# 4 July 2022

**ASX Limited** - Company Announcements Platform

# ARMADA METALS LIMITED (ASX: AMM)

# ROCK SAMPLING CONFIRMS MAGMATIC SULPHIDE POTENTIAL EXTENDS FOR OVER 60KM AT THE NYANGA PROJECT

# Highlights:

- Surface hand-grab samples, collected along the Ngongo-Yoyo Trend ('NYT'), have confirmed the presence of outcropping ultramafic intrusions with observed magmatic sulphides for a further 40km southeast of the Libonga-Matchiti Trend ('LMT'), extending the overall potential trend to over 60km.
- Laboratory analysis of the samples has confirmed that the NYT is a complex, dynamic multi-phased magma conduit system, with crustal contamination having caused extensive sulphur saturation, with the source of the magma in the NYT magmatic system the same as the LMT.
- The data further support intrusion fertility for polymetallic magmatic mineralisation, and that this is a potentially emerging and regionally significant orogenic-associated magmatic sulphide province.

Armada Metals Limited (ACN 649 292 080) ('Armada', 'AMM', or 'Company') is pleased to announce that the analysis of surface hand grab samples along the Ngongo-Yoyo Trend ('NYT'), extending 15km to 40km southeast of the Libonga-Matchiti Trend ('LMT', Figure 1), has confirmed the presence of outcropping ultramafic intrusions with observed magmatic sulphides.

Field investigations of two advanced exploration targets (Ngongo and Yoyo), both situated within licence G5-555, were undertaken in 2021. Outcropping ultramafic lithologies, at these targets were given priority for the initial field investigations as they are situated along-strike from the LMT where high-priority targets have been drilled in 2022 (announcement of drilling results on 21 June 2022).

Hand-grab samples were collected from 227 locations (Figure 1) and included rock chips sources from both sub-crop and outcrop. Samples were sent for laboratory assay post-renewal of exploration licence G5-555 (see ASX announcement dated 2<sup>nd</sup> March 2022).





Richard Hornsey, from Richard Hornsey Consulting Ltd ('**RHC**'), and Armada's magmatic system consultant, has completed a lithogeochemical review using the data to provide expert analysis of the intrusions and magmatic processes.

The NYT is confirmed to be a complex, dynamic multi-phased magma conduit system, with crustal contamination having caused extensive sulphur saturation. The results extend the overall prospective trend, incorporating both the LMT and NYT, to over 60km.

Exploration of the NYT will be included in further programs to commence as soon as possible, to assist in the direct detection of potential economic accumulations of magmatic sulphides.

#### Armada's Managing Director Dr Ross McGowan commented:

"These results again confirm that Armada's minerals systems approach to exploration is a valid toolkit. Encouragingly, these latest results demonstrate geochemical signals which we know relate to the potential formation of magmatic sulphide accumulations, and over a larger area than previously thought. In particular, these results mirror the signals that we are seeing along the 25km-long Libonga-Matchiti Trend, where we have recently intersected magmatic sulphide mineralisation, extending the enlarged prospective trend to over 60km. Together with the positive results from our Phase 1 drilling program, announced recently, this is a significant development for our exploration for magmatic Ni-Cu-PGE sulphides and for the scale of the Nyanga Project."





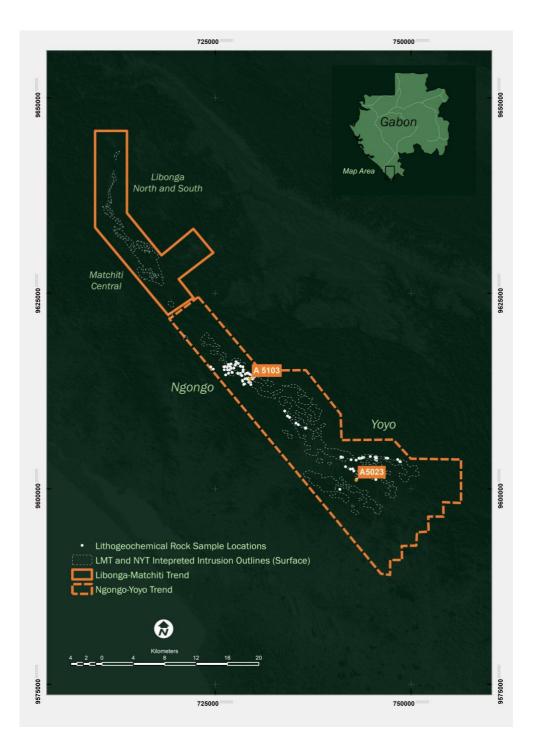


Figure 1: Location of the Ngongo- Yoyo Trend and the rock-grab sampling locations





### Technical Discussion - Lithogeochemical Review - Ngongo-Yoyo Trend

- The Ngongo-Yoyo Trend ('NYT') is situated 15km to 40km southeast of the LMT. Geological mapping and rock-grab sampling has identified multiple bedrock exposures over the two principal areas of interest at targets named Ngongo and Yoyo (Figure 1).
- A total of 227 rock-grab samples were collected over a total strike length of over 25km.
- Disseminated magmatic sulphides (definitions in Appendix 3) have been visually logged in 28 samples (Figure 2).
- A full lithogeochemical analysis has been completed with the results analysed in a proprietary ioGAS template (along with samples from the LMT) specifically developed by RHC for the geochemical characterisation and evaluation of mafic-ultramafic intrusions.



Figure 2: Hand specimens collected from outcrop along the Ngongo-Yoyo Trend ('NYT').





### Principal conclusions of this work are:

- All intrusions sampled are similar in composition, with a bimodal distribution of dunites and gabbros. Compositional breaks in the data indicate that fractionation did not occur within the intrusions, indicating a dynamic multi-phased magma conduit system.
- The rare earth element (REE) plots indicate that the magmas were derived from shallow to intermediate-depth mantle melting that produced komatiite magma of tholeiitic composition with extensive crustal contamination.
- The intrusions have elevated base and precious metal content, and there are indications that chalcophile element accumulation may have occurred through sulphur saturation.
- The platinum/palladium (Pt/Pd) ratio is 1:1 for all intrusions for which data are available.
   This is another indicator of shared process and that all the intrusions have the same magma provenance.
- The data further supports intrusion fertility for polymetallic magmatic mineralisation and demonstrates that this is a potentially emerging and regionally significant orogenicassociated magmatic sulphide province.

This announcement has been authorised on behalf of the Armada Metals Limited Board by: Dr Ross McGowan, Managing Director & CEO.

-ENDS-

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#### Background on Armada

Armada was established to define new belt-scale discovery opportunities for key commodities (principally nickel and copper) in under-explored regions of Africa. Armada is exploring a multitarget project opportunity for magmatic Ni-Cu sulphides in the Nyanga area, southern Gabon. The Company is supported by a Board and Africa-based technical team both with a track record





of successful African projects. Key members of the Armada targeting team were part of the team awarded the 2015 PDAC Thayer Lindsley Award for an International Mineral Discovery (as members of the Kamoa discovery team with Ivanhoe Mines).

#### Background on Richard Hornsey Consulting (Pty) Ltd

Richard Hornsey Consulting (Pty) Ltd ('RHC') has been retained by the Company to support the Company's technical team and influence the exploration strategy.

Richard Hornsey Consulting (Pty) Ltd ('RHC') is an African-based consultancy that was established to provide specialist geological consulting services to the mineral exploration and resource sector. Richard Hornsey is the principal of RHC and is a globally recognised expert in Ni-sulphide and PGE exploration and mine development. Before RHC, Richard was engaged full time by MMG Ltd as the Ni Commodity Team Leader with a global exploration mandate. RHC have been retained by the Company to provide (but not limited to) to the following: 1) technical consulting in sulphide Ni and PGE metals exploration, geological field services, data compilation and three-dimensional interpretation, and on-site technical reviews and exploration staff mentoring.

#### **Competent Persons Statement**

The information in this report relates to mineral exploration results and exploration potential based on work compiled under the supervision of Mr Thomas Rogers, a Competent Person and a member of a Recognised Professional Organisation (ROPO). Mr Rogers is contracted to the Company as Technical Manager and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Rogers is a member of the South African Council for Natural Scientific Professions, a ROPO. Mr Rogers consents to the inclusion in this report of the information in the form and context in which it appears.

#### Forward-Looking Statements

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Armada Metals Limited's planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential", "should," and similar expressions are forward-looking statements. Although Armada Metals Limited believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.





# Appendix 1: The Nyanga Project Background

The Company has developed a multi-target exploration pipeline consisting of 18 targets. Advanced exploration has so far been focused on the 25km-Long Libonga-Matchiti Trend ('LMT').

Five of these targets are located along the 25km-long Libonga-Matchiti Trend ('LMT'). This trend is marked by anomalous copper and nickel in soils along gabbro to peridotite fractionation suite units outcropping at surface.

The Ngongo-Yoyo Trend ('NYT') extends for up to 40km from the LMT in a south-easterly direction.



Figure 3: Location of the LMT and NYT within the Company's exploration licences.





# Appendix 2: JORC Code, 2012 Edition – Table 1

# 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.	<b>Rock-grab sampling</b> 1-2kg rock-grab samples are collected from outcrop, sub-outcrop, or loose boulders ('float') in the field Samples are crushed and pulverised to produce 30g and/or 50g charges for assay	
	<ul> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> </ul>		
	<ul> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> </ul>		
	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.		
Drilling techniques	<ul> <li>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).</li> </ul>	<ul> <li>No drilling programs have been conducted as part of the magmatic Ni-Cu exploration programs at the Ngongo-Yoyo Trend ('NYT')</li> </ul>	
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> </ul>	<ul> <li>No drilling programs have been conducted as part of the magmatic Ni-Cu exploration programs at the Ngongo-Yoyo Trend ('NYT')</li> </ul>	
	<ul> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> </ul>		
	<ul> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to</li> </ul>		





Criteria	JORC Code explanation	Commentary
	preferential loss/gain of fine/coarse material.	
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a</li> </ul>	<ul> <li>Geological logging is completed at the Tchibanga exploration base camp</li> </ul>
	level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	<ul> <li>Logging is qualitative, recording rock type and mineral abundance, where possible, by field geologist</li> </ul>
	<ul> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> </ul>	<ul> <li>Fine grained (aphanitic textured) rocks cannot be logged in the field</li> </ul>
	<ul> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Whole rock lithogeochemical analysis (CCP- PKG01) is used to identify the rock types</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all cores taken.</li> </ul>	<ul> <li>1-2 kg rock-grab samples are collected from outcrop, sub-outcrop, or loose boulders (float) in the field</li> </ul>
	<ul> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> </ul>	<ul> <li>Rock-grab samples are split in half using an industry standard core-splitting machine. A half</li> </ul>
	<ul> <li>For all sample types, the nature, quality, and appropriateness of the sample preparation technique.</li> </ul>	sample is sent to a preparation laboratory for analysis with the remaining half sample kept at the Tchibanga exploration base camp rock library for future reference
	<ul> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> </ul>	<ul> <li>Sample preparation is completed at Intertek Gabon Sarl ('Intertek') Libreville, Gabon</li> </ul>
	<ul> <li>Measures taken to ensure that the sampling is representative of the in-situ</li> </ul>	<ul> <li>Sample preparation proceedures used: WT01 / CR02 / RF02 / PU02 / SV03</li> </ul>
	material collected, including for instance results for field duplicate/second-half sampling.	<ul> <li>Industry standard laboratory QA/QC has been implemented, and is monitored</li> </ul>
	<ul> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Sample sizes are appropriate for the material being sampled</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures</li> </ul>	<ul> <li>Sample analysis is completed at ALS Minerals ('ALS')</li> </ul>
	used and whether the technique is considered partial or total.	<ul> <li>Analysis package: complete characterisation package - CCP-PKG01</li> </ul>
	<ul> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the</li> </ul>	<ul> <li>Method CCP-PKG01 includes ME-ICP06 / MEIR08 / ME-MS81, ME-MS42 and ME-4ACD81</li> </ul>
	analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	<ul> <li>PGM-ICP24 lead fire assay ICP-AES finish method used for Pt, Pd &amp; Au</li> </ul>
	<ul> <li>Nature of quality control procedures</li> </ul>	<ul> <li>All methods are considered suitable for the style of mineralisation targeted</li> </ul>
	adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been	Three standards were introduced into the sample batch. No blanks and duplicates were





Criteria	JORC Code explanation	Commentary
	established.	included for the lithogeochemical analysis
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> </ul>	<ul> <li>No drilling programs have been conducted as part of the magmatic Ni-Cu exploration programs at the Ngongo-Yoyo Trend ('NYT')</li> </ul>
	<ul> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>All primary paper data is held at the Tchibanga exploration base camp, digitised data is held in a managed database on and off site. All data is entered by the field geologist responsible for the program</li> <li>No adjustments to assays have occurred</li> </ul>
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>For all sampling programs commercial handheld Garmin GPSmap 62 units were used</li> <li>WGS-84 32S datum</li> <li>Handheld GPS data is adequate for the reporting of surface rock ship samples</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>For all sampling programs commercial handheld Garmin GPSmap 62 units were used</li> <li>Data spacing is dictated by occurrences of mappable outcrop. Mineral Resource and Ore Reserve estimation proceedures and classifications are not being applied</li> <li>No compositing of samples has been applied</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>No drilling programs have been conducted as part of the magmatic Ni-Cu exploration programs at the Ngongo-Yoyo Trend ('<b>NYT</b>')</li> </ul>
Sample security	<ul> <li>The measures taken to ensure sample security.</li> </ul>	<ul> <li>Sample chain of custody forms were used when samples were sent to commercial laboratories</li> </ul>
Audits or reviews	<ul> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul> <li>The program is continuously reviewed by senior company personnel</li> <li>No third-party verification or audits have been completed to date</li> </ul>





# Section 2 Reporting of Exploration Results

Mineral tenement and land tenure status Exploration done by other parties	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>The Nyanga Ni-Cu project consists of two exploration licences: G5-150 and G5-555 two licences combined cover a total area 2,991 km<sup>2</sup></li> <li>The exploration licences comprising the Nyanga Project are wholly held by Armad Exploration Gabon SARL, a wholly owned subsidiary of Armada Exploration Limited turn a wholly owned subsidiary of the Company</li> </ul>	i. The of a
		<ul> <li>The permits are in good standing and no known impediments exist</li> </ul>	
	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	SYSMIN (2005-2009) Geophysics	
		<ul> <li>The contractor used for the portion flown across the Nyanga Basin was Council for Geoscience ('CGS'), South Africa (see bell details of the survey).</li> <li>SYSMIN magnetic and radiometric data acquisition (Block 3) (2009)</li> <li>The contractor used was Council for Geoscience ('CGS'), South Africa</li> <li>Block 3 was flown at a mean altitude of 1</li> <li>Survey Parameters – fixed wing platform</li> <li>Parameter</li> </ul>	ow for
		Flight Line 0° Direction	
		Flight Line 500 Spacing (m)	
		Tie Line Direction 90°	
		Tie Line Spacing 5000 (m)	
		Altitude (m) 120 Safety reason forest canopy	
		Area (km2) - Not reported	
		Actual Line 151,667 Kilometres (km)	





Criteria	JORC Code explanation	Commentary
		Geochemistry
		<ul> <li>During the period from 2005 to 2009, 14 million Euros of European Union funding was provided for a dual geological and geophysical survey program (SYSMIN) by the French, South African and Gabonese Geological Surveys to outline the mineral prospectivity of Gabon</li> </ul>
		This project had four components:
		<ul> <li>Geophysical data acquisition and re- processing</li> </ul>
		<ul> <li>Geological mapping leading to the publication of revised countrywide 1:1,000,000 and 1:200,000 scale geological maps</li> </ul>
		<ul> <li>Regional geochemical sampling</li> </ul>
		<ul> <li>The production of mine inventories</li> </ul>
		<ul> <li>All samples and data are archived at the Geology Department of the Mines Ministry, Libreville Gabon</li> </ul>
		This first three components cover the exploration permits and the complete datasets were acquired from the DGMG by Armada
		In 2018 Armada geological staff reanalysed all samples stored in archive as part of a QAQC exercise. Analysis was completed using the Armada PXRF. Armada sampling protocols were adopted for this exercise. Results of this exercise are stored in the company database along with the existing data files from the SYSMIN program
		<ul> <li>Data for 2,561 soil sample and 162 sediment samples, within exploration licence G5-150 and G5-555, are stored in the Armada geochemical database</li> </ul>
Geology	<ul> <li>Deposit type, geological setting, and style mineralisation.</li> </ul>	of The Company is exploring for intrusive-hosted magmatic nickel-copper-cobalt sulphides, with the possibility for platinum group element (PGE) by-product credits
Drill hole Information	<ul> <li>A summary of all information material to understanding of the exploration results including a tabulation of the following information for all Material drill holes:</li> </ul>	No drilling programs have been conducted as part of the magmatic Ni-Cu exploration programs at the Ngongo-Yoyo Trend ('NYT')
	<ul> <li>easting and northing of the drill hole collar</li> </ul>	
	<ul> <li>elevation or RL (Reduced Level –</li> </ul>	





Criteria	JORC Code explanation	Commentary
	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. 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	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>No cut-off grades are being reported</li> <li>No aggregate intercepts are being reported</li> <li>No metal equivalent values are reported</li> </ul>
	<ul> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
Relationship between mineralisation	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> </ul>	<ul> <li>No drilling programs have been conducted as part of the magmatic Ni-Cu exploration programs at the Ngongo-Yoyo Trend ('NYT')</li> </ul>
widths and intercept lengths	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	<ul> <li>Rock grab samples were collected from surface mapping therefore, depth and width extents are not known</li> </ul>
	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').	
Diagrams	<ul> <li>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.</li> </ul>	<ul> <li>Relevant diagrams have been included in the announcement</li> </ul>
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low- and</li> </ul>	<ul> <li>No ore-grade assay results are being reported</li> </ul>





Criteria	JORC Code	explanation	Commentary		
		es and/or widths should be to avoid misleading reporting of n Results.			
Other substantive exploration data	material, s not limited geophysica survey res method of results; bu geotechnic	oration data, if meaningful and hould be reported including (but l to): geological observations; al survey results; geochemical ults; bulk samples – size and 'treatment; metallurgical test Ik density, groundwater, cal and rock characteristics; leleterious or contaminating s.		No other substantive data exists	
Further work	work (e.g.,	e and scale of planned further tests for lateral extensions or ensions or large-scale step-out		The Company is currently reviewing the project data from the Ngongo-Yoyo Trend (NYT) to determine the type and extents of planned geophysical and mapping surveys in 2022	
	possible e: geological areas, pro	clearly highlighting the areas of xtensions, including the main interpretations and future drilling vided this information is not ally sensitive.	•	Refer to diagrams in the main body of text	





# Appendix 3: Armada field logging guidelines.

Armada sulphide field logging guidelines*		
Sulphide Mode	Percentage Range	
No sulphides	-	
Тгасе	<1%	
Disseminated & blebby	1-5%	
Strongly disseminated / vein	5-10%	
Matrix / stringer	10-20%	
Net-textured	20-40%	
Semi-massive	>40% to < 80%	
Massive	>80%	
Gossanous	-	

\*The Company advises that visual estimates of magmatic sulphide mineral abundance should not be used as a substitute for laboratory analyses where metal concentrations or grades are the factor of principal economic interest. Visual estimates do not provide information regarding potential deleterious elements for economic evaluations.

Field observation: three sulphide minerals could be recognised: chalcopyrite, pyrite, and pyrrhotite. Typically, the major sulphide minerals can be individually identified, however where the grain size of these minerals is fine or very fine grained the *total* amount of sulphide is estimated by the Company geologists.

In orogenic magmatic intrusion settings other magmatic sulphides such as cobalt, nickel and PGEs are associated with increased concentration of chalcopyrite and pyrrhotite. Visual identification of these minerals in the field has not been possible to date.

