ASX Announcement | 28th August 2024

ENHANCED LITHOSTRUCTURAL UNDERSTANDING OF THE MOUNT DOREEN GEOLOGY

Highlights

- New lithostructural interpretation has confirmed a complex magmatic and structural history of multiple mineralisation events, significantly expanding the potential for discovering new mineralised zones.
- Granite contacts, particularly structural contacts, play a significant role in project-scale hydrothermal fluid flow, allowing improved appreciation of potential mineralised zone locations.
- PGN Geoscience has identified target areas, which are potential new mineralisation zones to assist with further data and exploration activities such as VTEM & drilling.

Litchfield Minerals Limited ("**Litchfield**" or the "**Company**") **(ASX:LMS),** a company with a strategic emphasis on critical minerals, is pleased to announce the results of a lithostructural interpretation completed on the Mt Doreen Project, West Arunta Northern Territory.

Managing Director and CEO, Matthew Pustahya, commented:

"The lithostructural interpretation of Mount Doreen has significantly expanded the potential for discovering new mineralised zones within the tenement package. The team was excited by the extent and complexity of structural activity throughout the project and are excited about what this may lead to.

While the team is still awaiting additional data, particularly the VTEM & geochemistry to refine our existing targets and develop further targets, the initial data is already proving valuable in identifying potential trends and structures connecting the known mineralised outcrops. PGN's insight is helping us predict where further areas of mineralisation might be located and has generated some priority areas to explore.

The upcoming VTEM survey, scheduled to begin this week, will significantly enhance our understanding of this structural interpretation and advance our exploration efforts, with the expectation of finding large, massive sulphide bodies."

Lithostructural Interpretation

The new Lithostructural interpretation was completed using all available geophysical and geological datasets and relied heavily on Litchfield's new 100m line-spaced aeromagnetic data acquired in March 2024. (Figure1)

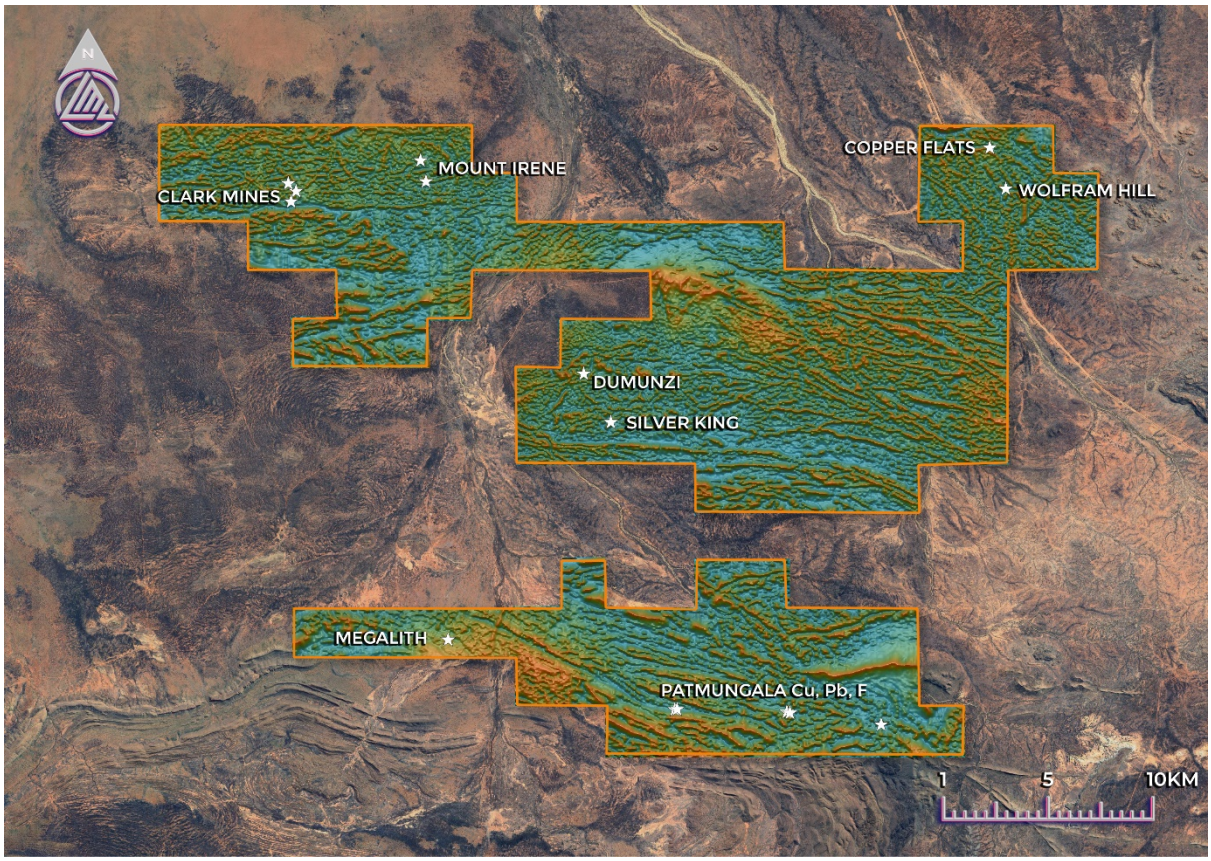

Figure 1 – Stitched RTP 1VD magnetic image between Litchfield's 2024 (norther EL block) & Rio Tinto's 1997 aeromagnetic surveys (southern EL block)

The interpretation (Figure 2) has produced a detailed basement geological map of the Mt Doreen Project that shows a complex magmatic and structural history with two distinct base metal mineralisation events. Older Cu-Pb-Zn-Ag mineralisation at Silver King, Clark, and Mt Irene is genetically related to the Yaloolgarrie Granite while younger Cu-W-Pb-Ag mineralisation at

Wolfram Hill is related to the Southward Granite. (*Refer to section 6.2 in Independent Geologists Report (IGR) by Ross et al, 2023).* Additionally, the Luni Nb deposit across the border in Western Australia is located at the contact between the older Carrington Granite and the Lander Rock Formation and may represent a valid exploration target within the Mt Doreen Project.

Structural interpretation indicates that most of the known base metal mineralisation is located at the contact between coeval granites and the Lander Rock Formation or within the granites themselves. This has highlighted several high-priority exploration target zones that have not been assessed by previous explorers due to extensive, shallow (<10m) alluvial cover. (Figure3)

Litchfield's VTEM survey commences around the 29th of August and will provide another valuable geological dataset to be incorporated into PGN's interpretation. The VTEM survey has been designed specifically to identify semi-massive and massive base metal sulphide mineralisation and will significantly enhance Litchfield's ability to define specific drillhole targets.

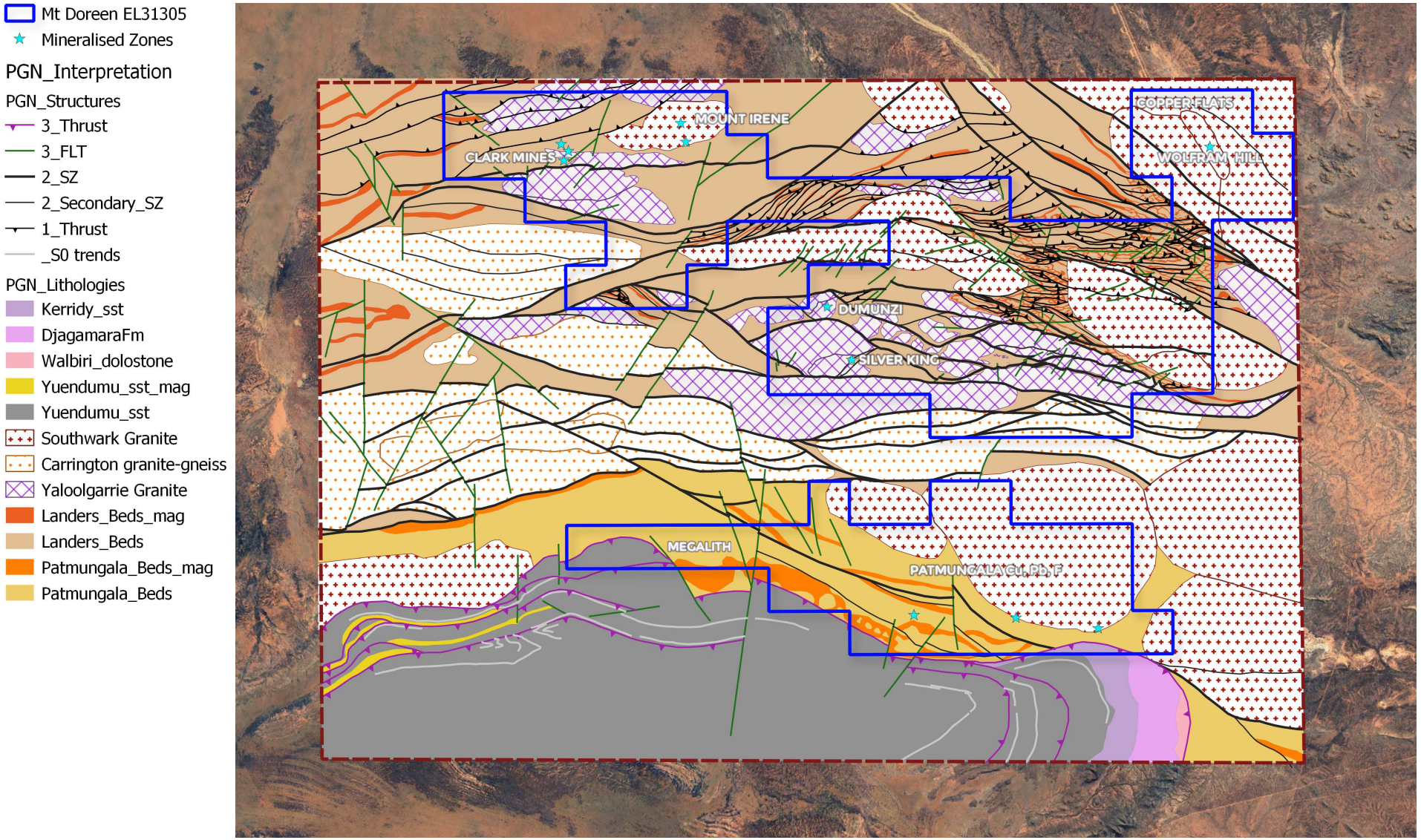

Figure 2 - Lithostructural interpretation of the Mount Doreen tenement - EL31305

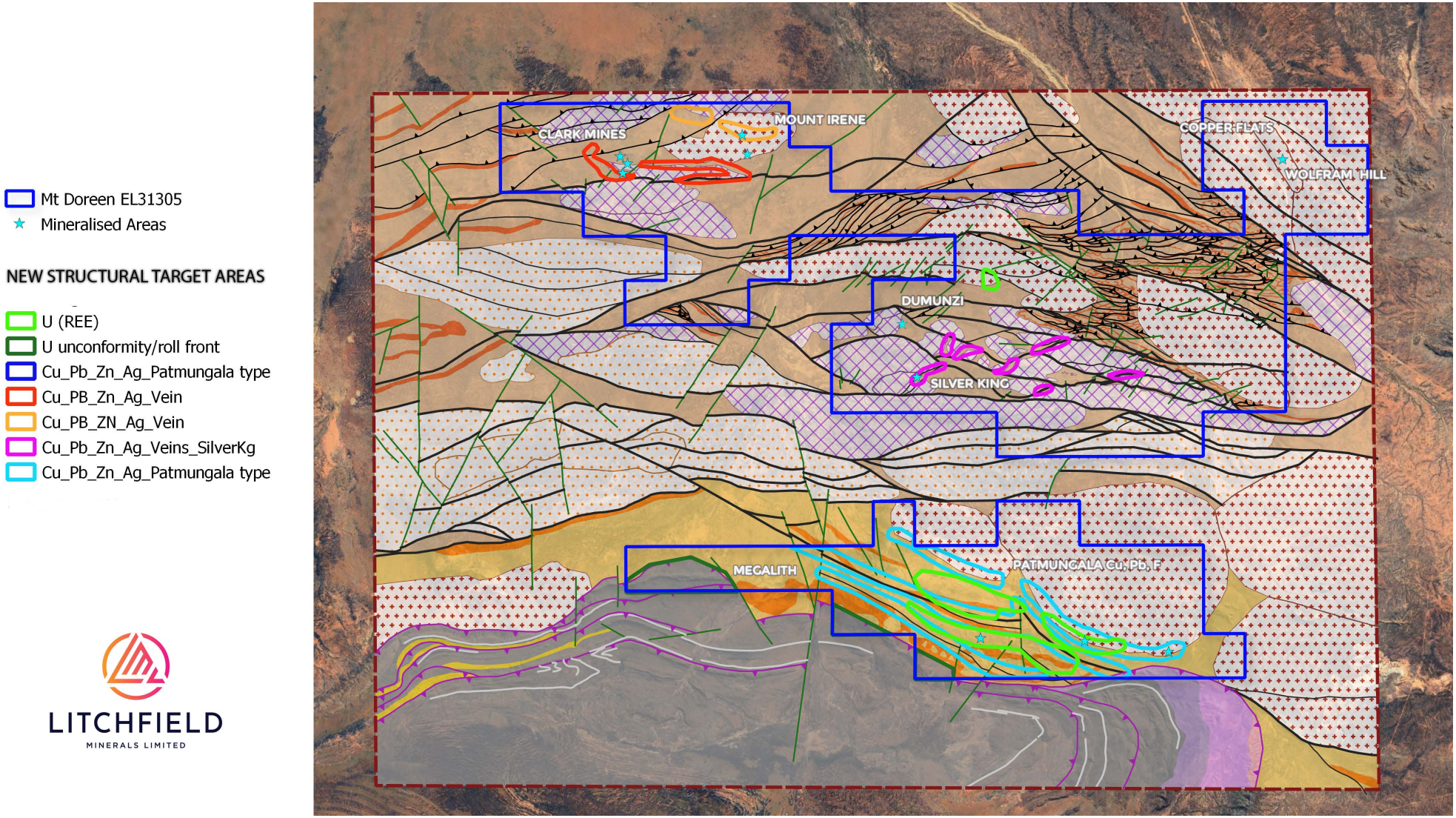

Figure 3 - Lithostructural interpretation of the Mount Doreen tenement, including target zones - EL31305

Upcoming News Flow

- Completion of flying the VTEM airborne survey in early September.
- Results from soil and rock chip sampling of REE-anomalous, uranium granites.
- Target definition and ranking from lithostructural and VTEM results (late September).
- Geochemistry results from soil campaign over Dumunzi.

Cautionary Statement

The lithostructural survey currently referenced reflects PGN Geoscience and our team's interpretation based on new and historical data. These models, suggestions, and associated inferences may evolve as additional information is gathered.

About Litchfield Minerals

Litchfield Minerals is a critical mineral explorer, primarily searching for base metals and uranium out of the Northern Territory of Australia. Our mission is to be a pioneering copper exploration company committed to delivering cost-effective, innovative, and sustainable exploration solutions.

We aim to unlock the full potential of copper and other mineral resources while minimising environmental impact, ensuring the longevity and affordability of this essential metal for future generations. We are dedicated to involving cutting-edge technology, responsible practices, and stakeholder collaboration, driving us to continuously redefine industry standards and deliver value to our investors, communities, and the world.

The announcement has been approved by the Board of Directors.

Competent Person's Statement

The information in this Presentation that relates to Exploration Results is based on, and fairly represents, information and supporting documentation compiled by Mr Russell Dow (MSc, BScHons Geology), a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (AUSIMM) and is a full-time employee of Litchfield Minerals Limited. Mr Dow has sufficient experience that is relevant to the style of mineralisation and types of deposits under consideration and to the activity being undertaken 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" (JORC Code). Mr Dow consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. With regard to the Company's ASX Announcements referenced in the above Announcement, the Company is not aware of any new information or data that materially affects the information included in the Announcements.

Forward-Looking Statements and Important Notice

Statements regarding plans with respect to Litchfield's project are forward-looking statements. There can be no assurance that the Company's plans for the development of its projects will proceed as currently expected. These forward-looking statements are based on the Company's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties, and other factors, many of which are outside the control of the Company, which could cause actual results to differ materially from such statements.

JORC Code, 2012 Edition – Table 1 report

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 drilling reported in this release. • Airborne magnetic and radiometric data was used extensively during the lithostructural interpretation process, relying mainly on Lithcfield's new 100m/50m line-spaced aeromagnetic survey (March 2024). • The airborne magnetic and radiometric survey was conducted by MagSpec Airborne Surveys. MagSpec acquired the data with a fixed-wing aircraft (Cessna 210). • 100m survey line spacing and 30m flying height above ground level (Mt Doreen North), 50m line spacing and 30m flying height for Mt Irene and Silver King. • Sample spacing 3.5m for magnetics and 35m radiometrics. • Magnetometers: G-823A cesium vapour magnetometer. • Gamma Ray Spectrometer: RSI RS-500 gamma-ray spectrometer with 1024 Channels, incorporating 2x RSX-4 detector packs (32L). • GPS: Integrated Novatel OEM719 DGPS receiver, 555 Channel with L1/L2 + GLONASS Multi Frequency. • Altimeter: Bendix/King KRA 405 radar altimeter and Renishaw ILM-500R laser altimeter.

Criteria	JORC Code explanation	Commentary
		• Data Acquisition System: Integrated Novatel OEM DGPS receiver, High precision cesium vapour magnetometer (sample rates 20Hz).
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).*	• Not applicable as no drilling is 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.*	• Not applicable as no drilling is 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.*	• Not applicable as no drilling is reported
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.*	• Not applicable as no drilling is reported

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>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.</td><td></td></tr>
<tr><td>Quality of assay data and laboratory tests</td><td>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.</td><td>The survey quality control (QC) parameters and tolerances are listed in below table:
<table>
<tr><th>Stream</th><th>Parameter</th><th>Specification</th></tr>
<tr><td>Navigation</td><td>Model Type</td><td>Integrated Novatel OEM719 DGPS receiver</td></tr>
<tr><td rowspan="5">Altimeters</td><td>Model Type</td><td>Bendix/King KRA 405 radar altimeter</td></tr>
<tr><td>Resolution</td><td>0.3 m</td></tr>
<tr><td>Sample Rate</td><td>20 Hz</td></tr>
<tr><td>Range</td><td>0-760 m</td></tr>
<tr><td>Model Type</td><td>Renishaw ILM-500R laser altimeter</td></tr>
<tr><td rowspan="4">Magnetics</td><td>Resolution</td><td>0.01 m</td></tr>
<tr><td>Sample Rate</td><td>Up to 20 Hz</td></tr>
<tr><td>Range</td><td>0-500 m</td></tr>
<tr><td>Model Type</td><td>G-823A cesium vapour magnetometer</td></tr>
<tr><td rowspan="5">Radiometrics</td><td>Resolution</td><td>0.001 nT resolution</td></tr>
<tr><td>Sensitivity</td><td>0.01 nT sensitivity</td></tr>
<tr><td>Sample Rate</td><td>20 Hz (approximately 3.5 m)</td></tr>
<tr><td>Compensation</td><td>3-axis fluxgate magnetometer</td></tr>
<tr><td>Model Type</td><td>RSI RS-500 gamma-ray spectrometer incorporating 2x RSX-4 detector pac</td></tr>
<tr><td rowspan="4">Base Station</td><td>Total Crystal Volume</td><td>32 L</td></tr>
<tr><td>Channels</td><td>1024</td></tr>
<tr><td>Sample Rate</td><td>2 Hz (approximately 35 m)</td></tr>
<tr><td>Stabilization</td><td>Multi-peak automatic gain</td></tr>
<tr><td>Model Type</td><td>GEM GSM-19 Overhauser & Scintrex Envi-Mag proton precession</td></tr>
<tr><td>Resolution</td><td>0.01 / 0.1 nT</td></tr>
<tr><td>Accuracy</td><td>0.1 / 0.5 nT</td></tr>
<tr><td>Sample Rate</td><td>1.0 / 0.5 Hz</td></tr>
</table>
A dedicated PC-based notebook computer was used as a workstation to process and image geophysical and navigation data acquired during the survey, producing semi-final, preliminary levelled grids and maps.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		• Flight path plots were generated from the GPS data to verify the completeness and accuracy of each day's flight(s). • The Geosoft software system permitted preliminary maps to be quickly and efficiently created for errors and coherency checks.
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.*	• Raw geophysical data was captured electronically in the field and sent to MagSpec Airborne Surveys for internal validation. All quality control was completed by MagSpec Airborne Surveys. • Flight data quality and completeness were assured by both statistical and graphical means on a daily basis (Digital Data Verification). • Sampling and assay verification not applicable for aeromagnetic survey.
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.*	• The coordinates were confirmed as being WGS84 UTM zone 52S. • On-board DGPS positioning of all data locations. • Traverse lines were surveyed at an average spacing of 100m. • Control tie lines on block were surveyed at an average spacing of 1000m. The survey was planned at 30m above ground at one dimensional tight drape. The target accuracy for the aircraft was± 10m from the planned elevation.

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.*
		• The pre-processed data sampling rates for the sub-systems are:
		  ○ Magnetic data (20Hz)
		  ○ Radiometric data (2Hz)
		  ○ Airborne GPS (20Hz)
		• Base station magnetometer (0.5Hz).

Orientation of data in	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering*	• Magnetic survey lines were flown 090-270 degrees (E-W).

Criteria	JORC Code explanation	Commentary
relation to geological structure	*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.*	• Drilling orientation not applicable for aeromagnetic survey.
Sample security	• *The measures taken to ensure sample security.*	• A report of daily activity covering the total acquisition period prepared. The report covers production figures, flight duration times and daily comments on data QA/QC. • All data collected under strict security measures by contractor.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• All digital airborne magnetic and radiometric data was subject to auditing by independent geophysical contractor, Xcalibur Airborne Geophysics. • No other audits or reviews were reported.

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.*	• Refer to Section 4 in Independent Geologists Report (IGR) by Ross *et al.*, 2023 for further detail. In summary, the Mount Doreen project is secured by EL 31305 for total of approximately 388.35 square kilometres. • All tenements within the Mt Doreen are 100% owned by Litchfield Minerals Ltd. • The Mt Doreen Project is located 325km northwest of Alice Springs pastoral lease. The tenements are in good standing and there are no known impediments.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Refer to Section 6 and 7 in Independent Geologists Report (IGR) by Ross *et al,*, 2023 for further detail. A summary of previous exploration and mining is presented below: • 1930- 1956: Minor amounts of copper and tungsten extracted from Silver King, Clark, Mount Irene and Wolfram Hill. • 1969: NT Mines & Water Resources diamond drilling at Clark workings. • 1987 – 2006: White Industries/Mareeba Mining, Bruce and Mules, MIM Exploration/Roebuck Resources, Track Minerals, Poseidon Gold/Yuendumu Mining, BHP, Homestake Gold, Rio Tinto Exploration and Tanami Gold completed geological mapping, geochemical sampling, airborne and ground geophysical surveys, and drilling programs.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Refer to Section 5 in Independent Geologists Report (IGR) by Ross et al., 2023 for further detail. In summary: • Mount Doreen is located in the southern portion of the Paleoproterozoic Aileron Province of the Arunta Region. • The oldest rocks at Mount Doreen are the multiply deformed and metamorphosed siliciclastic sediments of the Lander Rock Formation. The younger volcano sedimentary Patmungala Beds lie in the south of the tenement, and both are intruded by the Yarunganyi Granite. Numerous major faults strike close to east-west and often contain veins or vein swarms of quartz, forming ridges. Neoproterozoic to Palaeozoic sedimentary rocks of the Ngalia Basin overlie the Aileron basement in the southwest of the tenement and along the southern boundary.

Criteria	JORC Code explanation	Commentary
		• Mineralisation is considered to be epigenetic intrusion-related breccia and vein mineralisation with polymetallic copper-lead-zinc-silver-molybdenite and tungsten. Mineralisation is interpreted to be from varied sources and associations as evidenced from mineralisation dating. • The most prominent mineralisation is supergene copper at Silver King with varying lead-zinc-silver in quartz veins and shear zones.

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 or assaying is reported in this report.

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.*	• No drilling or assaying is reported in this report.

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').*	• No drilling or assaying is reported in this report.
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.*	• Project location map and plan map of the drill hole locations with respect to each other and with respect to other available data are included in the text. • Drill hole locations have been determined with hand-held GPS drill hole collar location (Garmin GPS 78s) +/- 5m in X/Y/Z dimensions. • Refer to Section 6 and 7 of the Independent Geologists Report (IGR) by Ross *et al.*, 2023.
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.*	• Individual gravity readings have not been reported, plans within this report provide an adequate overview of the ground gravity data.
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.*	• See the main body of this report for all pertinent observations and interpretations.
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,*	Future planned exploration includes: • RAB/RC/DD drill testing • Geological mapping and geochemical sampling.

Criteria	JORC Code explanation	Commentary
	provided this information is not commercially sensitive.	