ABOUT

PepinNini Lithium Limited is a diversified ASX listed Australian Exploration Company focused on exploring, discovering and developing a significant mineral resource. PepinNini has exploration tenements prospective for nickel-copper-cobalt-PGE in the Musgrave Province of South Australia and hold a lithium brine resource in Salta Province, Argentina. The company also holds a copper-gold exploration project in Salta Province, Argentina

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PepinNini Minerals limited

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Further Priority Exploration Targets at Musgrave Project

PepinNini Minerals Limited (ASX: PNN) (PepinNini, the Company) is pleased to announce that it is assessing further priority exploration targets at its 100%-owned Musgrave Nickel-Copper Sulphide Project in South Australia.

The targets are located at the Ironwood Bore tenement area (Exploration Licence Application, ELA197/15), which covers a total area of 2,202km^2 in the eastern Musgrave district and is held by PepinNini subsidiary NiCul Minerals Ltd.

PepinNini has identified two priority nickel, copper and cobalt prospective target areas within ELA197/15 - the Ironwood Bore target and the Wintinginna Shear Zone (Figure 1).

The targets were identified from the results of a collaborative airborne electromagnetic survey (AEM) between PepinNini, CSIRO and the South Australian Department of Energy and Minerals, utilising SkyTEM and TEMPEST geophysical aerial electromagnetic data collection methods (PNN ASX release: 19 December 2016).

The Ironwood Bore target is located in the central area of ELA197/15 and represents a significant near-surface conductive feature. It was identified below regolith (soil) cover, utilising algorithm modelling of the thickness of the cover from the AEM data (see Figure 5).

The Wintinginna Shear Zone, in the south of the licence area, hosts a number of structurally controlled conductive responses which represent drill targets. These targets provide the potential for the delineation of structurally-controlled mineralisation, associated with mafic magmatism channelled laterally into the Wintinginna Shear Zone.

The Wintinginna shear zone to the east of ELA197/15 hosts a number of reported copper and nickel bearing gossanous outcrops, with coincident soil geochemistry (MGV ASX release: 5 July 2011). These results are viewed as positive indicators of the potential for mineralisation within the Ironwood Bore ELA.

Both the Ironwood Bore and Wintinginna Shear Zone targets are readily accessible by existing roads and tracks.

As a next phase of the project assessment, PepinNini plans to conduct further (ground) geophysical surveys followed by a soil sampling program for target minerals including nickel, copper and cobalt.

A maiden core drilling program is then planned at the Ironwood Bore targets upon grant of the exploration licence and an access agreement with the Traditional Owners.

These targets are in addition to the four priority targets at the Mt Caroline tenement (EL6148)within the Musgrave Project (PNN ASX release: 6 July 2020).

PepinNini Managing Director Rebecca Holland-Kennedy said:

"*PepinNini continues to make positive progress on our active review and assessment of the Musgrave Project, which has reaffirmed the Ironwood Bore targets as a priority exploration focus. This scope of work has strengthened our view on the prospectivity of the Musgrave Project area, and its potential to host significant nickel-copper-cobalt sulphide deposits"*.

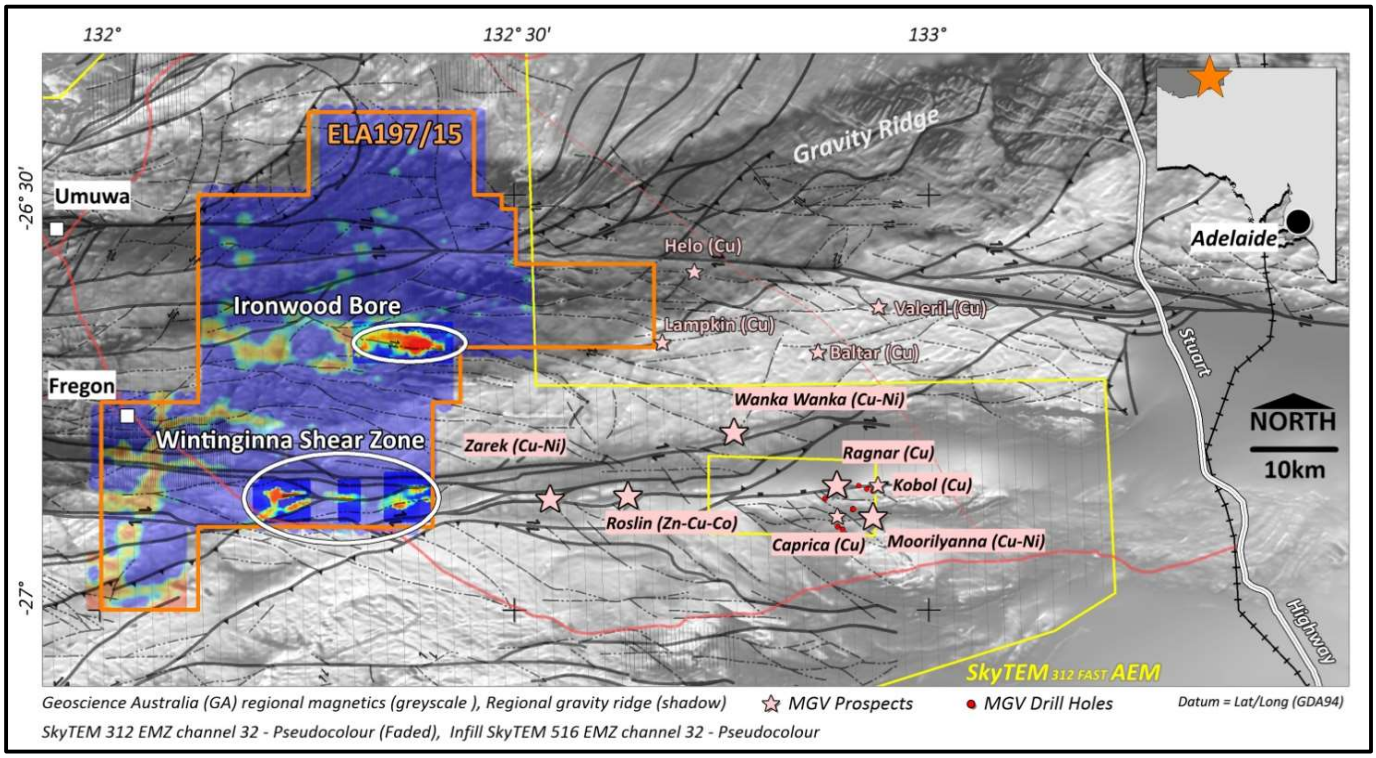

Figure 1: Ironwood Bore AEM Anomalies within PepinNini's Musgrave Project area.

Exploration Approach

PepinNini has previously completed a large-scale regional AEM survey over the Musgrave Province, in collaboration with CSIRO and the South Australian Department of Energy and Minerals. This survey covered 31,000km^2 and more than 50% of the Company's Musgrave Project area, including the Ironwood Bore tenement.

The surface geology within PepinNini's Musgrave tenure is largely covered by sediments, as shown in surface geology map produced by the South Australian Geological Survey (Figure 2). Outcrops of older Mesoproterozoic rocks surround the tenure which have been mapped at Mimili, Kaltjiti and Umuwa (Figure 2).

Exploration targets include primarily nickel and copper sulphide mineralisation with associated gold, platinum group elements and ferrous metals potential within Giles Complex intrusives, along with base metals within the Proterozoic metasediments.

The poor exposure of rocks on available mapping, due to the sediment cover, requires the use of appropriate geophysical exploration methods and regolith drilling in order to define and better understand the host rocks situated beneath the sediment cover.

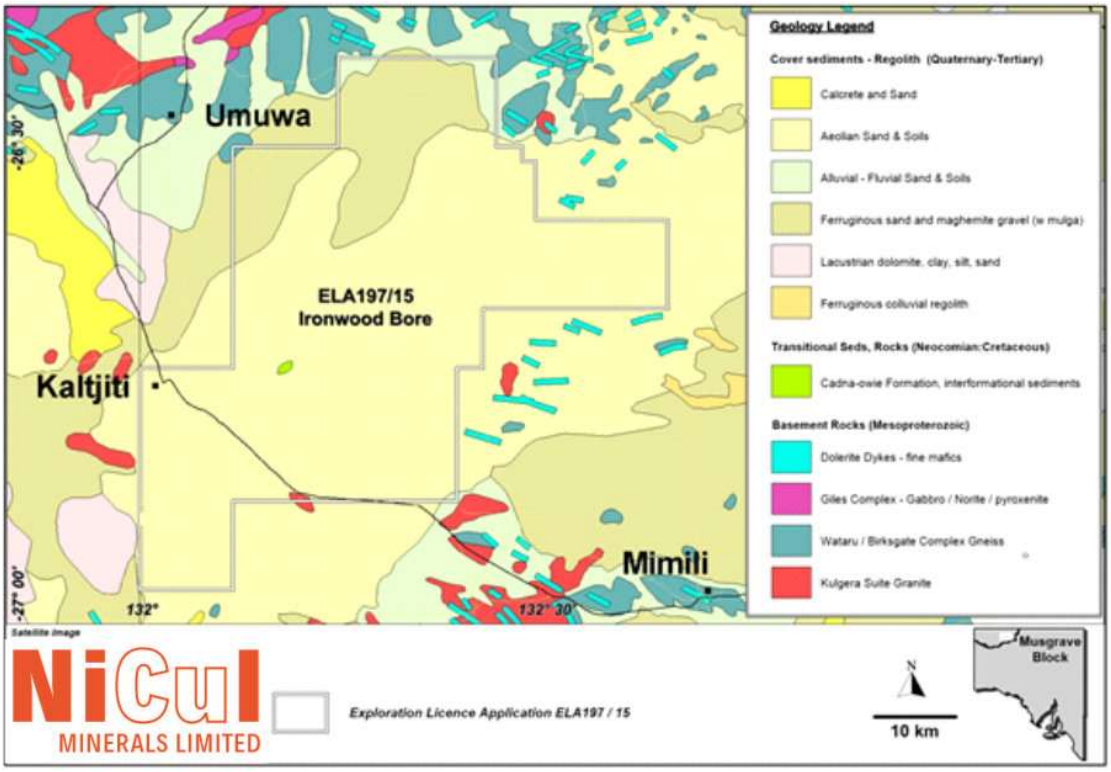

Figure 2: Surface Geology Map of Ironwood Bore (SA Geological Survey).

PepinNini has utilised the data from the collaboration AEM for this purpose, and has overlaid the AEM data for Ironwood Bore over historical regional magnetic data of the tenure (Figure 3).

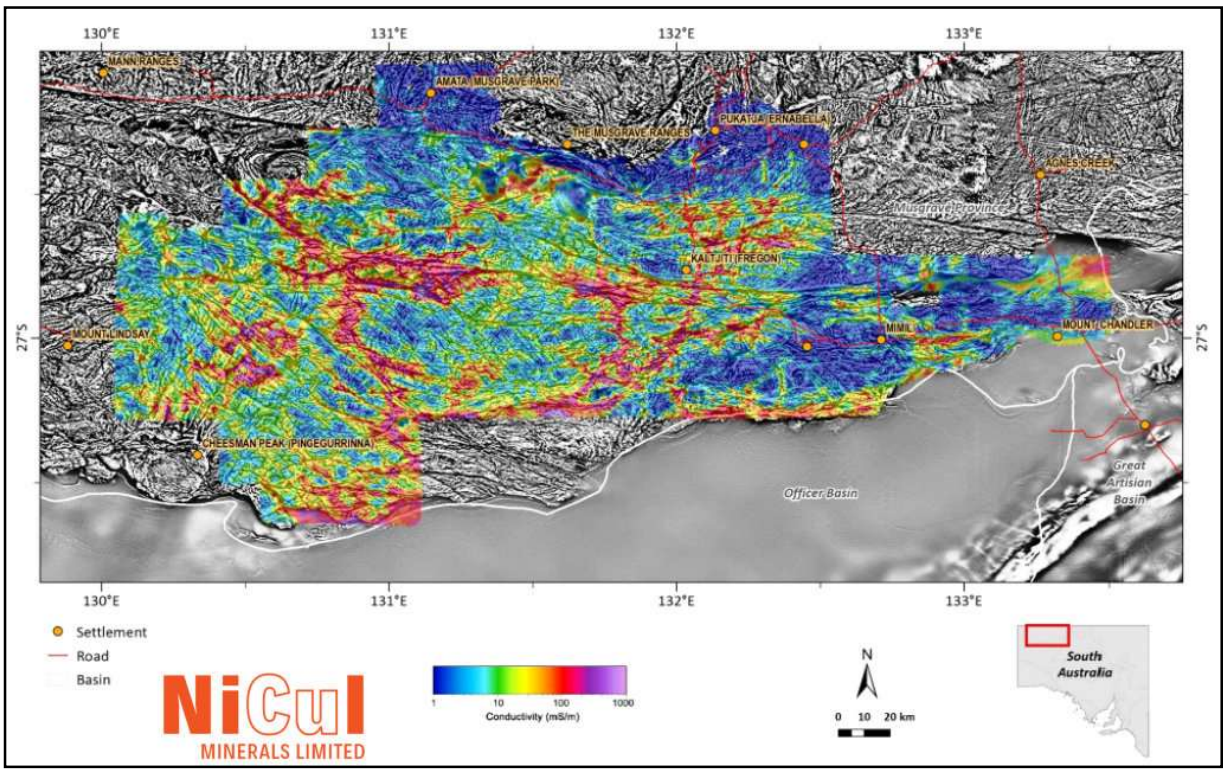

Figure 3: Data from collaboration AEM overlays regional magnetic data at Ironwood Bore.

From this data overlay, the regolith (soil cover) is able to be mapped. Then, the two regolith layers have been modelled (Figure 4) using algorithms created by CSIRO to analyse the data. This enables the

generation of a profile (shown in Figure 5) that approximates the actual depth to bedrock and allows the anomalies to be observed.

The outcomes of this scope of work has provided the basis on which PepinNini now plans to test the targets further by way of ground geophysics and soil sampling, followed by targeted core drilling.

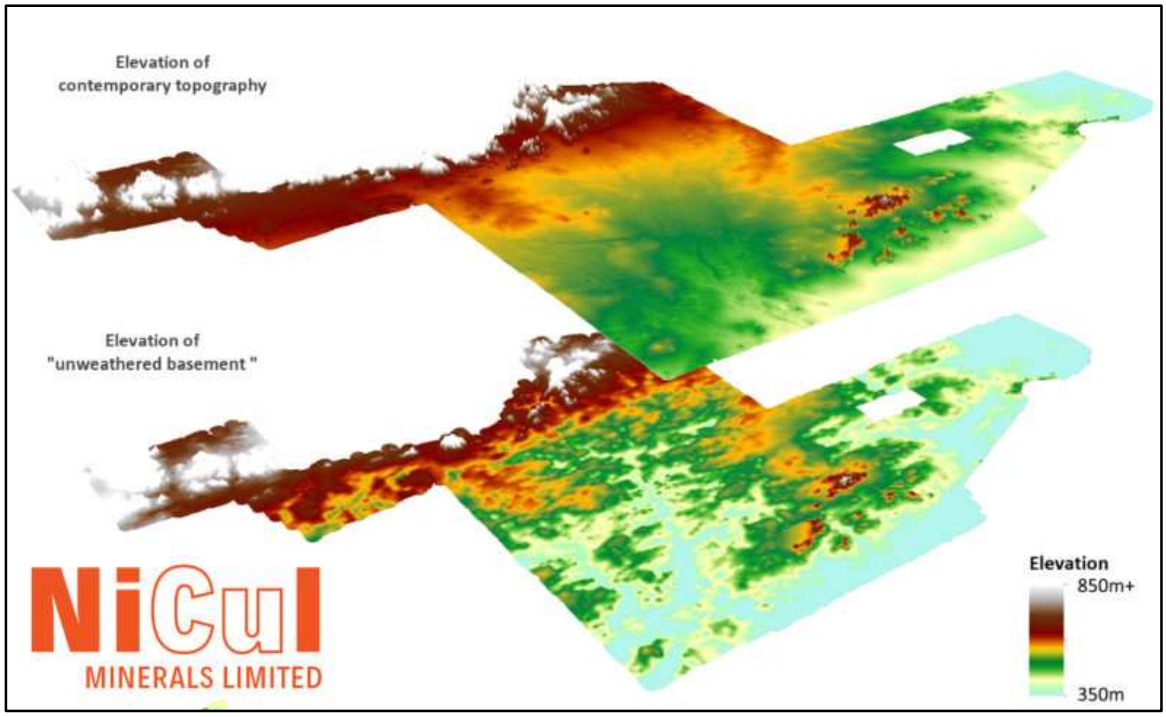

Figure 4: Modelled regolith layers of the Musgrave Block, South Australia.

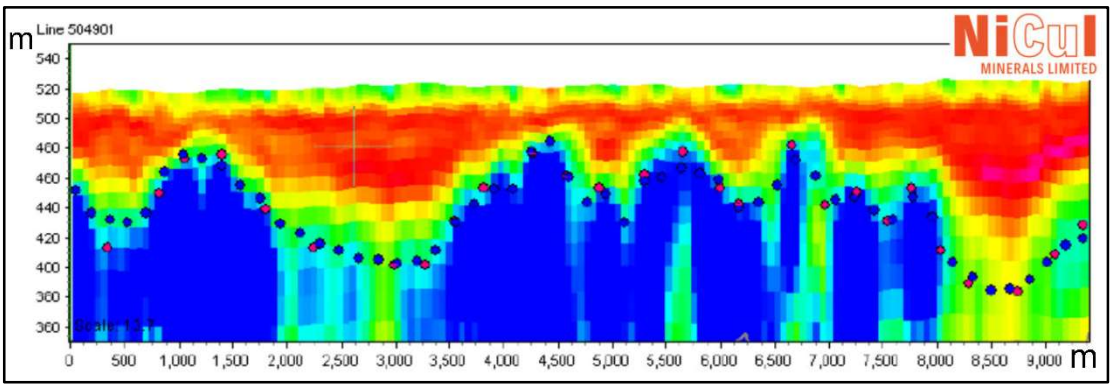

Figure 5: Profile slice showing estimated regolith cover at Ironwood Bore target.

Regional Geology

PepinNini's Musgrave Project area is situated in an area known as the 'Musgrave Block', which is a large part of the Proterozoic crustal block in the north-west corner of South Australia, and which also extends into the Northern Territory and Western Australia.

Other mineral provinces in Australia of similar age, such as Mount Isa, Broken Hill, Tanami and Tenant Creek, represent some of the most prospective terrain for mineral deposits in the country.

The Musgrave Block region is thought to have good potential for base metals (copper, lead, zinc) and ferrous metals (chromium, nickel, vanadium, titanium), plus precious metals (platinum group metals, gold, silver) and precious stones (diamonds, rubies).

The major Nebo-Babel Nickel-Copper Sulphide Deposit in the Western Australian portion of the Musgrave Block, as well as the nickel discoveries in the Fraser Range in WA, are examples of significant discoveries in this region.

Background to Musgrave Project

PepinNini's Musgrave Project is located in the Musgrave minerals district, within the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands, in northwest South Australia. The project area comprises two granted exploration licences and eight exploration licence applications covering a total area of 14,003 km^2. The Project is held by PepinNini 100%-owned subsidiary, NiCul Minerals Ltd. See Figure 6 for project location map.

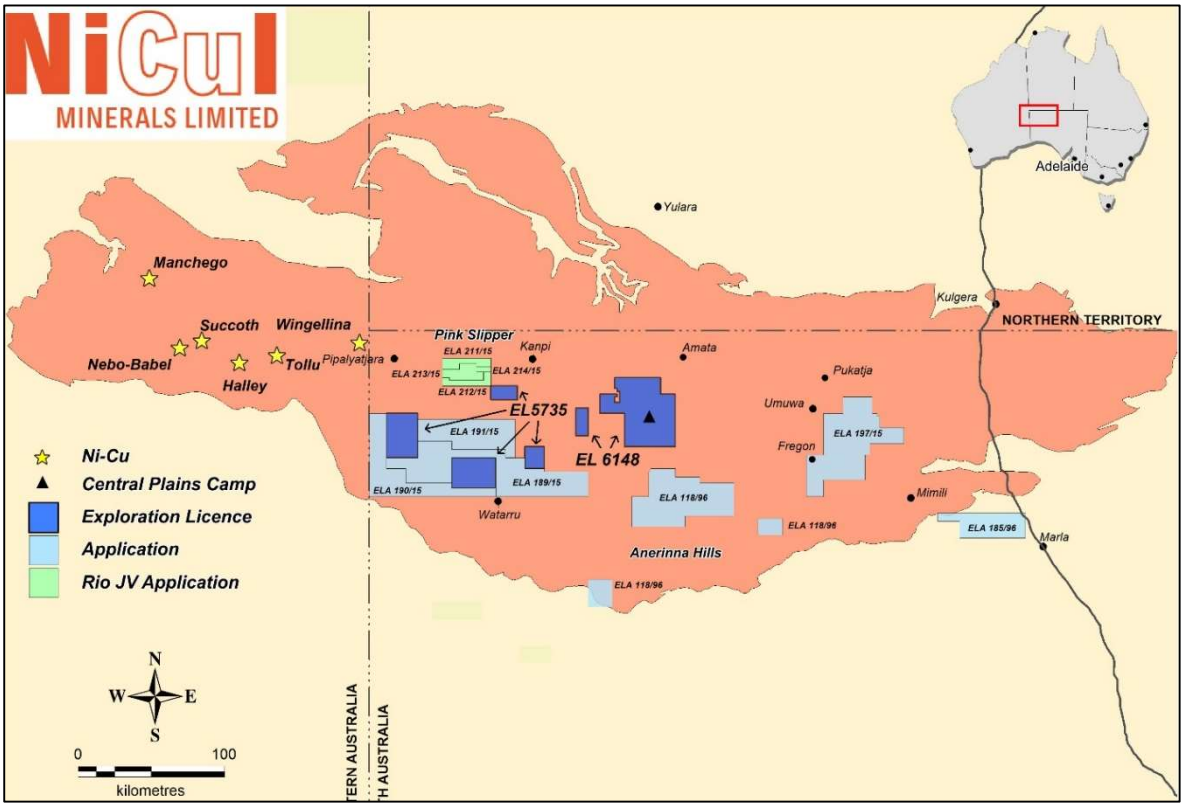

Figure 6: PepinNini's Musgrave Project area.

The Company is targeting new Nickel-Copper-Cobalt sulphide discoveries within the Musgrave Project and has generated a number of priority targets utilising AEM surveys. The target areas include:

The Pink Slipper Farm-in Joint Venture Project with Rio Tinto Ltd (Rio Tinto Exploration Pty Ltd), which comprises four exploration licence applications (ELAs) covering a total area of 615 km^2. PepinNini is earning a 51% interest in the Project and is the Project operator and manager. Pink Slipper is a highly prospective geophysical target and is a core exploration focus that the Company plans to drill test once the ELA is granted.

The Mt Caroline Project which consists of granted Exploration Licence EL6148 covering a total area of 1,918km^2. PepinNini has identified four key anomalies at Mt Caroline, defined from the results of a detailed, 400 metre line-spaced, AEM survey. The Fowler Anomaly is the highest priority target. The Company plans to undertake a targeted ground EM survey and vacuum drilling at Mt Caroline.

The Ironwood Bore Project (ELA197/15) which covers an area of 2,202km^2 in the APY Lands, in the eastern part of PepinNini's Musgrave Project area. Ironwood Bore represents a significant near-surface conductive target for drill testing. The targets have been identified from a collaborative (PNN, CSIRO and South Australian Department of Energy and Minerals) AEM survey flown in 2016.

The information in this report that relates to Exploration Results and Mineral Resources for the Australian Musgrave Projects is based on information compiled by Phil Clifford BSc MAusIMM. Phil Clifford has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration 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". Phil Clifford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

This announcement was authorised for issue by the Directors of PepinNini Minerals Ltd.

JORC Table

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.*	• No samples are being reported
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).*	• No drilling is being reported
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.*	• No drilling is being reported
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.*	• No sampling / drilling is being reported

Criteria	JORC Code explanation	Commentary
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.*	• Not applicable - no sampling is being reported
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.*	• Not applicable - no sample analysis is being reported
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 - no sampling or analysis is being reported.
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.*	• Geophysical AEM Surveys used built in GPS navigational systems with external GPS mounted antennas with position accuracy +/- 1m. • Coordinate system Latitude/Longitude GDA94 datum MGA94 (Zone 52) / WGS84 datum • Topographic control from Digital Terrain models & publicly available topography. • Geographic positioning control appropriate for exploration survey lines

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.*
		• Fix-wing High Moment TEMPEST Survey –25Hz – 37.5kHz bandwidth, EM sensor - Towed bird with 3 component dB/dt coils, at nominal 120m flying height
		  • Regional Survey lines spaced at 2km
		  • Detailed survey lines spaced at 400m
		• Heli-mounted SkyTEM 312 HP system for regional survey

Criteria	JORC Code explanation	Commentary

		• SkyTEM516 system for detailed survey
		  • Regional Survey lines spaced at 2km
		  • Detailed survey lines spaced at 400m
		• Survey lines positioned in consideration of heritage approvals.

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.*	• All Survey lines oriented north-south, • Positioning of survey lines appropriate for first-pass surveying
Sample security	• *The measures taken to ensure sample security.*	• Survey data collected and collated by Geosciences Australia (GA) and securely distributed via electronic communications to PepinNini's external geophysical consultant for validation and assessment.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Data collection, processing and analysis protocols aligned with industry best practice.

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.*	• Geophysical survey work covered approximately 50% of PNN Musgrave tenure including EL6148(formerly EL5220), EL 5735, ELA118/96 and EL197/15. All tenure is 100% owned by NiCul Minerals Ltd - subsidiary of PepinNini Minerals Limited • PNN has a Deed of Exploration with the Anangu Pitjantjatjara Yankunytjatjara (APY) for each exploration licence

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Modern exploration across the Musgrave Province has included regional airborne magnetics-radiometrics, airborne electromagnetics, ground gravity surveying, ground magnetics, ground IP, ground EM, magnetic lag sampling, rock chip sampling, soil sampling, RC drilling and diamond drilling. • The detailed PNN AEM geophysical surveys are located in areas where no previous exploration activities have been undertaken.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• PepinNini is primarily exploring for massive magmatic Ni-Cu-Co sulphide & PGE systems related to mafic intrusions of the 1070Ma Giles Event, polymetalic Broken Hill Style associated with the Birksgate Complex metamorphic basement and precious metals within listric shear structures within the basement architecture. • The targeted prospects contain structural and magnetic features and conductivity responses considered prospective for massive sulphide or polymetalic mineral accumulations.
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.*	• No drilling is being reported
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 - no sample results reported

Criteria	JORC Code explanation	Commentary
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. - no sample results reported
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.*	• Regional location map of PNN tenure and survey outline are provided in Figure 1 • Tenement and prospect scale maps showing the location of activities are provided as Figure 5.
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.*	• No substantial exploration work has been undertaken on the tenements and prospects covered by the AEM survey.
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.*	• Fixed-wing airborne magnetics-radiometrics, digital elevation and ortho imagery (airphotos) was acquired across the Musgrave Region (SA) by the South Australian Government between 2000 & 2002. The data is publicly available. • The grid system used is Latitude/Longitude GDA94 datum.
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.*	• Infill vacuum soil sampling and or ground EM is being planned at various prospect areas to investigate AEM conductive targets for potential Ni-Cu sulphide and PGE mineralization.