PepinNini Lithium Limited

ASX RELEASE 6 July 2020 ASX:**PNN**

Priority Nickel-Copper Targets at Musgrave Project

ABOUT

PepinNini Lithium Limited is a diversified ASX listed Australian Exploration Company focused on exploring, discovering and developing a significant mineral resource. PepinNini have 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 Lithium Ltd (ASX: PNN) (PepinNini, the Company) is pleased to announce that it is reviewing and intending further investigation of multiple priority exploration targets at its 100%-owned Musgrave Nickel-Copper Sulphide Project in South Australia.

The targets are located at the Mt Caroline tenement area (Granted Exploration Licence - EL6148, formerly EL5220), which covers a total area of 1,918km^2 in the central Musgrave district (Figure 1).

EL6148 covers the central and southern parts of the large (approximately 20km^2) Mt Caroline layered mafic-ultramafic intrusion, known as the Giles Complex Formation, and its potential feeder structures.

PepinNini has identified four key anomalies at Mt Caroline, defined from the results of a detailed, 400 metre line-spaced, airborne electromagnetic survey (AEM) flown with the SkyTEM516 system (PNN ASX release: 19 December 2016).

The four anomalies were identified from their magnetic response and geological and structural setting (Rankin, 2002), as well as their proximity to regolith copper anomalism returned from previous shallow vacuum drilling conducted by PepinNini (PNN ASX release:18 June 2014).

The highest priority target is the Fowler Anomaly, which partly coincides with a strongly remanent magnetic anomaly (Figure 4 left).

The Fowler Anomaly has a distinct negative (remanent) magnetic response, similar to the 100% PNN owned Mt Harcus Intrusion within the Giles Complex in the Musgrave Province (Copper 0.3% to 0.7%, Nickel 0.3%, Cobalt 0.1% PNN ASX announcement 30 April 2008). The Giles Complex is known to host Nickel-Copper in places and can be coincident with the late-time conductivity anomaly seen in the AEM data.

This very promising Fowler Anomaly (Figures 2-3) is also located in a favourable structural setting and is interpreted to have similar features (chonolith feeder-dyke) to the mineralisation style of the major Nebo-Babel Nickel-Copper Project (Probable Ore Reserve of 220Mt @ 0.36% Copper and 0.33% Nickel: announced ASX:OZL and CZI 12 February 2020) in the western Musgrave Province.

Based on the favourable geological and structural setting of the Fowler Anomaly, PepinNini plans to undertake a targeted detailed ground EM survey, followed by shallow vacuum drilling in its next phase of exploration at the Musgrave Project.

This field work will be designed to identify and define magmatic sulphide mineralisation within this increasingly important area of the Musgrave Geological Province.

PepinNini Managing Director Rebecca Holland-Kennedy said:

"*PepinNini is actively reviewing and prioritising its portfolio of projects with a view to advancing core projects and to deliver shareholder value. The Musgrave Project area holds significant potential across multiple target areas and, following a review of previous studies, a number of highly promising targets have been identified*."

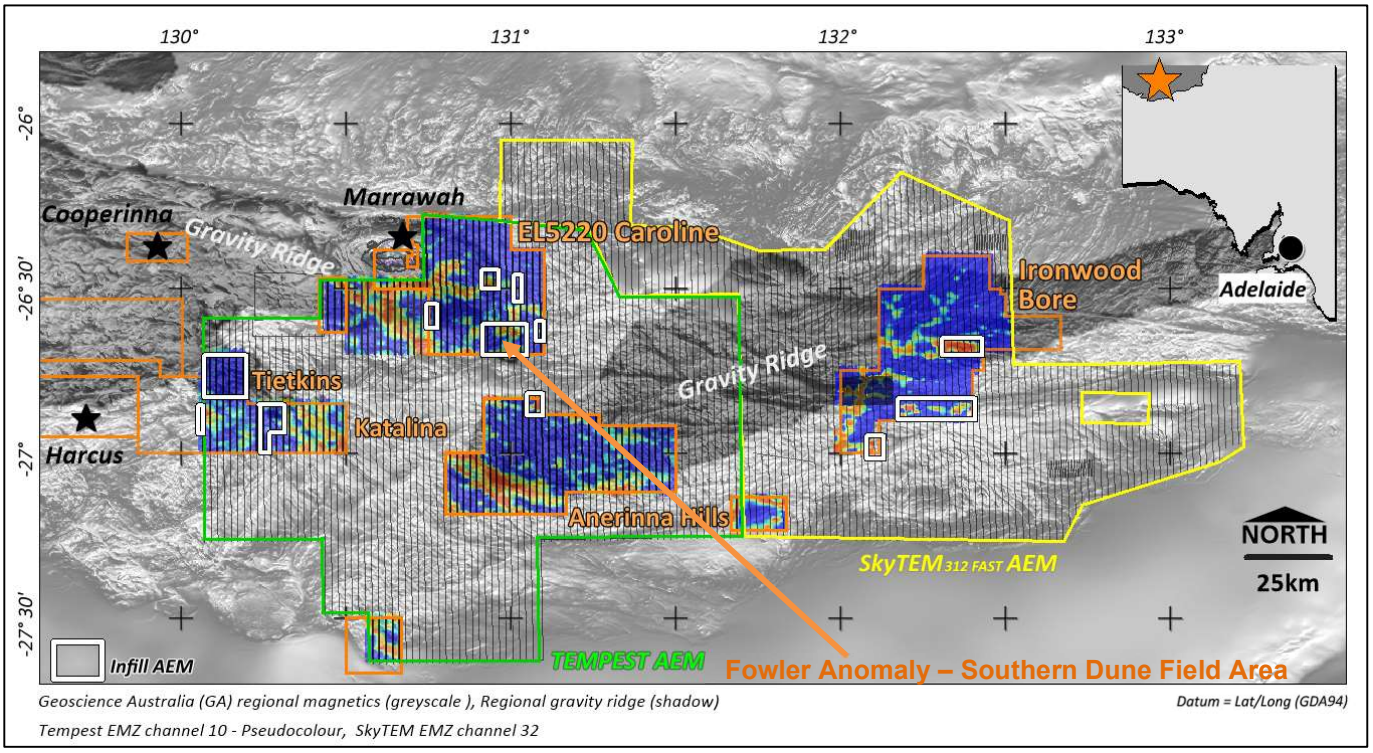

Figure 1: AEM Anomalies at PepinNini's Musgrave Project

Exploration Approach

The central, southern and eastern portions of the Mt Caroline licence area (EL 6148 formerly EL 5220) include the Southern Dunes Fields and Central Plains prospects and were subject to a broad regional TEMPEST AEM survey in 2016.

Five areas of interest were defined from this regional electromagnetic data, airborne magnetic interpretations and geological observations and these were selected for a detailed follow-up 'infill' AEM survey at a 400m line-spacing, using the SkyTEM516 system.

The electromagnetic technique used was Time-Domain electromagnetic survey (TDEM) which is considered to be the best tool for the detection of massive nickel copper sulphides.

The five follow-up infill AEM target areas identified four late-time anomalies in the Southern Dune Fields area that were selected due to their strong magnetic responses and geological and structural setting (Rankin, 2002). In addition to reinforce the potential for mineralisation, these targets are located proximal to an area of weak regolith copper anomalism (at the Central Plains area) which was identified from previous shallow vacuum drilling completed by PepinNini (PNN ASX release:18 June 2014).

The Fowler Anomaly (Southern Dune Fields) contained the largest amplitude late-time response from the results of the AEM, which partly coincides with a strongly remanent magnetic anomaly (Figure 4 left).

The strong late-time conductivity feature at the Fowler Anomaly is located at the junction between east - west and southwest - northeast paleochannels. This may provide a possible explanation for the localised high-amplitude response. The data from the closer-spaced AEM survey clearly defines a pattern of extensive shallow flat lying paleodrainage responses over the area of interest (Figure 4, right).

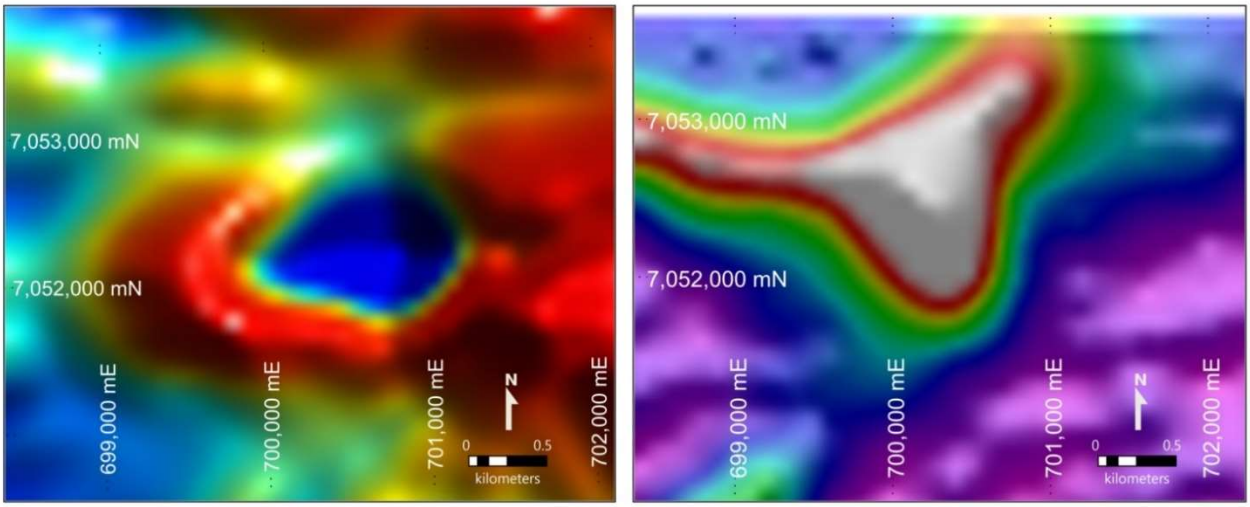

Figure 2: Fowler Target – Total Magnetic Intensity(TMI) image (left) and AEM SkyTEM516 image (right) (Z component Channel 35)

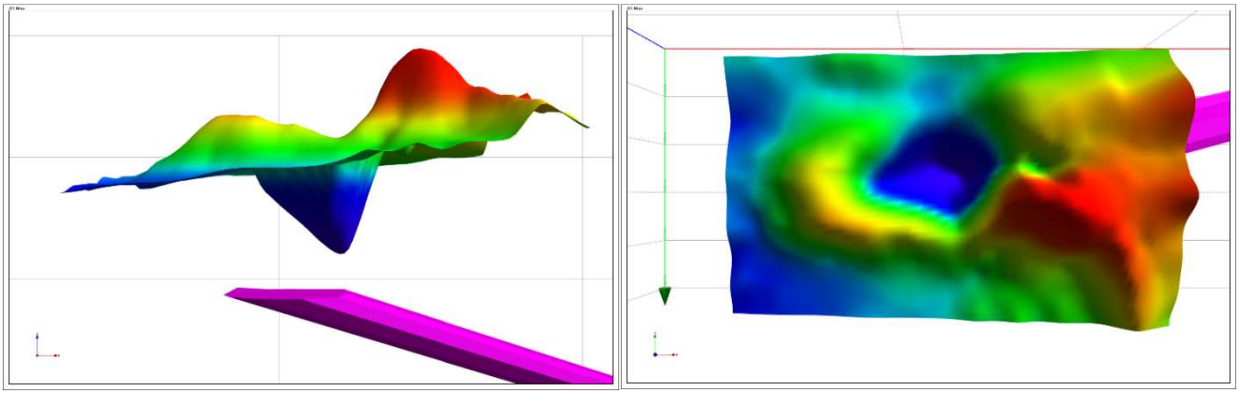

Figure 3: Chonolith Model of Fowler target from magnetic data by James Austin, CSIRO; Looking north (left) and Looking down (right).

These paleochannels are likely to be structurally controlled and reflect a bedrock architecture which may also impact the geometry of the negatively magnetised (intrusive) body. The stronger paleochannel response could potentially indicate the preferential weathering of a mafic intrusive body (potentially the Giles Complex) within resistant Pitjantjatjara Supersuite basement.

This Fowler Anomaly is therefore highly recommended for follow-up investigations using detailed ground EM and shallow vacuum drilling. The potential here is that magmatic sulphide accumulations may be masked by the paleochannel EM response.

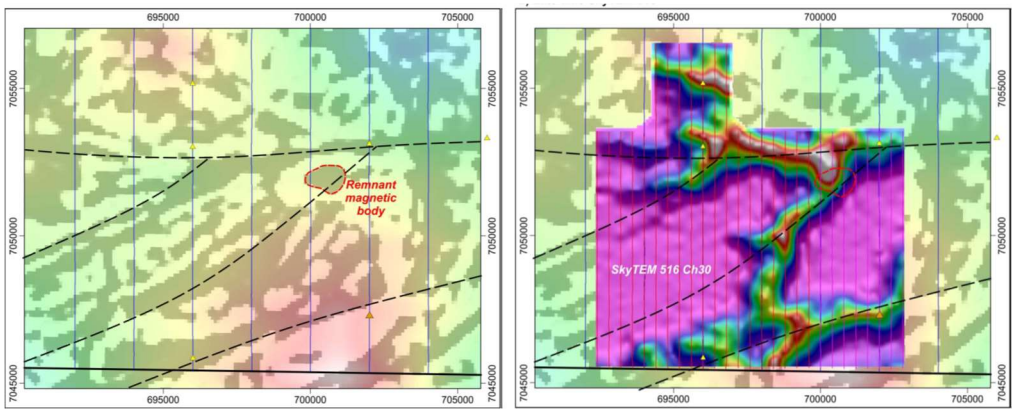

Figure 4: Southern Dune Field infill SkyTEM516 Survey - Bouguer gravity (left) and SkyTEM516 data (right).

Background to Musgrave Project

PepinNini's Musgrave Project is located in the Musgrave Geological Province, within the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands, in northwest South Australia. The project area comprises two granted exploration licences and eight exploration licence applications, and covers a total area of 14,003 km^2. The Project is held by PepinNini 100%-owned subsidiary, NiCul Minerals Ltd. See Figure 5 for project location map.

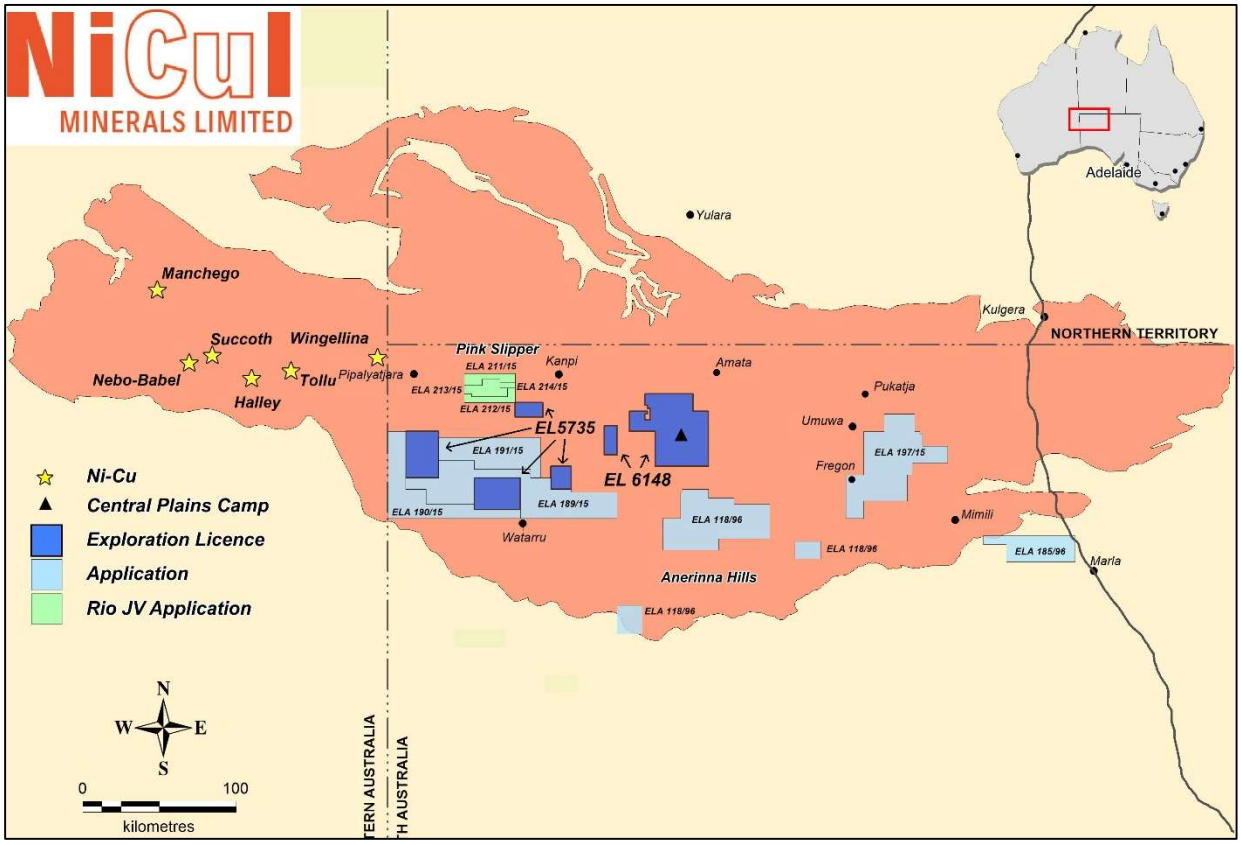

Figure 5: PepinNini's Musgrave Project area

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 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 for the Company, which it plans to drill test once the ELA is granted.

The Mt Caroline Project consists of granted Exploration Licence EL6148 and covers 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) an exploration licence application (ELA) 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 were identified from a collaborative (PNN, CSIRO and South Australian Department of Energy and Minerals) AEM survey flown in 2016.

References

Rankin, L.R. & Newton, C.A.,2002, *Musgrave Block, central Australia: regional geology from interpretation of airborne magnetic data. Geointerp Report 2002/5 for Rio Tinto Exploration Pty Ltd and Primary Industries and Resources South Australia. South Australia. Department of Primary Industries and Resources. Report Book, 2002/031.*

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 Lithium 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 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
		• SkyTEM516 system for detailed survey

Criteria	JORC Code explanation	Commentary
		• 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 GDA94 zone 52.
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.