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El Palmar T1 gold-copper porphyry discovery, Northern Ecuador

Assays reveal significant gold-copper mineralisation at surface, highlighting scope for substantial maiden resource

Strong gold and copper porphyry grades in intervals of fresh rock to underpin new shallow drilling programs

Key Points

- These strong results clearly demonstrate the extensive near-surface mineralisation of this growing porphyry gold-copper discovery
- The results from surface trenching include:
 - 40.4m at 0.86g/t gold and 524ppm copper (open on all sides) in P6-7d
 - o 21.0m at 0.34g/t gold and 714ppm copper (open on all sides) in P6-7c
- Where the porphyry is exposed as fresh rock in the trench, the copper values are elevated up to 0.22% copper and 0.16% copper, suggesting overall copper has been leached at surface, and the fresh rock copper values are more indicative of the porphyry target
- The high-grade trench interval is interpreted to correlate with results from drill hole EPDD004, which intersected 97m at 0.43g/t gold and 0.11% copper for 0.61g/t gold equivalent, approximately 200m below the trench
- The trenching results will be incorporated into a mineral resource estimate once the next phase of drilling is completed

Sunstone Metals Ltd (ASX: STM) is pleased to announce strong gold-copper trench assay results which show that its El Palmar T1 gold-copper porphyry deposit is a large system extending through to surface (Figures 1, 2 and 3).

The trenching results are from a broader trenching program (Figures 1, 2, 4 and Table 1) to enlarge the areas of gold-copper mineralisation at El Palmar in preparation for the next phase of drilling.

Strong stockwork-hosted porphyry gold-copper mineralisation has been uncovered by trench P6-7, and has returned strong copper and gold results, particularly where fresher rock has been sampled (Figures 2 & 3). In trench 6-7d, 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. These are strong gold and copper grades for a porphyry system.



The trenching program has been completed in areas only where, for safety reasons, the younger cover is less than 2m thick and, for example, means that trench P6-7 comprises four segments (Figures 1 & 2, Table 1).

In addition, the new trench results define a second major locus of higher-grade mineralisation within the broader T1 mineralised system. Trench 6-3 in the SW part of T1 identified high-grade porphyry gold up to 1.13g/t gold over a 2m interval within a broader open-ended 10m mineralised interval (Table 1).

This area corresponds to a planned drill target within T1 that is expected to identify new parallel mineralised zones. A large area in the SW of T1 remains untested (Figures 1 & 2).

The trenching program has also been extended to assess the potential for mineralisation outside of the original T1 magnetic anomaly target and to test for the amalgamation of targets T1, T2 and T5 (Figure 1).

Sunstone Managing Director Patrick Duffy said the results continued to demonstrate the vast extent and shallow nature of the mineralisation at El Palmar.

"We have established that there is extensive near-surface mineralisation with strong grades.

"These trenching results lead us to the mineralisation and will therefore underpin the next drilling program at El Palmar, increasing its efficiency and effectiveness.

"Internal studies have commenced in preparation for a maiden resource estimate.

"The value of a significant outcropping component to the extensive El Palmar porphyry gold-copper system cannot be underestimated as we prepare for a mineral resource estimate, consider reasonable prospects for economic development, and allow for exploration of deeper targets to strongly enhance the overall scale of this cluster of porphyry deposits".

Trench	Interval (m)	Au (g/t)	Ag (g/t)	Cu (ppm)
P6-1	1.8	0.23	2.65	555.70
and	2.0	0.22	0.07	468.00
P6-3	1.0	0.25	6.60	619.50
and	1.6	0.21	0.92	1573.90
and	10.0	0.44	0.54	1224.76
incl	2.0	1.13	0.82	1372.70
P6-4	20.0	0.31	1.24	861.19
and	2.0	0.23	12.87	577.40
and	1.0	0.26	12.48	387.20
P6-7a	1.0	0.28	6.20	425.50
P6-7b	16.0	0.30	0.25	651.44
P6-7c	21.0	0.34	0.16	713.84
P6-7d	40.4	0.86	0.46	510.81
incl	14.4	0.99	0.47	653.89
incl	1.4	1.17	0.55	1923.30

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



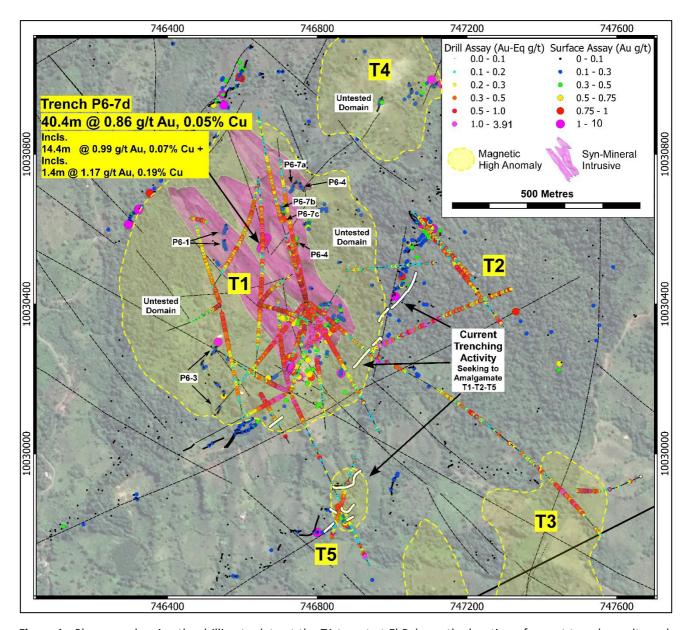


Figure 1: Plan map showing the drilling to date at the T1 target at El Palmar, the location of recent trench results and ongoing trenching at T1, T2 and T5.



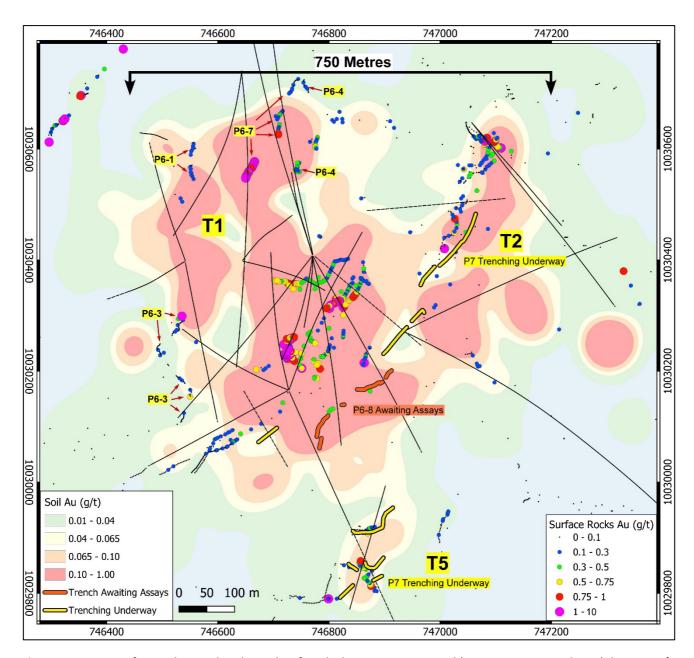


Figure 2: Location of recently completed trenches for which assays are received (P6-1, P6-3, P6-4 and P6-7), location of trench for which assays are awaited (P6-8), and location of the P7 trenching program at the T1, T2, T5 porphyry targets. Background image is contoured gold-in-soils.





Figure 3: El Palmar trench Tr_6-7 showing strong stockwork veining at surface in newly defined areas of high-grade porphyry mineralisation. The 0.7m interval in front of Patrick Duffy assayed 1.36g/t gold and 0.22% copper.

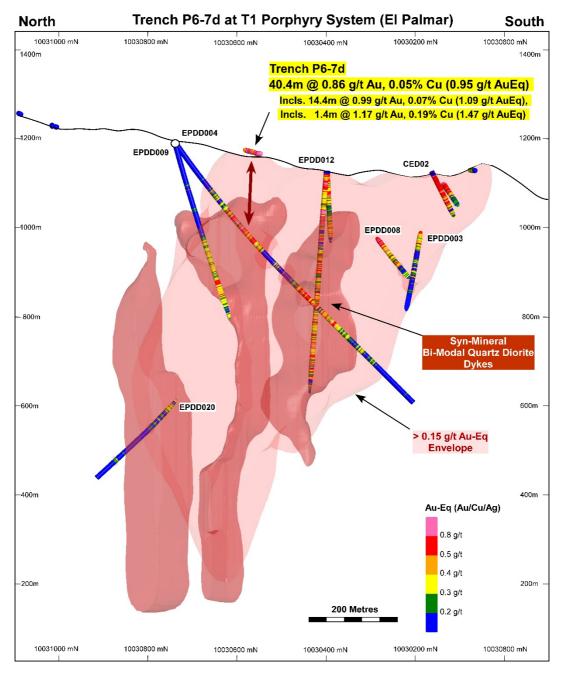


Figure 4: Cross section on the plane of EPDD004 showing the trenching results from Tr_6-7d. The vertical extent of mineralisation at T1 is approximately 600m and open at depth.





Figure 5: Location of Sunstone's Bramaderos and El Palmar projects, Ecuador.

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

Mr Patrick Duffy Managing Director Sunstone Metals Ltd Tel: 07 3368 9888

Email: info@sunstonemetals.com.au

Media:

Paul Armstrong Read Corporate +61 8 9388 1474



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 70% 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.



- ASX ANNOUNCEMENT -

<u>TABLE 1 – Section 1: Sampling Techniques and Data</u>

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.	• The results announced here are from trench samples. The trench sampling was carried along ~2m intervals.		
	• Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sample recovery was good.		
	• 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	Drill type (eg core, reverse circulation, open-hole)	• Previous drilling by Sunstone at the El Palmar project		
techniques	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).	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.	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.		
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Core recovery at El Palmar was good, no extra measures were taken to maximise sample recovery.		
	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.	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 multielement 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.		
	Documentation of primary data, data entry procedures,	Sunstone sampling data were imported and validated		



— ASX ANNOUNCEMENT —

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 tren 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 target, and 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 any 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 security of the tenure held at the time of reporting	 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 El Palmar exploration concession was granted in 2002 and is held 100% by COEX.
	along with any known impediments to obtaining a licence to operate in the area.	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 1-3 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. Proliminary to the size of the
	• 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 1-4 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 1-4 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 1-4 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 1-4 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 including the main geological depth in the scale of the scale	 The planned exploration program is outlined in the announcement. See Figures 1-4 which show areas for further exploration.
	interpretations and future drilling areas, provided this information is not commercially sensitive.	