ASX CODE: SPX

CAPITAL STRUCTURE

Share Price (23/10/2019)	$0.072
Shares On Issue	1,386m
Market Cap	$100m
Unlisted Options	129m
Performance Rights	20m

MAJOR SHAREHOLDERS

Patina Resources PL	9.6%
1832 Asset Mgmt	9.4%
A. Barton & Assocs	7.7%
Chalice Gold	7.0%

DIRECTORS / MANAGEMENT

Alexander Hewlett
Executive Chairman

Paul Adams
Managing Director

James Croser
Technical Director

Nader El Sayed
Non-Executive Director

Mark Pitts
Company Secretary

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High Grade 307,000oz Mineral Resource at Penny North

Highlights

- Maiden Mineral Resource Estimate (Resource) for the Penny West Project of **799 kt @ 13.8 g/t for 355,500 oz.**
- Includes **569 kt at 16.8 g/t Au for 306,800** oz from Penny North.
- High confidence: ~75% of Resources at an Indicated status (Indicated resources total 268,000 oz Au at a grade of 17.8 g/t Au, with the Penny North Indicated component grading **18.6 g/t Au for 247,000 oz Au**.
- Resource delivered <8 months since discovery of Penny North (March 2019) at an exploration cost of approximately $10 per oz.
- Resource is shallow, delineated from 80m to 320m (below surface).
- Resource indicates 1,480 ounces per vertical metre.
- Initial metallurgical test work indicates that Resources are free milling with average recoveries of > 99%.
- Mineralisation is open at depth and along strike and has very strong extension potential.
- Recent extensional drilling is not included in the Resource shown in Figure 1. Results are pending and may form the basis for future Resource growth.
- Diamond and RC drilling currently continues from Penny North, to Columbia Magenta.
- Baseline environmental studies will be completed over the Penny North project in the December quarter.

Spectrum Metals Limited ('SPX' or 'the company') is pleased to announce a maiden JORC 2012 Mineral Resource Estimate ("Resource") at the Penny West Gold Project totaling **799,000 t at 13.8 g/t Au for 355,500 oz of contained gold**.

Lode	Indicated			Inferred			Total		
	Tonnes t	Au g/t	Au Ounces	Tonnes t	Au g/t	Au Ounces	Tonnes t	Au g/t	Au Ounces
Penny North	414,000	18.6	247,000	155,000	12	59,800	569,000	16.8	306,800
Penny West	54,000	12.1	21,100	93,000	5.1	15,400	147,000	7.7	36,400
Minor Zones				82,000	4.6	12,300	82,000	4.6	12,300
Total	**468,000**	**17.8**	**268,000**	**331,000**	**8.2**	**87,500**	**799,000**	**13.8**	**355,500**

Penny West Gold Deposit October 2019 Mineral Resource (2.0g/t Au cut-off)

Managing Director Mr Paul Adams commented:

"Spectrum is extremely pleased to be publishing this Maiden Resource only 8 months from discovery of the Penny North Lode. At an all-in discovery cost of $10 per ounce this has been a very exciting year for all stake holders in Spectrum and we anticipate the further rapid growth of this gold system. Planned drilling will also aim to bring the Magenta and Columbia prospects to resource status."

Next steps

- Work has commenced on a Maiden Reserve Statement to be released in the March quarter 2020.
- Diamond and RC drilling will move to the Magenta and Columbia prospects while current Penny North core is logged and processed for analysis.
- A downhole EM program is to be conducted this quarter at Penny North. The program aims to better delineate the high sulphide zones associated with the highest grade mineralisation.
- Pending success of the downhole EM survey, a surface EM survey may be conducted to define robust targets along the corridor between Penny North and Columbia.

Maiden Resource

A Mineral Resource Estimate for the Penny West Gold Project was completed in October 2019 by Payne Geological Services Pty Ltd ("PayneGeo"). The estimate included all available drilling results received as at 14 October 2019. The estimate incorporated the results of the major drilling program completed by Spectrum in 2019 which has delineated a zone of high-grade gold mineralisation at Penny North as well as confirming the remnant mineralisation at Penny West.

The high-grade lodes within the deposit are visually identifiable due to the well-developed and highly tabular quartz-sulphide veining that is present. The Penny North and Penny West lodes are spatially separate and have been separately modelled and estimated.

Any future mining of the Resource is likely to be via underground mining and therefore the resource has been modelled with a 2.0 g/t Au cutoff. Early diamond drilling shows a competent rock mass with exceptional geotechnical properties. Preliminary metallurgical studies indicate that excellent recoveries can be expected.

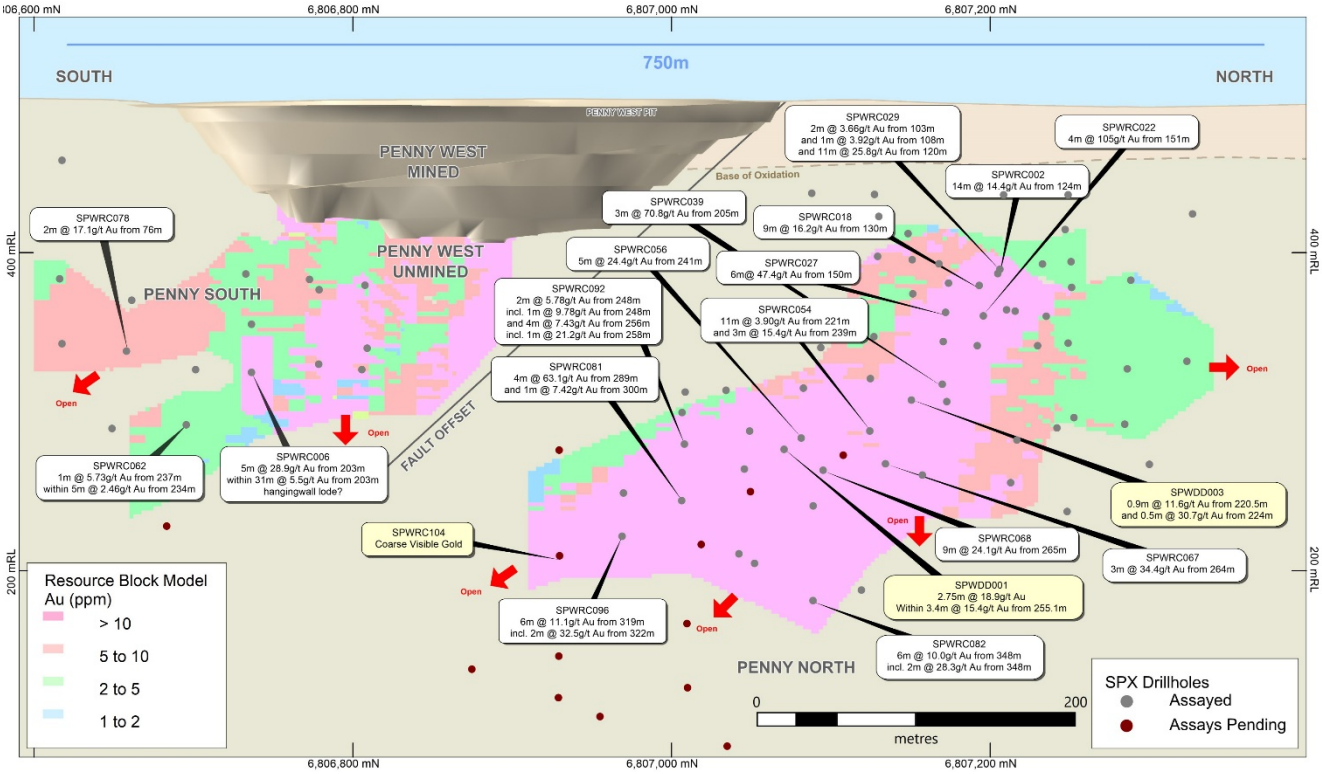

Figure 1. Long section of the resource model with resource block grade and drilled diamond holes (awaiting results).

Spectrum has recently been diamond drilling at Penny North to provide further confidence to the resource area and at depth to test extensions to mineralisation. Diamond drilling is currently being completed with site geologists geologically, geotechnically and geochemically (pXRF) logging the core. Field crews are measuring specific gravity (density) for all ore and wallrock samples prior to cutting and sample dispatch. Assays have been received for two diamond holes and those holes have been incorporated into the maiden Resource model. Results for the remaining fourteen diamond holes are will be released in coming weeks. Results for the two diamond holes are listed below:

SPWDD001 – **3.4m @ 15.4 g/t gold** from 255.1m, including **2.75m @ 18.9 g/t gold** from 255.1m, and 0.45m @ 1.26 g/t gold from 261.4m

SPWDD003 – **0.9m @ 11.6 g/t gold** from 220.5, and **0.5m @ 30.7 g/t gold** from 224.0m

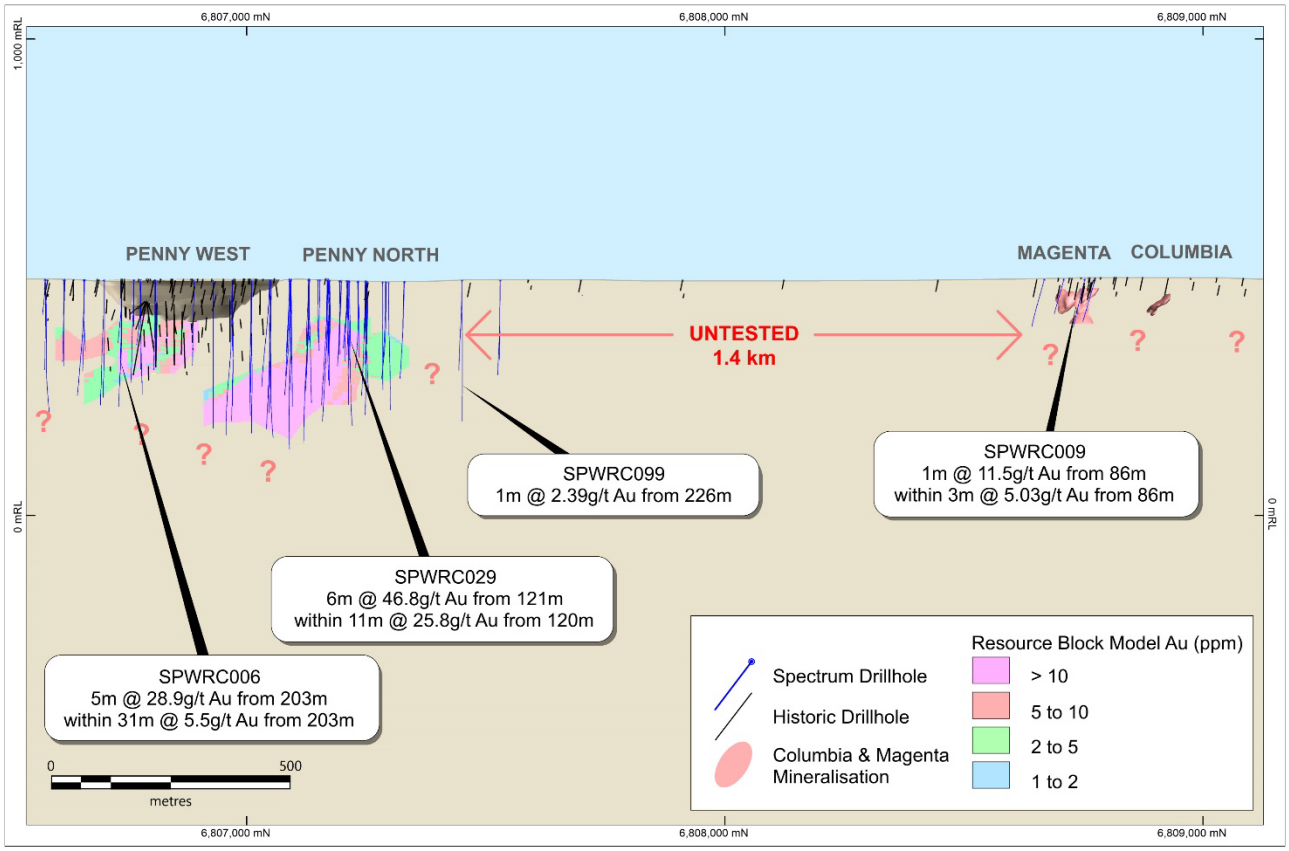

Figure 2. Long section from Penny West to Columbia Magenta showing untested zone

For further information please contact:
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Maiden Mineral Resource Estimate - Supporting Information

Mineral Resource Statement Overview

The Penny West Project area has been held by a number of operators and has been drilled in several phases since initial discovery and open pit mining of the deposit during the 1980's and 1990's. A portion of the original Penny West deposit has been re-estimated using mainly historic surface RC and diamond drilling as well historic RC grade control drilling.

In 2019, the Penny North lode was discovered and delineated by surface RC and diamond drilling all of which has been completed by Spectrum.

A Mineral Resource Estimate for the Penny West Gold Project was completed in October 2019 by Payne Geological Services Pty Ltd ("Pangea"). The estimate included all available drilling results received as at 14 October 2019. The estimate incorporated the results of the major drilling program completed by Spectrum in 2019 which has delineated a zone of high-grade gold mineralisation at Penny North as well as confirming the remnant mineralisation at Penny West.

The high-grade lodes within the deposit are visually identifiable due to the well-developed and highly tabular quartz-sulphide veining that is present. The Penny North and Penny West lodes are spatially separate and have been separately modelled and estimated. A summary of the 2019 Penny West Mineral Resource Estimate is provided in Table 1 below.

Table 1: Penny West Gold Deposit October 2019 Mineral Resource Estimate

Lode	Indicated			Inferred			Total		
	Tonnes t	Au g/t	Au Ounces	Tonnes t	Au g/t	Au Ounces	Tonnes t	Au g/t	Au Ounces
Penny North	414,000	18.6	247,000	155,000	12	59,800	569,000	16.8	306,800
Penny West	54,000	12.1	21,100	93,000	5.1	15,400	147,000	7.7	36,400
Minor Zones				82,000	4.6	12,300	82,000	4.6	12,300
Total	**468,000**	**17.8**	**268,000**	**331,000**	**8.2**	**87,500**	**799,000**	**13.8**	**355,500**

(2.0g/t Au cut-off)

Geology and Geological Interpretation

The Penny West deposit lies within the Archaean-aged Youanmi greenstone belt. Host stratigraphy for the Penny West deposit is a sequence of steeply dipping mafic and ultramafic rocks with minor felsic intrusives. Gold mineralisation is associated with steeply east dipping, quartz-sulphide veins typically 2m to 5m in width. The lodes are visually distinct and typically display sharp boundaries to the mineralisation. Minor zones of discontinuous mineralisation occur in the hangingwall of the main lodes and the strongest of these have also been modelled and included in the estimate.

The mineralised veins lie adjacent to the contact between a gabbro and granodiorite unit and wall rocks are typically mylonitic with some albite and sericite alteration. The quartz veins are variably

massive, laminated or brecciated with a highly variable sulphide assemblage of pyrite, pyrrhotite, galena and sphalerite.

Weathering occurs to a depth of approximately 40m however all reported Mineral Resources are entirely within fresh rock.

The Penny North mineralisation has been interpreted and estimated from the upper limit of mineralisation at 80m to the maximum drilled depth of 320m below surface. It has been modelled as a gently south plunging shoot with a north-south extent of 400m and a vertical extent of 240m.

The Penny West mineralisation has been modelled from the base of the historic open pit at 80m depth to the base of drilling at 220m below surface. The lode is delineated over a strike extent of 300m.

Drilling Techniques

The Penny West drilling database includes records for 1,393 exploration drill holes for a total of 87,700m of drilling. In addition, 1,632 grade control holes completed in the Penny West pit are included. The Mineral Resource is defined by 94 RC and 22 diamond drill holes for a total of 22,500m. The majority of the holes were angled at -60^{o} to grid west and intersected the lodes at angles approximately perpendicular to their orientation.

The Penny North lode has been drilled at 40m by 40m spacings, with selected infill to 20m spacings. The lower portion of the lode has been drilled at hole spacings of 40m to 80m on 40m spaced cross sections. All holes in the Penny North lode were completed by Spectrum in 2019.

The Penny West lode has been drilled at 20m by 20m spacings in the portion of the deposit immediately below the open pit. The lower portion and the southern strike extensions of the lode have been drilled at hole spacings of 40m to 80m. The majority of holes in the lode were completed by previous operators between 1989 and 2004.

Spectrum drill hole collars were surveyed in MGA coordinates using DGPS. Historic holes were surveyed in either AMG or local grid and were transformed to MGA Zone 50 coordinates for interpretation and modelling. Down hole surveys were recorded for the majority of holes using electronic multi-shot survey and gyro instruments (Spectrum) or single-shot and multi-shot camera (historic).

Sampling and Sub-sampling Techniques

For Spectrum RC drilling, a face-sampling hammer was used with samples collected at 1m intervals from mineralised zones with composite sampling of 4m in unmineralised rocks. Samples were collected through rig-mounted cone splitters. Samples were reported to have been kept dry throughout the mineralised zones and visually determined recoveries were good.

Spectrum diamond drilling was completed using a HQ or NQ drilling bit for all diamond holes. Core samples selected from geological observation were cut in half for sampling, with a half core sample sent for assay at measured geological intervals ranging from 0.2m to 1.05m.

Drilling records for historic drilling were not available. However previous evaluation reports have noted that historic RC drilling was carried out using face sampling hammers with samples collected via a rig mounted cyclone. Historic core diameter is unknown, however samples were cut at geological boundaries.

Sample Analysis Method

Samples from all resource drilling were assayed at contract laboratories using a fire assay technique. The recent Spectrum drilling was assayed at Intertek Laboratories or ALS using a 50g fire assay. Historic drilling is recorded as using either 30g or 50g fire assay.

Quality control data was collected from Spectrum drilling and included the use of blanks, certified standards and field duplicates. Detailed review of the QAQC data determined that the results were satisfactory and that the drilling database was suitable for resource estimation.

Historic QAQC protocols have been reported in evaluation reports. They indicated that QAQC protocols were in place for the majority of the programs and that results were satisfactory.

The Spectrum infill drilling in the Penny West lode supports the previous drill hole data suggesting that there is no problem with the spatial location and tenor of mineralisation defined in the historic drilling.

Estimation Methodology

The deposit was estimated using ordinary kriging ("OK") grade interpolation of 1m composited data within wireframes prepared using either logged vein margins or a nominal 0.5g/t Au envelope. These were modelled as two main lodes (spatially separate lodes for Penny North and Penny West) as well as three minor hangingwall lodes. All lodes were estimated separately using hard boundaries.

Interpolation parameters were based on geostatistical analysis and considered the geometry of the individual lodes. A first pass search of 60m with a minimum of 8 samples and a maximum of 16 samples was used which resulted in 58% of the blocks being estimated. A second pass with a search range of 90m filled a further 41% of the blocks. Remaining blocks were filled with a 120m search and minimum of 2 samples.

High grade cuts were applied to different lodes. A high grade cut of 170g/t was applied to the Penny North lode, 140g/t was applied to the Penny West lode and 20g/t was applied to the minor lodes.

A Surpac block model was used for the estimate with a block size of 4m EW by 10m NS by 10m vertical with sub-cells of 0.5m by 2.5m by 2.5m.

Bulk density values used in the resource estimate were based on determinations from drill core. Values applied to the model were 2.0t/m^3 for Oxide, 2.4t/m^3 for Transition and 2.80t/m^3 for Primary mineralisation and 2.70t/m^3 unmineralised fresh rock.

Mineral Resource Classification

Mineral Resource classification was considered on the basis of drill hole spacing and continuity of mineralisation.

The Penny North lode displays excellent continuity of structure and relatively consistent continuity of gold grade. The portion of the lode defined by 40m by 40m drilling with selective confirmatory infill to 20m has been classified as Indicated Mineral Resource. The more sparsely drilled southern and northern parts of the lode including the 60m down plunge extrapolation of the lode were classified as Inferred Mineral Resource.

The Penny West lode displays good continuity of structure and relatively consistent continuity of gold grade. The portion of the lode immediately below the open pit and defined by 20m by 20m drilling has been classified as Indicated Mineral Resource. The more sparsely drilled depth extension and less continuous southern extension of the lode were classified as Inferred Mineral Resource.

The minor hangingwall lodes were classified as Inferred Mineral Resource.

Cut-off Grades

The Penny North and Penny West lodes show excellent continuity of high-grade gold mineralisation of sufficient tenor and thickness to have potential for underground mining. To reflect the potential development of the deposit using underground mining, the Mineral Resource has been reported at a cut-off grade of 2.0g/t Au.

Metallurgy

Preliminary metallurgical test work has been carried out on drill samples from the Penny North lode confirming that the mineralisation is amenable to conventional cyanide leaching. Historic processing of the Penny West lode was carried out using conventional cyanide extraction and there is nothing to suggest that there will be different metallurgical characteristics in the remaining Mineral Resources.

Modifying Factors

No modifying factors were applied to the reported Mineral Resources. Parameters reflecting mining dilution, ore loss and metallurgical recoveries will be considered during the planned mining evaluation of the project.

The reported Mineral Resource Estimate has been depleted to account for existing open pit mining of the Penny West lode. No historic mining has occurred in the Penny North lode.

COMPETENT PERSONS' STATEMENTS

The Information in this report that relates to Mineral Resources is based on information compiled by Mr Paul Payne, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Payne is a full-time employee of Payne Geological Services. Mr Payne has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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 Payne consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Data and Exploration Results is based on information compiled and reviewed by Mr John Downing, a Competent Person who is a Member of the Australian Institute of Geoscientists (MAIG) and a consultant to Spectrum. Mr Downing, who is also a shareholder, has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves'. John Downing consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Where reference is made to previous releases of exploration results in this announcement, the Company confirms that it is not aware of any new information or data that materially affects the information included in those announcements and all material assumptions and technical parameters underpinning the exploration results included in those announcements continue to apply and have not materially changed.

Table 1. Collar Table

COLLAR ID	START DATE	EAST (GDA94_z50)	NORTH (GDA94_z50)	RL (Ausgeoid09)	LOCATION METHOD	EOH DEPTH	COLLAR DIP	COLLAR AZIMUTH
SPWDD001	13/09/2019	676741	6807070	493	Planned	290	-60	270
SPWDD003	8/09/2019	676693	6807149	493	Planned	261.6	-60	270

Table 2. Assay Table

COLLAR ID	FROM	TO	INCL	INTERVAL (m)	Au (ppm)
SPWDD001	255.1	258.5		3.4	15.4
	255.1	257.85	Incl	2.75	18.9
	261.4	261.85		0.45	1.26
SPWDD003	220.5	221.4		0.9	11.6
	224	224.5		0.5	30.7

About Spectrum Metals Ltd

Spectrum Metals Limited (ASX: SPX) is a domestic West Australian focused gold exploration and development company. Concentrating on high-grade, brown fields assets, that can leverage off existing infrastructure and add value through exploration and development. Spectrum will continue to identify and explore under explored terrain and brown fields assets through the use of modern techniques and technology to maximise success.

Forward Looking Statements

Statements regarding Spectrum's plans with respect to its mineral properties and programmes are forward-looking statements. There can be no assurance that Spectrum's plans for development of its mineral properties will proceed as currently expected. There can also be no assurance that Spectrum will be able to confirm the presence of additional Mineral Resources/Ore Reserves, that any mineralisation will prove to be economic or that a mine will successfully be developed on any of Spectrum's mineral properties. The performance of Spectrum may be influenced by a number of factors which are outside the control of the Company and its Directors, staff and contractors.

Appendix 1 - JORC Table 1 Checklist of Assessment and Reporting Criteria

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 (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *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 (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Reverse circulation (RC) drilling using standard drilling equipment and rig mounted sampling system. No electronic measurement tools used in this program. • Diamond drilling sampling techniques in the usual manner, based on one-meter sample intervals outside the mineralised zones but on geological/mineralogical contacts for the mineralised zones • A pilot study has been completed on a northing section line using portable XRF techniques. P-XRF appears to be a suitable technique to constrain broad geological zones within the stratigaphy. • Emphasis placed on sample mass (approximately 3kg) and quality from the RC drilling. A lot of effort was put into ensuring that the splitter was level and clean during the drilling, particularly on entering an anticipated mineralised zone. • Logging identifies mineralisation in the RC drill chips and diamond core. In addition, panning of RC chips is used to gain qualitative insights into the tenor of gold mineralisation within the main lode. • Industry standard RC drilling with 1 metre samples collected from a rig mounted sampling system. Sample intervals determined by anticipated intersection of lode. Four (4) meter composite samples taken from zones not expected to contain mineralisation. Geological logging used as the final determinant as to whether to under-take 1m splits on 4m composites. Standard 50 g sample for assay by fire assay method for gold after pulverisation at a Perth certified laboratory.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter,*	• RC drilling using downhole hammer and face sampling button bit • Stabiliser rods used above the hammer to provide directional control

Criteria	JORC Code explanation	Commentary
	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).	• Diamond drilling undertaken with standard diamond drilling equipment including a UDR650 multi-purpose diamond rig utilizing a 3 meter chrome barrel in HQ core size. All core is orientated with a standard DDH1 orientation tool and diamond tails range in length from 100m to over 200m
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.*	• RC Sample recovery estimated by mass of sample in the calico sample bag and from the plastic residue bag under the rig mounted sample system • Diamond drill core sample recovery estimated during logging by comparing length of intact core to depth gauge on the rig. Core recovery is very high and the core is extremely competent, even within the mineralised zones. • A lot of emphasis has been placed on correct levelling of the sample system to ensure optimal sample representivity. Differences in sample weight between original sample and duplicates can provide a quantitative estimate of representative sampling • It is unknown at this stage whether there is any relationship between sample recovery and grade in RC drilling
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 of the logging to a very high standard by an experienced and well qualified geologist and would be appropriate for later inclusion in a mineral resource estimate • Logging is qualitative in RC chips and qualitative and quantitative in diamond drill core. • The whole of hole has been logged to the same standard.
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.*	• RC samples collected by on-board rotary cyclone. In some case composite samples collected by spear sampling in the case of 4m composites. However, if composite display elevated mineralisation, 1m splits are immediately available from existing 1m samples collected directly from the cyclone • Diamond drill core is subsampled based on geology / mineralisation

Criteria	JORC Code explanation	Commentary
	• *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.*	• The QA/QC program has been appropriate in terms of numbers of blanks, standards and duplicates. Two standard grades have been used in addition to blanks. This is applied to both RC chips and diamond drill core. • Field duplicate sampling has been conducted for the RC drilling program • Sample sizes and techniques were appropriate for homogenous distribution and for grain size. Mass estimates for the samples from the cyclone are appropriate for the diameter of the drill rods employed
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Assays have been conducted on a 50 g fire assay charge for both drilling methods • No geophysical tools have yet been applied to the RC chips or diamond holes • Blanks, standards, duplicates and laboratory quality control have all been monitored and are acceptable.
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.*	• All logging and sample preparation in the field has been conducted by qualified company geologists, independent consulting geologists and field personnel. • No twinned holes. This drilling is located in a new zone of mineralisation following up a small, but high-grade intersection. • All drilling data is extremely well documented. Primary data for current exploration work is available electronically from the laboratory reports.

Criteria	JORC Code explanation	Commentary
		• There has been no adjustment to the data.
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.*	• Drill-hole collar, locations located by survey +/- 1m. Holes have down-hole surveys every 30m using a gyroscopic downhole tool • Location data is set out on GDA94 Zone 50 grid and location set out performed by DGPS • Topographic control adequate with an accuracy of around 1m vertical. Digital topographic data provided by DTM from Landgate supported by DGPS survey. • A new survey has been flown over the entire Penny West lease and has been tied in to known survey markers by an independent consulting survey firm.
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 intersections described in this announcement are from Penny North and Magenta prospects. More drilling will be required in order to determine a resource estimate, however continuity of the geological structure appears reasonable at this stage • Sampling on 1 m increments has been used above, within and below the high-grade intersections. Compositing has only been applied to the hanging wall part of the sequence in RC holes. • Diamond hole pre-collars have not been sampled at this point where diamond holes are designed within the known parts of the Penny North mineral envelope.
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 intercepts at Penny West have historically been orthogonal to the plane of the mineralisation. Holes into the Penny North Structure appear to be orthogonal also to the strike of the structure. • There is no obvious sampling bias from the information gathered so far

Criteria	JORC Code explanation	Commentary
Sample security	• *The measures taken to ensure sample security.*	• Samples collected from the rig and organised by independent geologists and field personnel. Samples collected from site and driven directly to accredited laboratory in Perth
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Reviews are regularly undertaken at the rig to ensure no sample bias between the primary and secondary samples from the dust collector

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.*	• Mining leases M57/180 and 196 originally held by Plateaux Resources Pty Ltd and Patina Resources Pty Ltd in a 30/70 Joint venture. Tenement acquisition agreement between Plateaux, Patina, and Spectrum Metals Limited provides 100% ownership to Spectrum through a 100% owned subsidiary Zebra Minerals Pty Ltd. Royalty provisions are 0.5% NSR after the first 7,500 ozs of production, which can be bought out at any time at SPX's election for $750,000. No native title or environmental issues. • Tenements are in good standing with no known impediments
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The project area has been explored and mined by previous parties. The results of this work including past production is described in Spectrum's ASX Announcement dated 16 October 2018. Appraisal of this previous exploration occurred during the due diligence period and continues
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Penny West deposit is typical structurally controlled gold-quartz vein in a brittle-ductile shear zone associated with a sulphide complex containing pyrite, pyrrhrotite, galena, sphalerite and chalcopyrite.
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*	• See Table 1 and Table 2 in the ASX announcements

Criteria	JORC Code explanation	Commentary
	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.*	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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.*	• A gold upper cut-off grade of 170 g/t has been used historically. These intersections calculated using a lower cut-off of 0.5 g/t but no top cut has been used • Internal high-grade intercepts are based on grades above 5.0 g/t • No metal equivalent values 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 (eg 'down hole length, true width not known').*	• Down hole lengths have been used. True width not yet known • The Penny West lode dips to the east at 65° to 80°. The geometry of the Penny North lode dips variably between 45 and 65°.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should*	• Maps and sections are contained within announcement, with an interpreted trace of the extensional mineralisation with respect to the

Criteria	JORC Code explanation	Commentary
	include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	known Penny North lode located within the historic Penny West Pit, at the same RL
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 data has been 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.*	• A Sub-Audio Magnetic survey has been completed over the interpreted Penny West Shear zone over a strike length of approximately 4km. • Several geophysical anomalies have been generated by this work. • Sighter metallurgical test work has been performed on selected composite samples from the upper parts of the Penny North Lode. Those composite show excellent bench-scale test work recoveries, in the order of 99%, via standard crush-grind-gravity-leach flow sheet by an independent metallurgical laboratory, based in Perth.
Further work	• *The nature and scale of planned further work (eg 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.*	• Further drilling will be necessary to establish the potential for this area to host additional high-grade mineralisation. • More work needs to be performed to define high priority targets for this additional drilling.

JORC Table 1 Section 3 Estimation and Reporting of Mineral Resources

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 was captured electronically to prevent transcription errors. • Validation included comparison of gold results to logged geology to verify mineralised intervals.

Criteria	JORC Code explanation	Commentary
	• *Data validation procedures used.*	
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 was undertaken by the Competent Person in October 2019 to review current drilling and sampling procedures, to verify the extent of mining operations, locate drill collars from previous drilling, and to confirm that no obvious impediments to future project exploration or development were present.
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 confidence in the geological interpretation is considered to be good, with highly continuous mineralised structures defined by good quality drilling. • The deposit consists of steep dipping mineralised lodes which have been interpreted based on logging and assay data from samples taken at regular intervals from angled drill holes.
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 combined Penny West Mineral Resource area extends over a strike length of 750m. Mineralisation commences at 80m vertical depth and extends to 320m 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.*	• Using parameters derived from modelled variograms, Ordinary Kriging (OK) was used to estimate average block grades within the deposit. • Surpac software was used for the estimation. • High grade cuts applied to 1m composite data were 170g/t for Penny North, 140g/t for Penny West and 20g/t for minor lodes. • The parent block dimensions used were 10m NS by 4m EW by 10m vertical with sub-cells of 0.5m by 2.5m by 2.5m. The parent block size was selected by KNA and is 50% of the drill hole spacing in the deposit area beneath the existing pit. • Historical production records were available for an open pit completed in 1992 and a portion of historic grade control data was available which largely confirms the current interpretations.

Criteria	JORC Code explanation	Commentary
	• *Estimation of deleterious elements or other non-grade variables of economic significance (eg 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.*	• No previous resource estimates have been completed for the Penny North lode. • No assumptions have been made regarding recovery of by-products. • No estimation of deleterious elements was carried out. Only Au was interpolated into the block model. • An orientated ellipsoid search was used to select data and was based on parameters derived from the variography. • An initial interpolation pass was used with a maximum range of 60m which filled 58% of blocks. A second pass radius of 90m filled 41% of the blocks and a third pass range of 120m filled the remaining 1% of blocks. • A minimum of 8 samples was used for the first pass, and this was reduced to four and then 2 for the subsequent passes. A maximum of 16 samples was used for all passes. • Selective mining units were not modelled in the Mineral Resource model. The block size used in the model was based on drill sample spacing and lode orientation. • Only Au assay data was analysed. • The deposit mineralisation was constrained by wireframes constructed using either logged vein margins or 0.6g/t Au cut-off grade. • The wireframes were applied as hard boundaries in the estimate. • For validation, trend analysis was completed by comparing the interpolated blocks to the sample composite data within 20m easting intervals and by 10m vertical intervals.
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.*	• The Mineral Resource has been reported at a 2.0g/t Au cut-off based on assumptions about economic cut-off grades for underground mining.
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 has previously been mined using selective open pit mining methods. • Portions of the Mineral Resource are considered to have sufficient grade and continuity to be considered for underground mining. • No mining parameters or modifying factors have been applied to the Mineral Resource.

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.*	• Processing was undertaken by previous operators at the project and good recoveries were reported from conventional cyanide leaching; • Results of recent test work have demonstrated that good gold recovery can be expected from conventional processing methods.
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.*	• The previous mining operation included the development of waste dumps at the site. • The area is not known to be environmentally sensitive and there is no reason to think that approvals for further development including the dumping of waste would not be approved.
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 (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Bulk density determinations were made on samples from drill core using the weight in air/weight in water method. • Bulk density values used in the resource were 2.0t/m^3, 2.4t/m^3 and 2.80t/m^3 for oxide, transitional and fresh rock types respectively.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken*	• Mineral Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC,

Criteria	JORC Code explanation	Commentary
	of all relevant factors (ie 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.*	2012). The Mineral Resource was classified as Indicated and Inferred Mineral Resource on the basis of data quality, sample spacing, and lode continuity. • The Indicated portion of the Mineral Resource was defined where good continuity of mineralisation was evident and within the drilled area where hole spacing ranged from 20m by 20m at Penny West or 40m by 40m at Penny North. • The remaining portions of the deposit were classified as Inferred Mineral Resource due to poor grade continuity or sparse drilling. • The definition of mineralised zones is based on sound geological understanding producing a robust model of mineralised domains. This model has been confirmed by previous mining which supported the interpretation. • 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.*	• A documented internal audit of the Mineral Resource estimate was completed by the consulting company responsible for 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 Penny West Mineral Resource estimate is considered to be reported with a high degree of confidence. The consistent lode geometry and continuity of mineralisation is reflected in the Mineral Resource classification. The data quality is good and the drill holes have detailed logs produced by qualified geologists. • The Mineral Resource statement relates to global estimates of tonnes and grade. • The deposit is not currently being mined. Production records are available for historical open pit mining completed at the deposit.