ASX Announcement

22 December 2022

POLAR BEAR NICKEL DRILLING: INTERIM UPDATE

Key Points

- **Three of a planned nine holes have been completed**
- **First two of six electromagnetic (EM) conductors tested with sedimentary sulphides intersected at predicted target depths**
- **First of three geological targets partially tested, with trace to disseminated magmatic sulphides intersected within a thick ultramafic unit**
- **High priority targets to be drilled once drilling resumes after Christmas break**

S2 Resources Ltd ("S2" or the "Company") advises that it has completed the first three holes of a planned nine hole program testing six electromagnetic (EM) conductors and three geological targets at its Polar Bear nickel project where the Company has 100% of the nickel rights (see Figure 1).

Two of the lower priority EM conductors have been drilled, with sedimentary sulphides being intersected at the depth predicted by the EM. One geological target has been drilled, with intervals of trace to disseminated magmatic sulphides being intersected in a thick ultramafic sequence. The drilling sequence is based on logistical considerations, so the higher priority targets will be drilled in January following a pause for the Christmas break.

Hole SPBD0366, testing conductor PBC22-5, intersected a package of ultramafics and high-magnesian basalts at the top of the hole before passing into basalt, with minor interflow sediments, from approximately 190 metres. A thin, sheared black shale intersected near the target depth (392 metres) of the modelled EM plate is considered the likely source of the MLEM response.

Conductor PBC22-5 is a cluster of three separately modelled EM which collectively form a 1.5 kilometre long trend of EM anomalism. Such long strike length trends are more typical of conductive stratigraphic units rather than discrete responses which are more typical of nickel sulphide mineralisation, so this conductor is intrinsically less prospective than some of the as yet untested conductors that will be drilled once the rig recommences drilling in January.

Hole SPBD0367, testing conductor PBC22-3, intersected prospective ultramafic rocks at the top of the hole down to approximately 90 metres before passing into basalt. At 172 metres the hole intersected sedimentary rocks, including approximately 6 metres of strongly sulphidic black shales. The sulphides, comprising pyrrhotite, pyrite with minor chalcopyrite and sphalerite, are typical of black shales and are not of economic interest.

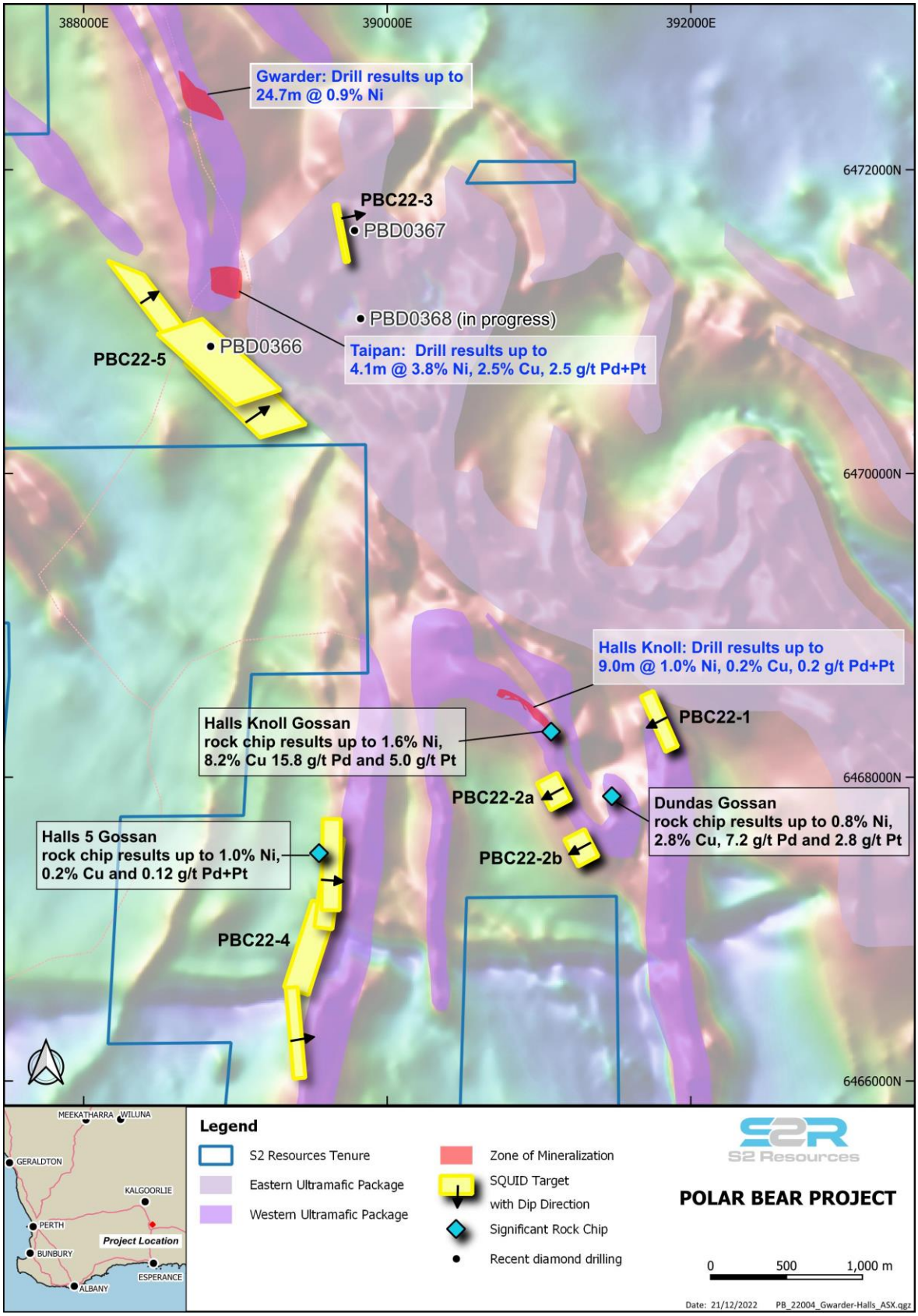

Figure 1. Location of electromagnetic conductors identified in the July SQUID EM survey at the Polar Bear Project, over regional magnetics and interpreted geology, showing location of recently completed drillholes.

Hole SPBD0368, testing beneath a zone of anomalous nickel and copper in previous reconnaissance aircore drilling *not* covered by the recent SQUID EM survey, intersected more than 80 metres of prospective ultramafic rocks in two zones, separated by a late-stage felsic porphyry intrusion. Importantly, the ultramafic contains minor zones of trace to disseminated "cloud" sulphide consisting of pyrrhotite-chalcopyrite-pentlandite. This mineralisation, whilst not economic, confirms the presence of a fertile nickel prospective system, separate to the known Halls Knoll and Taipan – Gwardar trend. Laboratory assay results will be reported when the Company receives them

The hole was still in prospective ultramafic rocks when drilling ceased for the Christmas break, with the hole to be extended when drilling resumes in the new year.

All holes have been / will be cased with PVC to facilitate future down-hole electromagnetic (DHEM) surveys to confirm the drilling has adequately tested the EM anomalies.

Whilst drilling to date has not intersected material magmatic nickel sulphides, it is encouraging to note that the EM appears to be working well in terms of its ability to detect and predict the position of sulphides, which bodes well for the remainder of the program in which the more prospective targets will be tested.

As stated in S2's previous ASX announcement of 16th November 2022, the sequence in which the holes are being drilled is based primarily on logistical considerations rather than perceived prospectivity of each target.

Project background

S2, through various wholly owned subsidiary companies, has been exploring the Polar Bear ground since 2010, during which time five heritage surveys have been undertaken and over 4,000 holes drilled primarily for gold and to a lesser extent for nickel.

The earlier exploration, undertaken by Polar Metals Pty Ltd ("Polar Metals"), which was a wholly owned subsidiary of Sirius Resources and, post-demerger, of S2, led to the discovery of the Taipan nickel prospect in 2014 and the discovery, drillout and mineral resource estimate of the Baloo gold deposit between 2015 and 2017.

In February 2018, Polar Metals was sold to Westgold Resources Ltd ("Westgold"), with S2 via another wholly owned subsidiary, Southern Star Exploration Pty Ltd ("Southern Star"), retaining the right to explore, develop and mine nickel together with associated base metals (eg, copper and cobalt) and associated platinum group metals ("PGM's) on those tenements owned by Polar Metals ("nickel rights").

S2 retains 100% of the nickel rights in a core holding of tenements held 100% by Polar Metals which cover the majority of the nickel prospective stratigraphy (the Polar Bear project *sensu stricto*), and 80% of the nickel rights in additional tenements which cover a smaller part of the nickel prospective stratigraphy, by virtue of these tenements being held 80% by Polar Metals in a joint venture known as the Eundynie JV (see Figure 3).

Westgold sold its Higginsville operations and Polar Metals to Karora Resources ("Karora"), which then developed the Baloo gold deposit as an open pit mine on Lake Cowan.

Since the sale of Polar Metals, S2, through its subsidiary Southern Star, has continued to explore the Polar Bear project for nickel through its nickel rights, with exploration drilling leading to the discovery of the Gwardar prospect in 2019, and the recent SQUID survey leading to the identification of new EM conductors beneath the salt lake.

S2 has recently transferred its nickel rights from its Southern Star subsidiary to another wholly owned subsidiary, Dark Star Exploration Pty Ltd ("Dark Star").

This announcement has been provided to the ASX under the authorisation of the S2 Board.

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Past Exploration results reported in this announcement have been previously prepared and disclosed by S2 Resources Ltd in accordance with JORC 2012. The Company confirms that it is not aware of any new information or data that materially affects the information included in these market announcements. The Company confirms that the form and content in which the Competent Person's findings are presented here have not been materially modified from the original market announcement. Refer to www.s2resources.com.au for details on past exploration results.

Competent Persons statements

The information in this report that relates to Exploration Results from Australia is based on information compiled by John Bartlett, who is an employee and shareholder of the Company. Mr Bartlett is a member of the Australian Institute of Mining and Metallurgy (MAusIMM) and has sufficient experience of relevance to the style of mineralization and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Bartlett consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

Annexure 1

Hole	Easting	Northing	RL	Dip	Azi.	Depth	From	To	Width	Grade Ni_pct	Grade Cu_pct
SPBD0366	388,837	6,470837	280	-65	270	438.9	AWR				
SPBD0367	389,785	6,471,600	263	-60	280	197.9	AWR				
SPBD0368	389,825	6,471,020	263	-60	270	181.0	IP				

*AWR – awaiting results, IP – in progress

The following Tables are provided to ensure compliance with the JORC code (2012) edition requirements for the reporting of exploration results.

SECTION 1: SAMPLING TECHNIQUES AND DATA

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.*	Drilling at the Polar Bear project has comprised three diamond drill holes, completed by KalDrill Pty Ltd, based out of Kalgoorlie, Western Australia. Sampling has been carried out by cutting and sampling half core through areas of visible mineralisation, with sample intervals to lithological contacts, to a maximum length of 1.2 metres. All are forwarded for analyses by ALS Geochemistry in Perth.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling and QAQC procedures are carried out using S2 protocols as per industry best practice.
	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 diamond core is HQ and NQ2 size, sampled on geological intervals (0.2 m to 1.2 m), cut into half core to be submitted to the laboratory for analysis. Samples are to be crushed, dried and pulverised (total prep) to produce a sub sample for multi-element analysis by four acid digest with an ICP/OES as well as a 25 gram charge fire assay by MS for precious metals (Au, Pt, Pd)
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).*	Drilling is standard diamond coring, using either HQ triple tube or NQ2 core diameter. The core has been orientated using an Ace orientation tool.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Diamond core recoveries are logged and recorded in the database. Overall recoveries are >>95% within fresh rock, although some core loss has been experienced through the weathered zones.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers.
	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 has been seen to exist
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.*	Logging of diamond core and RC samples records lithology, mineralogy, mineralisation, structural, weathering, colour and other features of the samples logging uses a standard legend developed by S2 which is suitable for wireframing of the basement interface. Exploration holes are not routinely geotechnically logged but resource holes are.

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	All core is photographed in both dry and wet form.
	The total length and percentage of the relevant intersections logged	All drillholes were logged in full to end of hole.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Core was cut in half (for both NQ2 and HQ3 core onsite using a manual "clipper" saw. All samples were collected from the same side of the core.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	No non-core sampling was completed
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation follows industry best practice in sample preparation involving oven drying, coarse crush and pulverisation of entire sample to minimum of 85% passing -75um.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Full QAQC system in place to determine accuracy and precision of assays
	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.	Non-biased sampling using the orientation line as a guide for cutting with the same half used for all sampling. No duplicate samples have been collected at this stage
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered to be appropriate to correctly represent the sought after mineralisation style
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 core samples the analytical techniques used a four acid digest multi element suite with ICP/OES finish on a nominal 0.4g sample as well as Au, Pt, Pd using a 25 gram FA/MS analysis. The acids used are hydrofluoric, nitric, perchloric and hydrochloric acids, suitable for silica based samples. The method approaches total dissolution of most minerals.
	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.	No geophysical tools were used to determine any element concentrations.
	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.	Full QAQC system in place including Certified Standards and blanks of appropriate matrix and levels.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	The S2 Exploration Manager has personally inspected all sampled core and assay results.
	The use of twinned holes.	No twinned holes were drilled within the main infilled anomaly.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary sampling data is collected in a set of standard Excel templates. The information is managed by S2's database manager for validation and compilation into S2's central database.
	Discuss any adjustment to assay data.	No adjustments made

Criteria	JORC Code explanation	Commentary
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Drill hole collar locations were recorded using handheld Garmin GPS. Elevation values were in AHD RL using the 20m DEM model over the project area. Expected accuracy is + or – 5 m for easting, northing and 10m for elevation coordinates. Downhole surveys using an Axis north-seeking gyro with readings at 5m interval down the length of the hole using a DeviGyro.
	Specification of the grid system used.	The grid system is MGA_GDA94 (zone 51), local easting and northing are in MGA.
	Quality and adequacy of topographic control.	Topographic surface uses handheld GPS elevation data, which is adequate at the current stage of the project.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drilling to date has been on individual drill holes into a specific target.
	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.	Data spacing, sampling technique and distribution is not sufficient at this stage to allow the estimation of mineral resources.
	Whether sample compositing has been applied.	No sample compositing has been applied.
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.*	Insufficient information to determine at this time.
	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.	Drilling of diamond core is on a nominal 60 degrees, either grid west or east depending on the orientation of the modelled EM plate. The orientation of drilling is broadly orthogonal to the overall geology.
Sample security	*The measures taken to ensure sample security.*	Chain of custody is managed by S2 personnel. Drill samples and core is visually checked at the drill rig and then transported to S2's logging and cutting facilities on site at the S2 remote camp. Bagged samples are transported to the ALS laboratory in Perth. Samples have remainediin the custody of S2 personnel at all times up until the delivery to the commercial laboratory.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No audits or reviews have been conducted at this stage.

SECTION 2: REPORTING OF 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 Polar Bear project consists of a number of exploration licenses, prospecting licenses, mining licenses and a mining license application. The tenements are owned by Polar Metals Pty Ltd, a wholly owned subsidiary of Karora Resources (KRR:TSE). S2 hold rights (100%) of any nickel mineralisation (and associated metals) within the Polar Bear project through its 100% owned subsidiary (Dark Star Exploration Pty Ltd). The Polar Bear Project is located within the Ngadju Native Title Claim (WC99/002).

Criteria	JORC Code explanation	Commentary
	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.	All of the Exploration Licences are in good standing and no known impediments exist on the tenements being actively explored.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first recorded exploration for nickel at Polar Bear was undertaken by Anaconda Nickel Ltd, who completed rock chip sampling, soil sampling, costean sampling as well as percussion and diamond drilling along interpreted ultramafic basal contact. Collar locations from historical drill holes have not been field verified. INCO conducted a reconnaissance small loop Slingram type EM survey. Inco completed limited aircore drilling and six diamond holes within the Polar Bear project Sirius Resources undertook targeted MLEM geophysical surveys over selected areas, regional aircore drilling as well as RC and diamond drilling at Halls Knoll, Taipan and Gwardar prospects. The collar locations for all INCO and Sirius drill holes have been verified by S2 personnel.
Geology	Deposit type, geological setting and style of mineralisation.	The geology at Polar Bear is dominated by complexly deformed Achaean greenstone assemblages of the Norseman-Wiluna Greenstone Belt which have been metamorphosed to upper greenschist facies. The Eundynie Mafic Sequence (EMS) consists of tightly folded ultramafic and mafic intrusives and extrusives with minor interflow sediments. The rocks are frequently talc-carbonate altered and moderately well foliated. The ultramafic rocks are typically komatiites and komatiitic basalt. The deposit style sought after is analogous to Kambalda-style nickel copper sulphide deposits.
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: • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length.	Refer Annexure 1.
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.	All historical reported assay results for diamond drilling have been length weighted, and in the case of diamond drilling bulk density weighted. Intervals have been calculated using a 0.4% nickel lower cut-off, with maximum of 2m internal dilution.
	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.	Individual sample intervals vary between 0.2 and 1.2 metres, selected based on lithological contacts.

Criteria	JORC Code explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No reporting of metal equivalent has been used.
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').	All historical drill results reported are down hole lengths, with true widths not confirmed.
Diagram	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.	Refer to Figures in body of text.
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.	All results considered significant are reported.
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.	This report refers to results of a recent MLEM program, completed by GEM Geophysics utilising a low temperature (liquid helium) superconducting quantum interference device (SQUID) in a slingram configuration. The survey was completed using 200m x 200m loops and station spacing of 100m and lines spacing of 200m
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 diamond drilling program to test the SQUID EM targets as well as selected geological targets is ongoing, scheduled to resume in early January. Follow-up downhole EM is planned on each of the drill holes completed to confirm the source of the MLEM response has been tested.