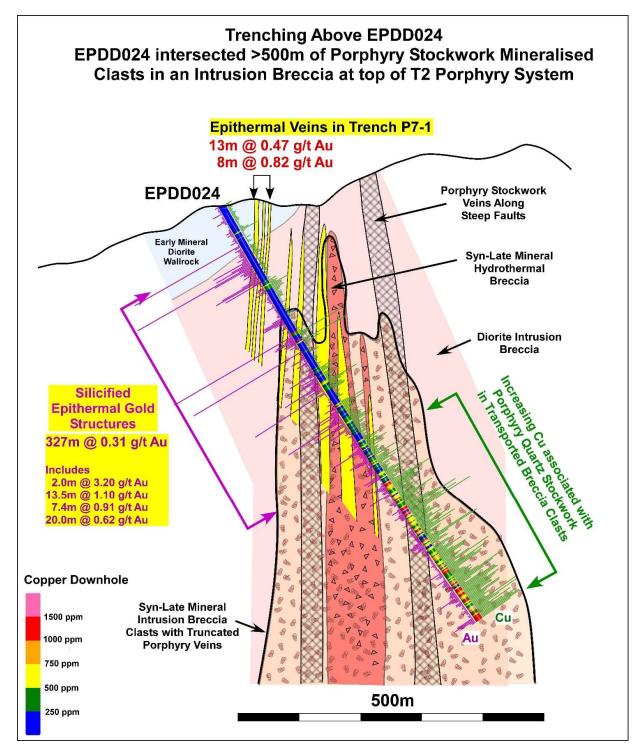


Figure 2: Cross section at target T2 showing trench 7-1 results and drill hole EPDD024 with both upper-level epithermal mineralisation and deeper porphyry-related hydrothermal breccia hosted mineralisation





Figure 3: Location of Sunstone's Bramaderos, El Palmar and Verde Chico projects, Ecuador.

For further information, please visit www.sunstonemetals.com.au

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About Sunstone Metals

Sunstone has an advanced portfolio of exploration projects in Ecuador. The portfolio comprises:

The Bramaderos Gold-Copper Project where Sunstone owns an 87.5% interest, and SolGold Canada, Inc. (formerly Cornerstone Capital Resources) a subsidiary of SolGold, holding 12.5% (loan carried through to start of commercial production) (see ASX announcement dated 10 April 2017, 28 August 2019, and 7 January 2020). The Bramaderos gold-copper project is located in Loja province, southern Ecuador, and is highly prospective for the discovery of large porphyry gold-copper systems, and high-grade epithermal gold systems. The Bramaderos concession is host to multiple fertile mineralised systems with significant discovery potential.

The Brama-Alba deposit, within the Bramaderos concession contains an initial Mineral Resource estimate of 156Mt at 0.53g/t AuEq for 2.7Moz gold-equivalent^{*}. In addition to this is the Bramaderos project porphyry Exploration Target of between 3.3Moz and 8.6Moz AuEq within 255 to 360Mt at a grade between 0.40 and 0.74g/t AuEq (see ASX release dated 13 December, 2022), and the Limon epithermal gold-silver exploration target of 0.9 - 1.7mill oz AuEq within 30 - 44mill tonnes at a grade of between 0.9 - 1.2g/t AuEq (see ASX release dated 5 February, 2024).

JORC Classification	Tonnage (Mt)	Au (g/t)	Cu (%)	Ag (g/t)	AuEq (g/t)	AuEq* (Mozs)
Indicated	9	0.38	0.09	1.1	0.53	0.2
Inferred	147	0.35	0.11	1.3	0.53	2.5
Total	156	0.35	0.11	1.3	0.53	2.7

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement for the Mineral Resource estimate and Exploration Target referred to above and, that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource for the target area reported. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

*The gold equivalent calculation formula for porphyry gold-copper-silver mineralisation is AuEq(g/t) = (Au grade x Au price x Au recov / 31.1035) + (Ag grade x Ag price x Ag recov / 31.1035) + (Cu grade x Cu price x Cu recov / 100)) / (Au price x Au recov / 31.1035). The prices used were US\$1,800/oz gold and US\$9,500/t copper and US\$22/oz silver. Recoveries are estimated at 89% for gold, 85% for copper, and 60% for silver based on metallurgical studies.

*The gold equivalent calculation formula for epithermal gold-silver mineralisation is AuEq(g/t) = Au(ppm) + (Ag (ppm)/82). The prices used were US\$1,800/oz gold and US\$22/oz silver. Recoveries are estimated at over 90% for gold and 90% for silver from metallurgical studies.

In Sunstone's opinion, all the elements included in the metal equivalents calculation have reasonable potential to be recovered and sold.

The El Palmar Copper-Gold Project where Sunstone holds 74.5% of the highly prospective 800ha El Palmar gold-copper porphyry project in Ecuador. Sunstone can acquire 100% through a Staged Acquisition Agreement. A Staged Acquisition Agreement to acquire the nearby Verde Chico Project has also been signed. The El Palmar and Verde Chico gold-copper projects are located in Imbabura province, northern Ecuador, within the same geological belt that includes the giant Alpala, Tandayama-America and Llurimagua porphyry copper-gold and copper-molybdenum deposits.



Competent Persons Statement

The information in this report that relates to exploration results is based upon information reviewed by Dr Bruce Rohrlach who is a Member of the Australasian Institute of Mining and Metallurgy. Dr Rohrlach is a full-time employee of Sunstone Metals Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr Rohrlach consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Mr Patrick Duffy, Managing Director of Sunstone Metals Ltd., has authorised this announcement to be lodged with the ASX.



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 downhole 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 	 The results announced here are from trench samples. The trench sampling was carried along ~2m intervals. Sample recovery was good.
	 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. 	• Rock chip and channel sampling points have been guided by geological mapping. The samples from El Palmar were dried, crushed to 70% passing 2mm, Split 1000g and pulverised to 85% passing 75microns. A 20g portion of this sample was used for multi-element analysis (IMS-230) and a 30g sample for Fire Assay Au (FAS-111).
Drilling techniques	• Drill type (eg 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).	• Previous drilling by Sunstone at the El Palmar project comprises diamond core drilling and has drilled to various depths up to 1200m. The diamond core was drilled delivering either HTW (70.9mm) or NTW (56mm) core. Drill core is oriented using a Reflex ACT II tool for bottom of hole.
Drill sample recovery	 Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure 	 Diamond core recovery data for the El Palmar drilling was measured for each drill run and captured in a digital logging software package. The data has been reviewed and core recovery was approximately 100% throughout. Core recovery at El Palmar was good, no extra
	 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. 	 measures were taken to maximise sample recovery. No relationship between sample recovery and grade has been established.
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.	• Trench samples and rock chips were logged for lithology, weathering, structure, mineralogy, mineralisation, colour, and other features. Logging and sampling were carried out according to Sunstone's internal protocols and QAQC procedures which comply with industry standards.
	• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	• Trench and rock chip samples are logged for lithology, weathering, structure, mineralogy, mineralisation, colour, and other features.
	• The total length and percentage of the relevant intersections logged.	• Trenches are logged in full, from start to finish of the excavation.
Sub-sampling techniques	• If core, whether cut or sawn and whether quarter, half or all core taken.	• Trench sampling only reported in this announcement.
and sample	• If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	• N/A.
preparation	• For all sample types, the nature, quality and appropriateness of the sample preparation technique.	• Surface and drill core samples from Limon were sent to the LAC y Asociados Cia. Ltda. Sample Preparation Facility in Cuenca, Ecuador for sample preparation. The standard sample preparation for drill core samples (Code PRP-910) is: Drying the sample, crushing to size fraction 70% <2mm and splitting the sample to a 250g



Criteria	JORC Code explanation	Commentary
		 portion by riffle or Boyd rotary splitter. The 250g sample is then pulverised to >85% passing 75 microns and then split into two 50g pulp samples. Then one of the pulp samples was sent to the MS Analytical Laboratory in Vancouver (Unit 1, 20120 102nd Avenue, Langley, BC V1M 4B4, Canada) for gold and base metal analysis. The sample preparation is carried out according to industry standard practices using highly appropriate sample preparation techniques.
	• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	 Sunstone used an industry standard QAQC programme involving Certified Reference Materials "standards" and blank samples, which were introduced in the assay batches. Standards (Certified Reference Materials) or analytical blanks were submitted at a rate of 1 in 28 samples. Field duplicates were also taken at a rate of approximately 1 in 28 samples. The check or duplicate assay results are reported along with the sample assay values in the final analysis report.
	• 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.	 For diamond core, the routine sample procedure is to always take the half/quarter core to the right of the orientation line (looking down hole) or the cut line (in cases where the orientation line was not reliable). Once assay results are received the results from duplicate samples are compared with the corresponding routine sample to ascertain whether the sampling is representative.
	• Whether sample sizes are appropriate to the grain size of the material being sampled.	• Sample sizes are considered to be appropriate for the style of sampling undertaken and the grainsize of the material, and correctly represent the style and type of mineralisation at the exploration stage.
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.	 Sunstone uses a fire assay gold technique for Au assays (FAS-111) and a four acid multi element technique (IMS-230) for a suite of 48 elements. FAS-111 involves Au by Fire Assay on a 30-gram aliquot, fusion and atomic absorption spectroscopy (AAS) at trace levels. IMS-20 is considered a near total 4 acid technique using a 20g aliquot followed by multi-element analysis by ICP-AES/MS at ultra-trace levels. This analysis technique is considered suitable for this style of mineralisation.
	• 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.	• Handheld XRF data, together with detailed geological logging, are used as a guide to areas of potential mineralisation and samples from these areas are sent for laboratory analysis as described above.
	• 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.	 Standards, blanks and duplicates are inserted ~1/28 samples. The values of the standards range from low to high grade and are considered appropriate to monitor performance of values near cut-off and near the mean grade of the deposit. The check sampling results are monitored, and performance issues are communicated to the laboratory if necessary.
Verification of sampling and	• The verification of significant intersections by either independent or alternative company personnel.	• Procedure checks have been completed by the Competent Person for exploration results for this announcement.
assaying	The use of twinned holes.	• Twin holes have not been drilled in these areas.



Criteria	JORC Code explanation	Commentary		
	data verification, data storage (physical and electronic) protocols.	using Excel.		
	Discuss any adjustment to assay data.	Assay data were not adjusted.		
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.	• Sample co-ordinates are located by GPS and for trench samples measured along the length of the trench.		
	Specification of the grid system used.	Ecuador projection parameters:		
		Parameter Value		
		Reference Ellipsoid International 1924		
		Semi Major Axis		
		Inverse Flattening (1/f)		
		Type of Projection UTM Zone -17S (Datum PSAD56)		
		Central Meridian: -81.0000		
		Latitude of Origin 0.0000		
		Scale on Central Meridian 0.9996		
		False Northing 10000000		
		False Easting 500000		
	• Quality and adequacy of topographic control.	• The topographic control was compared against published maps and satellite imagery and found to be good quality.		
Data spacing and	• Data spacing for reporting of Exploration Results.	• The trench samples were collected along hand dug trenches from the El Palmar T1,T2 and T5 targets, an with sample length generally around 2.0m.		
distribution	Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	• The data from these samples does not contribute to ar resource estimate nor implies any grade continuity.		
	• Whether sample compositing has been applied.	No sample compositing was done.		
Orientation of data in	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	• Trench orientations and rock chip locations were appropriate for the interpreted geology providing representative samples.		
relation to geological structure	• 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.	• No sampling bias is expected at this stage.		
Sample security	• The measures taken to ensure sample security.	 Sunstone sampling procedures indicate individual samples were given due attention. Sample security was managed through sealed individual samples and sealed bags of multiple samples for secure delivery to the laboratory by permanent staff of the joint venture. MS Analytical is an internationally accredited laboratory that has all its internal procedures heavily scrutinised in order to maintain their accreditation. MS Analytical is accredited to ISO/IEC 17025 2005 Accredited Methods. 		
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	 Sunstone's sampling techniques and data have been audited multiple times by independent mining consultants during various project assessments. These audits have concluded that the sampling techniques 		



Criteria	JORC Code explanation	Commentary
		and data management are to industry standards.All historical data has been validated to the best degree possible and migrated into a database.

TABLE 1 – Section 2: Exploration Results

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 El Palmar property is located in Imbabura province and is held by an Ecuadorian registered company 'GOEX'. Due diligence to date show that there are no wilderness areas or national parks or areas of environmental significance within or adjoining the concession area. There are no native title interests. Sunstone and GOEX have entered into a Staged Acquisition Agreement where Sunstone may earn up to 100% based on defined milestones.
	• 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 El Palmar exploration concession was granted in 2003 and is held 100% by GOEX. Sunstone owns 70% of GOEX
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	 The historic exploration at El Palmar was completed by various groups over the period 1990's, 2007-2008, 2011- 2012 and GOEX (2012 to 2020). Most of the readily available historic data has been acquired and compiled into databases and a GIS project. Exploration by other parties has included stream sediment surveys, geological mapping, rock chip sampling, some local soil sampling, channel sampling and limited diamond drilling (3 holes).
Geology	• Deposit type, geological setting and style of mineralisation.	• The deposit style being explored for includes intrusion- related and stockwork hosted porphyry gold-copper systems plus epithermal gold-silver-polymetallic veins. The setting at El Palmar is a volcanic arc setting of Eocene age intrusions.
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: a. easting and northing of the drill hole collar b. elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar c. dip and azimuth of the hole d. down hole length and interception depth e. hole length. 	 Details of the samples discussed in this announcement are in the body of the text. See Figures 1-2 for the location of trenching and drilling activities at El Palmar, and nearby areas.
	 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. 	• Information included in announcement.
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.	Weighted averages were calculated over reported intervals according to sample length.No grade cut-offs were applied.
	 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. 	• No aggregating of intervals undertaken at this stage.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	 Preliminary metallurgical studies for porphyry gold- copper-silver mineralisation are indicating a standard



Criteria	JORC Code explanation	Commentary
		grind with a flotation circuit. Stage one will recover copper and the majority of gold as a saleable concentrate. Stage two is a finer grind with a cyanide leach for gold on site. Current, overall estimated recoveries for the combined process are 86% for copper and 89% for gold.
Relationship between mineralisation widths and intercept lengths	 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'). 	 Figures 1-2 show the interpreted strike orientation of the mineralised lodes based on mapping and interpretation of detailed magnetic data. True widths of mineralised lodes are not known at this stage.
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.	 See Figures 1-2 for maps showing distribution of samples.
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.	• Figures 1-2 show the current interpretations of geology.
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. 	• Figures 1-2 above show various datasets that are being used to identify target areas and to guide current and future drilling.
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. 	 The planned exploration program is outlined in the announcement. See Figures 1-2 which show areas for further exploration.