RARE EARTH TESTWORK HIGHLIGHTS HIGH RECOVERY AND POTENTIAL FOR LOW COST PROCESSING

- Rare earth concentrates flotation test work identified a 97% overall recovery of rare earth minerals from a heavy mineral concentrate, providing the potential for a higher grade rare earth product than could be achieved without flotation
- The successful flotation of rare earth minerals as a preliminary processing stage provides the potential for significant benefits to a future mineral separation plant design, including:
  - Design simplification compared to the separation of rare earth minerals at later processing stages
  - Reduction of potential contamination of downstream products, including titanium and zircon
- Importantly, extraction of the highly valuable rare earths as a preliminary processing stage confirms the potential for significant optionality for product strategy and plant development, including phased capital development
- The results were consistent with prior testwork, with Nd+Pr making up 21.3% of rare earths, and the highly valuable Tb+Dy making up 1.9% of rare earths
- At current spot pricing, the potential basket price of the rare earth oxide products is ~US$50,000/t
- The latest results continue to highlight the potential for west Tennessee to be a major source of conventional and sustainable rare earth minerals, and for Hyperion to be a major player in the U.S. rare earth supply chain

Anastasios (Taso) Arima, CEO and Managing Director said:

"The flotation test work results are a significant event in the development of Hyperion's minerals business. The successful separation and high recovery of rare earth elements at the front end of the process via a simple flotation and upgrade circuit confirms the potential for significant optionality in Hyperion's product marketing strategy.

Test work highlighting the simple separation of a rare earth concentrate product stream at the front end allows for significant optionality potential in process flow sheet design.

These results and the recent announcement of our maiden Mineral Resource Estimate continue to showcase the outstanding potential for Hyperion to develop a major source of critical mineral supply in this major untapped region in west Tennessee."

This announcement has been authorized for release by the CEO and Managing Director.

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Hyperion Metals Limited (ASX: HYM) is pleased to announce that flotation testwork undertaken on rare earth mineral concentrates from the Titan Project highlights straightforward metallurgical characteristics and very high recoveries, indicating the potential for a processing route for rare earths extraction incorporating a simple upfront flotation and upgrade circuit.

REE concentrate flotation testwork program

The flotation testwork achieved an overall 97% recovery of rare earth minerals in the final rare earth concentrate, providing the potential for a higher grade rare earth product than could be achieved without flotation. Total rare earth oxides in the final rare earth concentrate made up a total of 57.4% of the minerals, which is broadly comparable to the test work undertaken in August 2021 with material sourced from the Benton deposit, which achieved total rare earth oxides of 58.7%. Within the rare earth fraction, Nd+Pr makes up 21.3% of rare earths, and the highly valuable Tb+Dy make up 1.9% of rare earths.

The testwork program consisted of a 1 tonne bulk sample from the Camden deposit being sent to Mineral Technologies for processing. A heavy mineral concentrate ("HMC") was generated using conventional feed preparation and wet gravity separation, with primarily spirals and a wet shaking table used for final stage upgrade. The HMC was processed through froth flotation to float the rare earth minerals from the other constituents, creating a rare earth stream and a HMC stream.

The rare earth stream was further upgraded on a wet shaking table to increase the concentration of a final rare earth mineral concentrate, with the HMC stream upgraded on a wet shaking table prior to being processed through a conventional mineral separation program, which is expected to be complete around the end of November.

Assays were conducted by Bureau Veritas in Perth, Australia, with standard XRF mineral sand assays used plus laser ablation / ICPMS for determination of individual rare earths.

Figure 1: Rare earth (LHS) and HMC (RHS) streams from wet shaking table tests after flotation

Potential low cost process options

The successful flotation of rare earth minerals as a preliminary processing stage provides the potential for significant benefits to a future mineral separation plant design, including design simplification compared to the separation of rare earth minerals at later processing stages, as well as the reduction of potential contamination of downstream products, including titanium and zircon.

Importantly, extraction of the highly valuable rare earths as a preliminary processing stage allows significant optionality for product strategy and plant development, including phased capital development.

Hyperion has worked with its engineers and consultants to evaluate various potential processing flow sheet options to be assessed as part of its ongoing scoping study, with consideration given to total capex, construction complexity, payback period and value in use of products. The potential options include:

1. *Rare earth flotation only*
   - Least amount of processing equipment and potential for lowest capital
   - Potential products – a rare earth concentrate and a heavy mineral concentrate rich in titanium and zircon
2. *Rare earth flotation and electrostatic / magnetic separation*
   - Additional processing equipment inducing magnetic separation
   - Potential products – a rare earth concentrate, rutile and ilmenite products and a zircon concentrate
3. *Rare earth flotation, electrostatic / magnetic separation and zircon wet circuit*
   - Additional processing equipment inducing magnetic separation and zircon upgrading
   - Potential products – a rare earth concentrate, rutile and ilmenite products and an upgraded zircon concentrate
4. *Rare earth flotation, electrostatic / magnetic separation, zircon wet circuit and zircon dry circuit*
   - Greatest amount of processing equipment and potential for highest capital
   - Potential products – a rare earth concentrate, rutile and ilmenite products and a premium zircon product

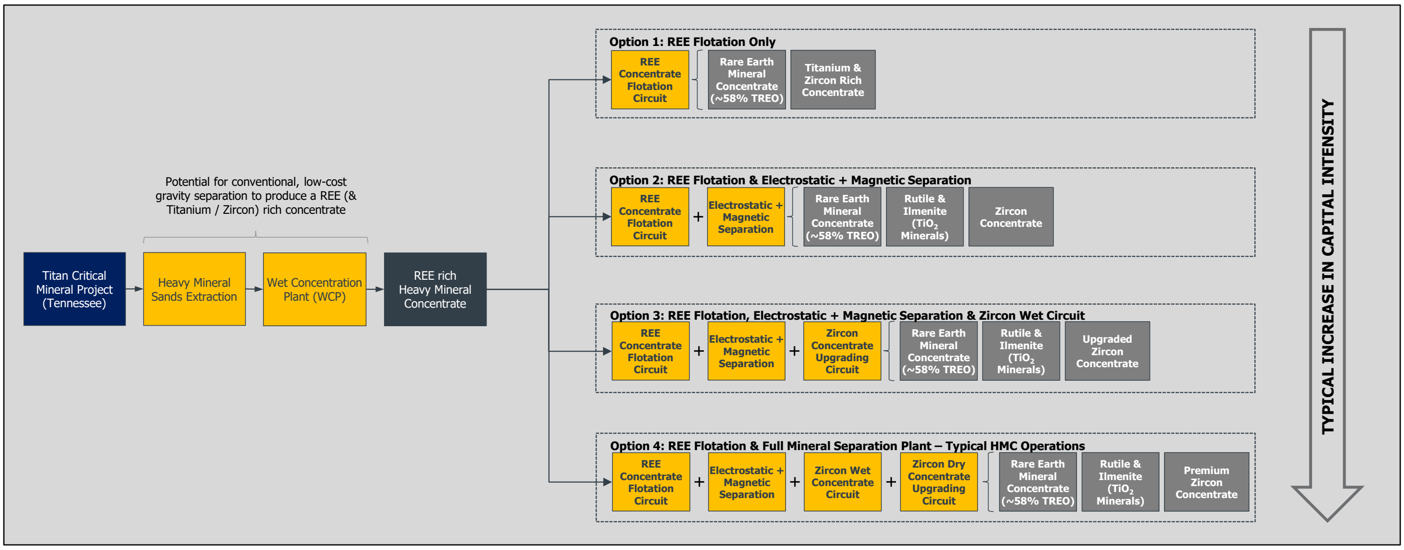

Figure 2: Potential procssing flow sheet options, including simple and conventional process to produce salable products

Hyperion's rare earth testwork results also highlight the potential to produce a high-value rare earth co-product from a simple concentration and separation process and confirms the importance of the Titan Project as having the potential to rapidly become an important supplier of rare earths in the U.S. - and the only major U.S. supplier of heavy rare earths - critical to the nation's defense capabilities.

Rare earth elements

Rare earth elements are used in many applications including battery alloys, catalysts, ceramics and metal alloys. However, it is the increasing demand for rare earths used in high strength permanent magnets found in power dense electric motors used in electric vehicles and wind turbines that makes up the majority of global consumption, accounting for ~90% of the global market by value in 2019 and expected to grow rapidly along with growth in EV and wind turbine production.

In particular, the heavy rare earths dysprosium and terbium are essential for the production of DyNdFeB (dysprosium neodymium iron- boron) magnets used in clean energy, military and high technology solutions. There is only minor production of dysprosium and terbium outside of China, and no material production within the USA, and the potential production of these heavy rare earths within the USA is strategic and highly valuable to the country's leading defense, EV and clean energy sectors.

The significant proportions of Nd+Pr and Tb+Dy identified within Hyperion's monazite and xenotime sample highlights the potential for a highly valuable rare earth product. Rare earth pricing has increased significantly from an already high base in the last few months, largely driven by significant supply shortages in nations such as Myanmar. At current spot pricing, the potential basket price of Hyperion's product at the separated oxide stage is approximately US$50/kg, or US$50,000/tonne.

		Aug-21			Nov-21		
	Rare Earth Oxide	REO price (US$/kg)	Basket value (US$/kg)	% basket value	REO price (US$/kg)	Basket value (US$/kg)	% basket value
Light REO	Lanthanum	2	0.3	1%	2	0.3	1%
	Cerium	2	0.6	1%	2	0.6	1%
	Praseodymium	**99**	**4.4**	**12%**	**135**	**6.0**	**16%**
	Neodymium	**94**	**15.8**	**42%**	**131**	**22.0**	**58%**
	Samarium	2	0.1	0%	4	0.1	0%
Heavy REO	Europium	30	0.1	0%	31	0.1	0%
	Gadolinium	41	1.0	3%	62	1.6	4%
	Terbium	**1285**	**4.4**	**12%**	**1682**	**5.7**	**15%**
	Dysprosium	**408**	**8.3**	**22%**	**468**	**9.5**	**25%**
	Holmium	136	0.5	1%	189	0.7	2%
	Erbium	30	0.3	1%	56	0.6	2%
	Thulium	N/A	-	-	N/A	-	-
	Ytterbium	21	0.2	1%	21	0.2	1%
	Lutetium	859	1.2	3%	845	1.2	3%
Other	Yttrium	5	0.7	2%	9	1.1	3%
	Total REE		**37.7**			**49.6**	

Table 1: Rare earth basket and basket price comparison between August 2021 and November 2021 test work programs[1]

About Hyperion Metals

Hyperion's mission is to be the leading developer of zero carbon, sustainable, critical material supply chains for advanced American industries including space, aerospace, electric vehicles and 3D printing.

Hyperion holds a 100% interest in the Titan Project, covering approximately 11,000 acres of titanium, rare earth minerals, high grade silica sand and zircon rich mineral sands properties in Tennessee, USA.

Hyperion has secured an option to acquire Blacksand Technology, LLC, which holds the rights to produce low carbon titanium metal and spherical powers using the breakthrough HAMR & GSD technologies. The HAMR & GSD technologies were invented by Dr. Z. Zak Fang and his team at the University of Utah with government funding from ARPA-E.

The HAMR technology has demonstrated the potential to produce titanium powders with low-to-zero carbon intensity, significantly lower energy consumption, significantly lower cost and at product qualities which exceed current industry standards. The GSD technology is a thermochemical process combining low-cost feedstock material with high yield production and can produce spherical titanium and titanium alloy powders at a fraction of the cost of comparable commercial powders.

Hyperion also has signed an MOU to establish a partnership with Energy Fuels (NYSE:UUUU) that aims to build an integrated, all-American rare earths supply chain. The MOU will evaluate the potential supply of rare earth minerals from Hyperion's Titan Project to Energy Fuels for value added processing at Energy Fuels' White Mesa Mill. Rare earths are highly valued as critical materials for magnet production essential for wind turbines, EVs, consumer electronics and military applications.

[1] Source: Metal.com

Forward Looking Statements

Information included in this release constitutes forward-looking statements. Often, but not always, forward looking statements can generally be identified by the use of forward-looking words such as "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", and "guidance", or other similar words and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production or construction commencement dates and expected costs or production outputs.

Forward looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause the Company's actual results, performance, and achievements to differ materially from any future results, performance, or achievements. Relevant factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development, including the risks of obtaining necessary licenses and permits and diminishing quantities or grades of reserves, political and social risks, changes to the regulatory framework within which the company operates or may in the future operate, environmental conditions including extreme weather conditions, recruitment and retention of personnel, industrial relations issues and litigation.

Forward looking statements are based on the Company and its management's good faith assumptions relating to the financial, market, regulatory and other relevant environments that will exist and affect the Company's business and operations in the future. The Company does not give any assurance that the assumptions on which forward looking statements are based will prove to be correct, or that the Company's business or operations will not be affected in any material manner by these or other factors not foreseen or foreseeable by the Company or management or beyond the Company's control.

Although the Company attempts and has attempted to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements, or events not to be as anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Accordingly, readers are cautioned not to place undue reliance on forward looking statements. Forward looking statements in these materials speak only at the date of issue. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, in providing this information the company does not undertake any obligation to publicly update or revise any of the forward-looking statements or to advise of any change in events, conditions or circumstances on which any such statement is based.

Competent Persons Statement – JORC Code 2012

The information in this announcement that relates to Exploration Results is based on information compiled and/or reviewed by Mr. Adam Karst, P.G. Mr. Karst is an independent consultant to Hyperion Metals Limited. Mr. Karst is a Registered Member of the Society of Mining, Metallurgy and Exploration (SME) which is a Recognized Overseas Professional Organization (ROPO) as well as a Professional Geologist in the state of Tennessee. Mr. Karst has sufficient experience which is relevant to the style and type of mineralization present at the Titan Project area 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" (the 2012 JORC Code). Mr. Karst consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to Mineral Resources is extracted from Hyperion's ASX Announcement dated October 6, 2021 ("Original ASX Announcement") which is available to view at Hyperion's website at www.hyperionmetals.us. Hyperion confirms that a) it is not aware of any new information or data that materially affects the information included in the Original ASX Announcement; b) all material assumptions included in the Original ASX Announcement continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in this report have not been materially changed from the Original ASX Announcement. The Mineral Resource Estimate ("MRE") for the Titan Project comprises 431Mt @ 2.2% THM, containing 9.5Mt THM at a 0.4% cut-off, including 241Mt @ 2.2% classified in the Indicated resource category and 190Mt @ 2.2% classified in the Inferred resource category.

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.*	• A roto-sonic drill rig, the Geoprobe 5140LS, utilized a 10 foot core barrel to obtain direct 10-foot samples of the unconsolidated geological formations hosting the mineralization in the project area. All holes were drilled vertically which is essentially perpendicular to the mineralization. The sonic cores were used to produce 1000kg samples, received and prepared by Minerals Technologies laboratory in Starke, FL. The sample underwent heavy mineral concentrate wet separation to produce a mixed heavy mineral concentrate (HMC), including desliming via hydrocyclone, rougher & cleaner & recleaner spirals separation followed by wet gravity separation using a shaker table. The HMC was air freighted to Mineral Technologies' laboratory facilities in Australia for further MSP testing work. The HMC was processed through froth flotation to float the rare earth minerals from the other constituents of the HMC. The flotation concentrate was upgraded on a wet shaking table to increase the rare earth mineral concentration. The flotation tailings were upgraded on a wet shaking table to further increase the HM grade prior to processing through a conventional mineral separation plant (MSP) test program. This will be completed utilizing a combination of electrostatic and magnetic separation technologies, with further wet gravity processing utilized as required to produce individual mineral products. • All assays are conducted by Bureau Veritas (formerly Ultra Trace) in Perth. Standard XRF mineral sand suite assays are used except where individual rare earth elements (REE) are required. These samples undergo the XRF suite as well as Laser Ablation / ICP-MS for determination of individual REE.
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).*	• One 1000kg bulk samples wase collected via roto-sonic drilling. Four to Eight holes were drilled within in a 10m radius of previously drilled holes. The core barrel utilized for this project is 6" in diameter. The core barrel is retrieved from the ground and the samples are recovered directly from the barrel into 55-gallon drums. All holes are drilled vertically.
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*	

Criteria	JORC Code explanation	Commentary
	of fine/coarse material.	
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.*	• Samples are logged for lithological, geological, and mineralogical parameters in the field to help aid in determining depositional environment, major geologic units, and mineralized zones. All samples are panned and estimates made for the %HM and %SL. • Logging is both qualitative (sorting, color, lithology) and quantitative (estimation of %HM, %SL) to confirm consistency with original drill sample. • Total depth of the drillhole and sample interval is recorded. Samples are collected at regular (10 foot) intervals.
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.*	• All assays are conducted by Bureau Veritas (formerly Ultra Trace) in Perth. Standard XRF mineral sand suite assays are used except where individual rare earth elements (REE) are required. These samples undergo the XRF suite as well as Laser Ablation / ICP-MS for determination of individual REE.
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*	• The assay method for the REE was inductively coupled plasma mass spectrometry (ICP-MS) and is considered total.

Criteria	JORC Code explanation	Commentary
	have been established.	
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.*	• No adjustments or calibrations were made to the primary analytical data reported for metallurgical testwork results for the purpose of reporting assay grades or mineralized intervals
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.*	• All drillholes are surveyed after drilling with a hand-held GPS unit and the X and Y coordinates recorded in the project's database by the field geologist. Elevation data for each collar has been determined using publicly available topographic data. • The coordinate system used for the project is UTM (Zone16N).
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.
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.*	• Work undertaken is of an initial scoping nature and further work is required and planned to provide further representative metallurgical characteristics.
Sample security	• *The measures taken to ensure sample security.*	• Samples remain in the custody of the field geologist from time of collection until time of delivery to the project's temporary storage location which is a secure third-party storage unit. • Samples are placed in rice bags and a red security tag secure the top. These tags are verified by the lab to guarantee all sample bags are intact.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No third-party review of the sampling techniques employed have been conducted. Only internal reviews by the Competent Person who is considered to have expertise in the drilling/sampling methods has

Criteria	JORC Code explanation	Commentary
		been utilized.

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.*	• All areas reported are held under mining lease option agreements with mineral rights to owner. Negotiations are ongoing to secure additional parcels within the deposits. • No known impediments to obtaining a license to operate. License to operate is based on obtaining land access through mining leases with individual landowners as well acquiring local, state, and federal permits.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Several Heavy Mineral Sand (HMS) exploration campaigns have focused on this region over the past 60 years, with DuPont reportedly being the first company to investigate this region, followed by Kerr-McGee Chemical Corporation that had exploration success but never commenced mining. BHP Titanium Minerals had an interest in the region in the 1990's and Mineral Recovery Systems, a company associated with Altair International Inc., had significant activities in the region in the late 1990's, including land acquisition, drilling and metallurgical studies.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The deposits are Cretaceous mineral sands deposits located in the Mississippi Embayment region of the U.S. These deposits consist of reworked deltaic sediments hosting HM mineralization. The deposits overly other deeper marine sediments and are overlain by more recent fluvial sediments.
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*	• Not applicable

Criteria	JORC Code explanation	Commentary
	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.*	• The two samples consisted of a 20' and 40' interval. Eight holes of the 20' interval and four holes of the 40' interval were composited into two separate samples.
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
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.*	• Not applicable
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.*	• The results of all metallurgical tests performed have been reported on. No results have been excluded.
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,*	• Not applicable

Criteria	JORC Code explanation	Commentary
	geotechnical and rock characteristics; potential deleterious or contaminating substances.	
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.*	• A larger more representative sample from additional bulk sampling and drilling will go through a more detailed metallurgical program.