MULGA TANK MINERALOGY HIGHLIGHTS CARBON CAPTURE POTENTIAL

HIGHLIGHTS

- **Reconnaissance mineralogical sampling and XRD analysis undertaken on 13 samples from five diamond holes within the Mulga Tank Ultramafic Complex**
- **Results show up to 8% brucite and up to 12% Hydrotalcite Group minerals**
- **Brucite is a key mineral in the passive carbonation of ultramafic mine tailings at the Mt Keith Nickel Mine which sequesters 40kt of CO_2 from the atmosphere each year**
- **Hydrotalcite Group minerals are also known to passively sequester atmospheric CO_2 in ultramafic mine tailings**
- **These reconnaissance samples highlight the significant potential for the host rock of the Mulga Tank disseminated nickel sulphide mineralisation to capture economically significant volumes of atmospheric CO_2 if mined and processed**

Western Mines Group Ltd (WMG or Company) (**ASX:WMG**) is pleased to update shareholders on first pass mineral characterisation work on diamond drill core samples from the Mulga Tank Ni-Cu-PGE Project, on the Minigwal Greenstone Belt, in Western Australia's Eastern Goldfields. The results of this work could positively benefit the environmental impact of any future mining activities at Mulga Tank.

Powder X-Ray Diffraction (XRD) analysis performed on a series of reconnaissance samples taken from Mulga Tank drill core resulted in the identification of the mineral brucite ($Mg(OH)_2$) as well as Hydrotalcite Group minerals. These minerals have been implicated in the passive sequestration of atmospheric CO_2 in mine tailings at several locations worldwide, and in particular, tailings from the giant, dunite-hosted Mt Keith nickel deposit in Western Australia.

Although only a small group of samples were analysed as part of this first pass study, the results demonstrate that the mineralogy of Mulga Tank Ultramafic Complex contains critical components which could partially or entirely mitigate the output of atmospheric CO_2 generated in future mining activities. The presence of brucite and Hydrotalcite Group minerals may result in any tailings generated via a conventional crush, grind and flotation processing route being amenable to relatively rapid sequestration of atmospheric carbon via carbon mineralisation processes - thereby significantly enhancing the "green" credentials of the project by producing NetZero Carbon Nickel, along with the possibility of a carbon credit by-product revenue stream.

Further mineral characterisation work and other studies designed to better understand the potential of the Mulga Tank Ultramafic Complex will continue in parallel with the ongoing exciting exploration drilling program currently underway at the project.

Commenting on the Mulga Tank Project, WMG Managing Director Caedmon Marriott said:

> *"Our Technical Director Dr Ben Grguric continues to lead and investigate further studies to enhance our understanding of the Mulga Tank Complex. This reconnaissance mineralogical work opens an interesting angle in the significant carbon capture potential of the project, greatly enhancing the green credentials and also the potential economics of the project. This and other technical studies will continue in parallel with our ongoing field exploration activities."*

MULGA TANK MINERALOGICAL CHARACTERISATION TESTWORK

Adcumulate dunite ultramafic diamond core drilled by WMG in recent campaigns at Mulga Tank often shows evidence of expansion and spalling (cracking/break up) in core trays after several weeks exposure to the atmosphere (Figures 1A-C). This is interpreted to be the result of the reaction of constituent minerals (e.g. brucite and Hydrotalcite Group minerals) with atmospheric CO_2 and the rock undergoing spontaneous natural carbonation or carbon sequestration. As part of a reconnaissance mineralogical sampling program, to better understand the mineral composition and confirm the carbon sequestration potential, 13 samples were taken from the shallower (<310m down hole) portions of five Mulga Tank diamond drill holes completed by WMG.

Figure 1A: Mulga Tank Hole MTD020 Tray 81 423m to 428m 19 July 2022
Fresh core within days of being drilled

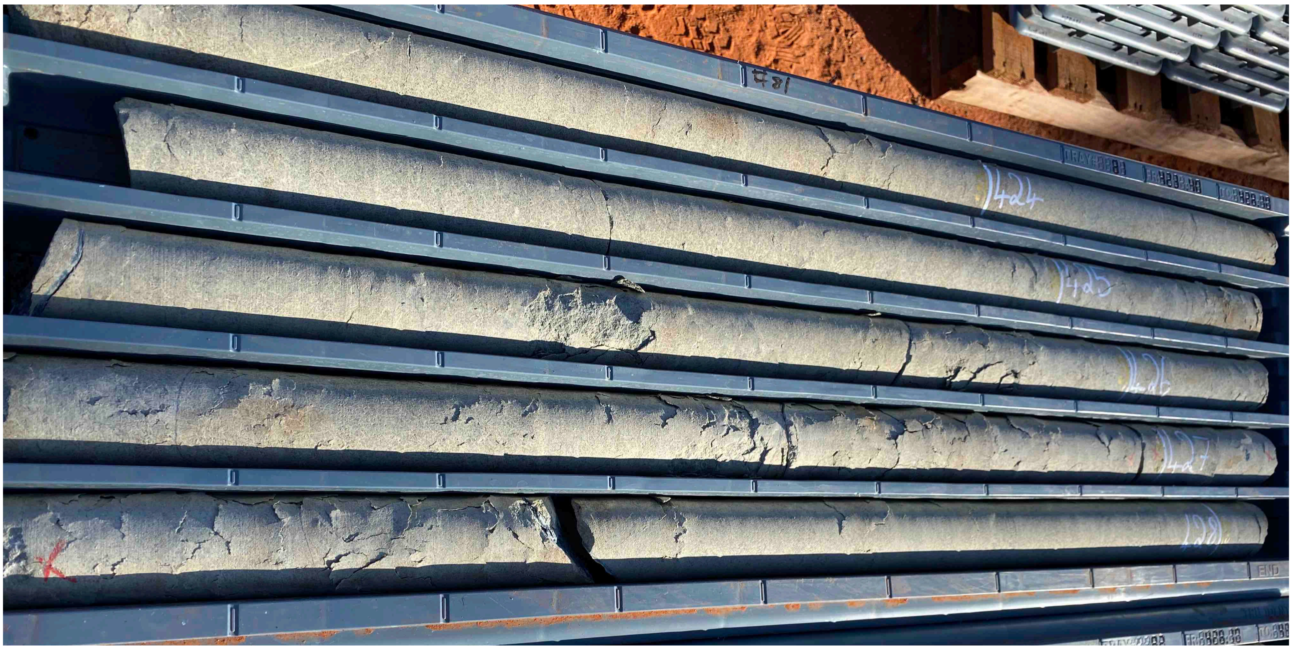

Figure 1B: Mulga Tank Hole MTD020 Tray 81 423m to 428m 7 August 2022
Uncut core beginning to show spalling within 3 weeks of being drilled

Figure 1C: Mulga Tank Hole MTD020 Tray 81 423m to 428m 11 September 2023
Cut core heavily broken up after 14 months exposure to atmosphere

METHODLOGY

Thirteen samples were submitted to two commercial XRD laboratories for semi-quantitative (3 samples at Microanalysis Australia Pty Ltd, Mount Lawley WA) and quantitative (10 samples at CSIRO Mineral Resources, Urrbrae SA) XRD analysis. The samples were 5cm lengths of quarter core which were crushed and pulverised before being analysed using an X-ray powder diffractometer and diffraction pattern analytical software.

Powder XRD is an analytical technique which allows relative proportions of constituent minerals to be determined in geological samples utilising the diffraction patterns generated when a collimated X-ray beam is diffracted by the atomic lattice of the constituent crystalline mineral phases. Depending on the mix of mineral phases, detection limits are usually around 0.5-1 weight % for each mineral. Results are given in Table 1, below:

SampleID	HoleID	Depth (m)	Serpentinite	Forsterite	Brucite	Hydrotalcite	Magnesite	Quartz
AWB2205	MTD020	156.1	51	bd	2	12	bd	bd
AWB2206	MTD022	120.15	58	25	8	6	bd	bd
AWB2207	MTD022	277.15	45	41	1	3	4	bd
AWB2208	MTD022	156-166	40	56	1	1	bd	1
AWB2209	MTD022	186-196	55	38	0.5-1	1	3	1
AWB2210	MTD023	308.1	51	44	0.5-1	2	0.5-1	0.5-1
AWB2211	MTD025	197.1	42	49	0.5-1	5	2	1
AWB2212	MTD025	218.3	40	55	0.5-1	1	1	0.5-1
AWB2213	MTD026	232.9	59	32	0.5-1	4	bd	0.5-1
AWB2214	MTD026	243.9	60	36	bd	2	bd	0.5-1
AWB2215	MTD026	287.95	43	47	1	4	2	0.5-1
AWB2216	MTD026	298.35	44	47	0.5-1	5	bd	0.5-1
AWB2217	MTD023	186-196	66	28	0.5-1	bd	2	0.5-1

Table 1: XRD Results for Mulga Tank Reconnaissance Mineralogical Characterisation Work
(Notes: All samples consisted of a 5cm piece of quarter core centred on the depth indicated, depths given as 10m ranges indicate a grab sample from composited drill core within this depth range.
Samples AWB2205-AWB2207 analysed at Microanalysis Australia by semi quantitative XRD, remaining samples by quantitative Rietveld XRD at CSIRO Mineral Resources.
Hydrotalcite = undifferentiated members of the Hydrotalcite Group of minerals
All results in weight % bd = below detection)

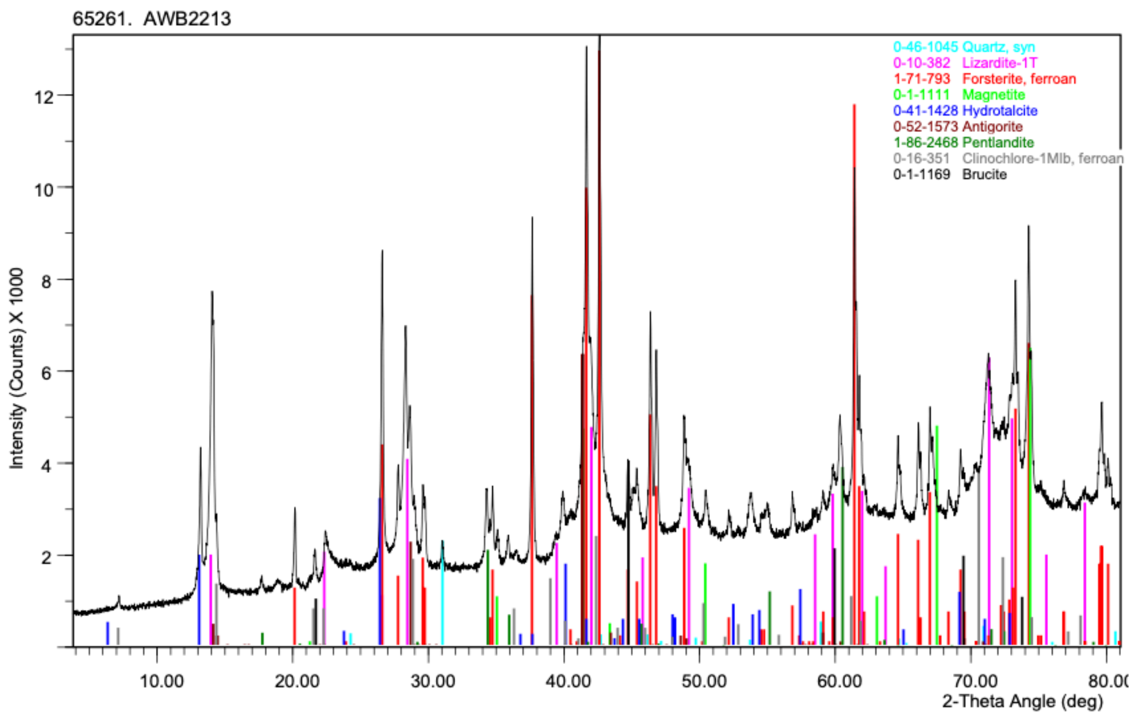

Figure 2: Example of XRD pattern results for sample AWB2213

SIGNIFICANCE OF THE RESULTS

The mineralogy of many ultramafic-hosted mineral deposits (particularly dunite-hosted nickel deposits and diamondiferous kimberlites) are considered to be of critical importance in atmospheric carbon sequestration, as their high magnesium content offers potential to react with large amounts of carbon dioxide to produce stable carbonate minerals, effectively sequestering this greenhouse gas.

Forsterite and serpentine minerals (the main gangue minerals in Mulga Tank nickel sulphide-bearing dunite) are known to react relatively rapidly with CO_2 compared to other silicate minerals, however, brucite and several members of the Hydrotalcite Group of minerals react orders of magnitude faster than forsterite or serpentine under atmospheric conditions, and can thereby help mitigate the carbon output of a mine in realistic timeframes. Recently published work by Lu et al. (2022) estimated that an average brucite content of between 1.7 and 5.9 weight percent in mine tailings is required to make a mine carbon neutral if this brucite is allowed to react with atmospheric CO2. Brucite is a key mineral in the passive carbonation of ultramafic mine tailings at the Mt Keith Nickel Mine which sequesters 40 kt of CO_2 from the atmosphere each year*.

Although only a small group of samples have been analysed at Mulga Tank, as part of a first pass reconnaissance mineral characterisation program, the results demonstrate that the mineralogy of the dunite complex contains some critical components which could react to partially or entirely mitigate the output of atmospheric CO_2 generated in future mining and processing activities.

The presence of brucite and Hydrotalcite Group minerals may result in any tailings generated via a conventional crush, grind and flotation processing route being amenable to relatively rapid sequestration of atmospheric carbon via carbon mineralisation processes. This would significantly enhance the "green" credentials of the project, with the potential to produce NetZero Carbon Nickel. Carbon sequestration may also offer the project a possible secondary carbon credit by-product revenue stream.

Further mineral characterisation work and other studies designed to better understand the potential of the Mulga Tank Ultramafic Complex will continue in parallel with the ongoing exciting exploration drilling program currently underway at the project.

References

Lu et al., 2022 - Rate and capacity of cation release from ultramafic mine tailings for carbon capture and storage; Applied Geochemistry, Vol. 140, 105285

**BHP Unlocking the Potential of Mineral Carbonation - BHP News Articles, 14 September 2020*

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This announcement has been authorised for release to the ASX by Dr Caedmon Marriott, Managing Director

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Board

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Non-Executive Chairman

Dr Caedmon Marriott
Managing Director

Francesco Cannavo
Non-Executive Director

Dr Benjamin Grguric
Technical Director

Capital Structure

Shares: 60.55m
Options: 21.12m
Share Price: $0.275
Market Cap: $16.65m
Cash (30/06/23): $3.27m

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ABOUT WMG

Western Mines Group Ltd (ASX:WMG) is a mineral exploration company driven by the goal to create significant investment returns for our shareholders through exploration and discovery of high-value gold and nickel sulphide deposits across a portfolio of highly-prospective projects located on major mineral belts of Western Australia.

Our flagship project and current primary focus is the Mulga Tank Ni-Cu-PGE Project, a major ultramafic complex found on the under-explored Minigwal Greenstone Belt. Exploration results show significant evidence for an extensive working nickel sulphide mineral system and is considered highly prospective for Ni-Cu-PGE mineralisation.

The Company's primary gold project is Jasper Hill, where WMG has strategically consolidated a 3km mineralised gold trend with walk-up drill targets. WMG has a diversified portfolio of other projects including Melita (Au, Cu-Pb-Zn), midway between Kookynie and Leonora in the heart of the WA Goldfields; Youanmi (Au), Pavarotti (Ni-Cu-PGE), Rock of Ages (Au), Broken Hill Bore (Au) and Pinyalling (Au, Cu, Li).

COMPETENT PERSONS STATEMENT

The information in this announcement that relates to Exploration Results and other technical information complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and has been compiled and assessed under the supervision of Dr Caedmon Marriott, Managing Director of Western Mines Group Ltd. Caedmon is a Member of the Australian Institute of Geoscientists, a Member of the Society of Economic Geologists and a Member of the Australasian Institute of Mining and Metallurgy. He 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 JORC Code. Caedmon consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

DISCLAIMER

Some of the statements appearing in this announcement may be in the nature of forward looking statements. You should be aware that such statements are only predictions and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industries in which WMG operates and proposes to operate as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets, among other things. Actual events or results may differ materially from the events or results expressed or implied in any forward looking statement. No forward looking statement is a guarantee or representation as to future performance or any other future matters, which will be influenced by a number of factors and subject to various uncertainties and contingencies, many of which will be outside WMG's control.

WMG does not undertake any obligation to update publicly or release any revisions to these forward looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions or conclusions contained in this announcement. To the maximum extent permitted by law, none of WMG, its Directors, employees, advisors or agents, nor any other person, accepts any liability for any loss arising from the use of the information contained in this announcement. You are cautioned not to place undue reliance on any forward looking statement. The forward looking statements in this announcement reflect views held only as at the date of this announcement.

MULGA TANK PROJECT

JORC CODE, 2012 EDITION - TABLE 1
SECTION 1: SAMPLING TECHNIQUES AND DATA

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.	• Thirteen samples of core were taken from different depths from 5 diamond drill holes. The 5cm quarter core samples were crushed and pulverised before being analysed using an x-ray powder diffractometer using industry standard techniques.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).	• Diamond drilling comprised NQ2 core
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.	• Not applicable to mineralogical work

Criteria	JORC Code explanation	Commentary
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.	• Not applicable to mineralogical work
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. • 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.	• Thirteen samples of core were taken from different depths from 5 diamond drill holes. The 5cm quarter core samples were crushed and pulverised before being analysed using an x-ray powder diffractometer using industry standard techniques.
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 (i.e. lack of bias) and precision have been established.	• Three samples submitted to Microanalysis Australia Pty Ltd for semi-quantitative XRD analysis and 10 samples submitted to CSIRO Mineral Resources for quantitative Rietveld XRD
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.	• Not applicable to mineralogical work
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.	• Not applicable to mineralogical work

Criteria	JORC Code explanation	Commentary
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.	• Not applicable to mineralogical work
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.	• Not applicable to mineralogical work
Sample security	• The measures taken to ensure sample security.	• Samples of core were handled by commercial XRD facilities
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Not applicable to mineralogical work

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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• Tenements E39/2132, E39/2223 and tenement application E39/2299 • Held 100% by Western Mines Group Ltd • 1% NSR to original tenement holder • Native Title Claim by Upurli Upurli Nguratja not yet determined • No known historical or environmentally sensitive areas within the tenement area • Tenement is in good standing
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Previous exploration over the Mulga Tank project area by various companies dates back to the 1980s • Of these, more detailed exploration was completed by BHP Minerals Pty Ltd (1982–1984), MPI Gold Pty Ltd (1995–1999), North Limited (1999–2000), King Eagle Resources Pty Ltd (2004–2012), and Impact (2013–2018)

Criteria	JORC Code explanation	Commentary
Geology	• Deposit type, geological setting and style of mineralisation.	• The geology of the project area is dominated by the irregular shaped Mulga Tank serpentinised metadunite intrusive body measuring ~5km x 4km, hosted within metasediments, mafic to felsic schists and foliated metagranite of the northwest trending Archean Minigwal Greenstone Belt • Previous drilling intersected disseminated and narrow zones of massive nickel-copper sulphide mineralisation within the dunite intrusion • The intrusion is concealed under variable thicknesses of cover (reported up to 70 m in places) with the interpretation of the bedrock geology based largely on aeromagnetic data and limited drilling

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.
	• 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.
		• A listing of the drill hole information material to the understanding of the exploration results was provided in previous ASX announcements and has not changed

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.	• Not applicable to mineralogical work
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').	• Not applicable to mineralogical work
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Appropriate photos and tabulations are presented in the body of the announcement

Criteria	JORC Code explanation	Commentary
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.	• Not applicable to mineralogical work
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.	• Not applicable to mineralogical work
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.	• Not applicable to mineralogical work