Ardea Resources Limited

Nickel Sulphide Exploration Drilling to Resume at Emu Lake

- An RC drill rig has been secured to follow-up on the recent Mise a la Masse and downhole magneto-metric resistivity geophysical target defined up plunge of the basal nickel sulphide occurrence in AELD0002[1]:
  - **1.1m @ 4.78% Ni,** 0.16% Cu, 0.47g/t Pt, 0.20g/t Pd from 366.9m downhole **consisting of semi-massive and matrix-style nickel sulphides**, within a broader zone of;
  - **4.8m @ 1.44% Ni** and 0.09% Cu, 0.20g/t Pt, 0.09g/t Pd from 365.9m depth
- The priority drill target is the middle of an 80m strike length conductive body extending to within 150m of surface and plunging steeply to the northeast.
- The first drill hole is planned to intersect this zone at a depth of approximately 180m below surface (~210m down-hole).
- In the broader Kalpini Project area, a second RC hole will also be drilled to test an MLEM anomaly immediately west of the mapped Wellington East Eastern Ultramafic in a likely felsic setting.

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to provide an update on nickel sulphide exploration within its extensive Kalpini Project located 70km northeast of the City of Kalgoorlie-Boulder, Western Australia (**WA**). Within its Kalpini tenure, Ardea controls an Eastern and Western Ultramafic belt (Figure 3), with each belt extending over 20km of continuous strike and prospective for hosting high-grade and disseminated nickel sulphide.

An RC drill rig has been secured to test the conductive zone that is modelled to extend up-plunge from the nickel sulphides intersected in drillhole AELD0002. The target is Kambalda-style, high-grade, basal contact massive nickel sulphides connected to the sulphides intersected in AELD0002.

Comments from Managing Director Andrew Penkethman:

"Ardea drillhole, AELD0002, intersected high grade nickel sulphide mineralisation hosted within an ultramafic unit located on an intact felsic footwall contact, so we have confirmed the required geology and nickel sulphide fertility. Follow-up geophysical surveys have indicated that this zone of nickel sulphide extends up and down plunge from AELD0002.

The next stage of exploration on this target is to drill an RC hole to test the interpreted up-plunge extension of the nickel sulphide mineralisation. If successful, Ardea will have confirmed a nickel sulphide discovery, at our Emu Lake Prospect, located only 70km northeast of the City of Kalgoorlie-Boulder.

To help achieve this goal, Ardea have designed a drill hole, approved site logistics and secured access to a high capacity RC drill rig and expect drilling to commence next week."

[1] Ardea ASX releases 10 June and 13 July 2021.

ASX & Media Release
18 August 2021

ASX Symbol
ARL

Ardea Resources Limited
Suite 2 / 45 Ord St
West Perth WA 6005

PO Box 1433
West Perth WA 6872

Telephone
+61 8 6244 5136

Email
ardea@ardearesources.com.au

Website
www.ardearesources.com.au

Directors
Mat Longworth
Non-Executive Chair

Andrew Penkethman
Managing Director & CEO

Ian Buchhorn
Technical Executive Director

Executive Management
Sam Middlemas
Company Secretary & CFO

Matt Painter
General Manager Exploration

Mike Miller
General Manager Tech Services

Alex Mukherji
Manager Land Access & Compliance

Issued Capital
Fully Paid Ordinary Shares
138,034,219

Directors/Employee Performance Rights
4,667,000

ABN 30 614 289 342

ASX Listed Company

For personal use only

Kalpini Project - Emu Lake Prospect

The Kalpini Project extends over 240km^2, with the leading nickel sulphide target, Emu Lake, located 70km northeast of Kalgoorlie (Figure 1). This strategic tenement package contains two belts each covering 20km strike of prospective ultramafic stratigraphy held 100% by Ardea and mostly within granted mining leases.

The project is 35km east of the Black Swan Nickel Project (Silver Swan mine), operated by Poseidon Nickel Ltd, within a parallel komatiite volcanic belt.

Recent Ardea drilling has intersected basal nickel sulphides in diamond drillhole AELD0002 and returned assays of:

- **1.1m @ 4.78% Ni,** and 0.16% Cu, 0.47g/t Pt, 0.20g/t Pd from 366.9m downhole **consisting of semi-massive and matrix-style nickel sulphides**, within a broader zone of:
- **4.8m @ 1.44% Ni** and 0.09% Cu, 0.20g/t Pt, 0.09g/t Pd from 365.9m depth.[2]

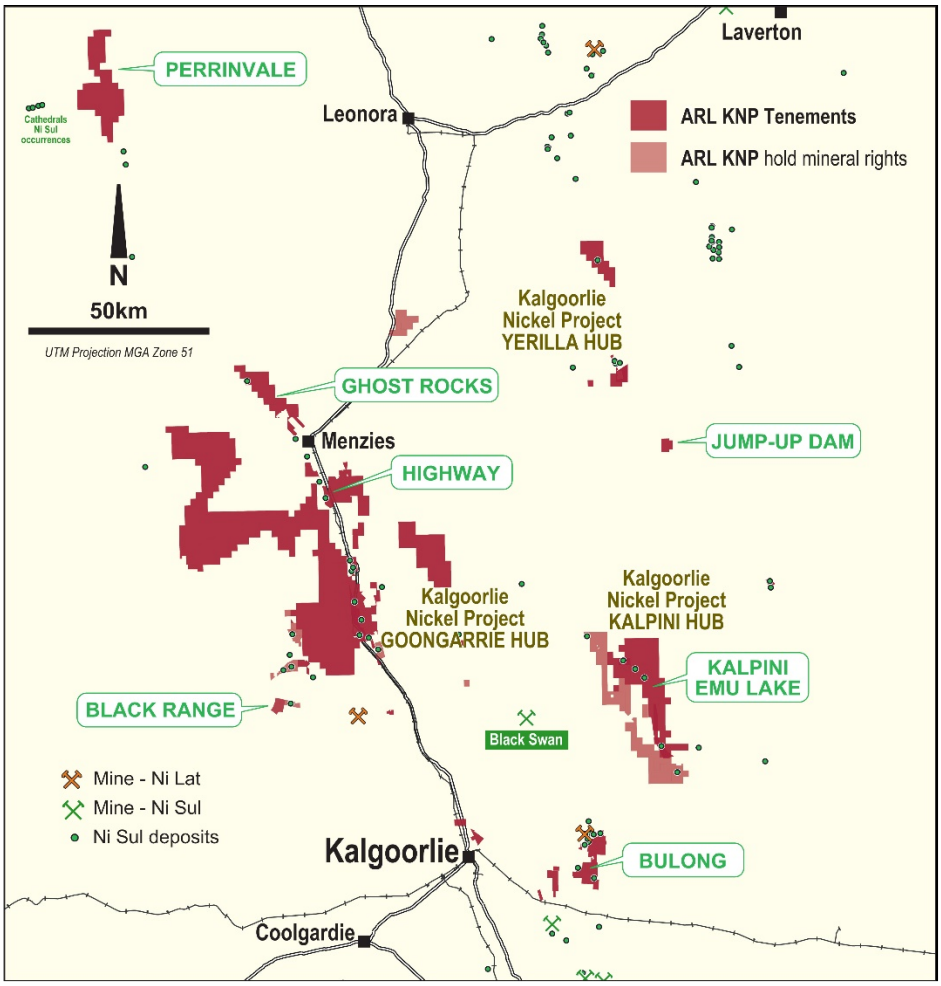


Figure 1: Location of the Emu Lake prospect with other Ardea KNP prospects near Kalgoorlie, WA.

This represents one of the best nickel sulphide intercepts historically drilled at Emu Lake and demonstrates the prospectivity of the Western Ultramafic position that has received little attention in the past (Figure 2). Most drilling has been concentrated on the Binti Main zone to the north and has intersected often remobilised stringers of nickel sulphide.

Planned Drilling Program

The Mise a la Masse (**MALM**) and down-hole magneto-metric resistivity (**DHMMR**) surveys completed in June 2021 around Ardea drill hole, AELD0002, were used to map the intersected sulphides along the basal felsic contact. The survey was successful and demonstrated the potential for a Silver Swan style nickel sulphide ribbon (80m strike) to

[2] Ardea ASX Release, 10 June 2021.

extend to within 150m of the surface and open at depth. This feature has been modelled as plunging steeply to the northeast through and below the nickel sulphide intercept in AELD0002 (ASX release 13 July 2021).

The proposed RC drilling is targeting the MALM anomaly up-dip from the nickel sulphide intercept in ALED0002 on the Western Binti Ultramafic Flow (Figure 2). The target is Kambalda-style, high-grade, basal contact massive nickel sulphides connected to the sulphides intersected in AELD0002.

The proposed RC hole has been planned to intersect the target at about 210m down hole, approximately 180m below surface and has been planned to a total depth of 250m (Figure 2). A drill rig has been secured, the drill site prepared and drilling is scheduled to commence in the week commencing 23 August 2021.

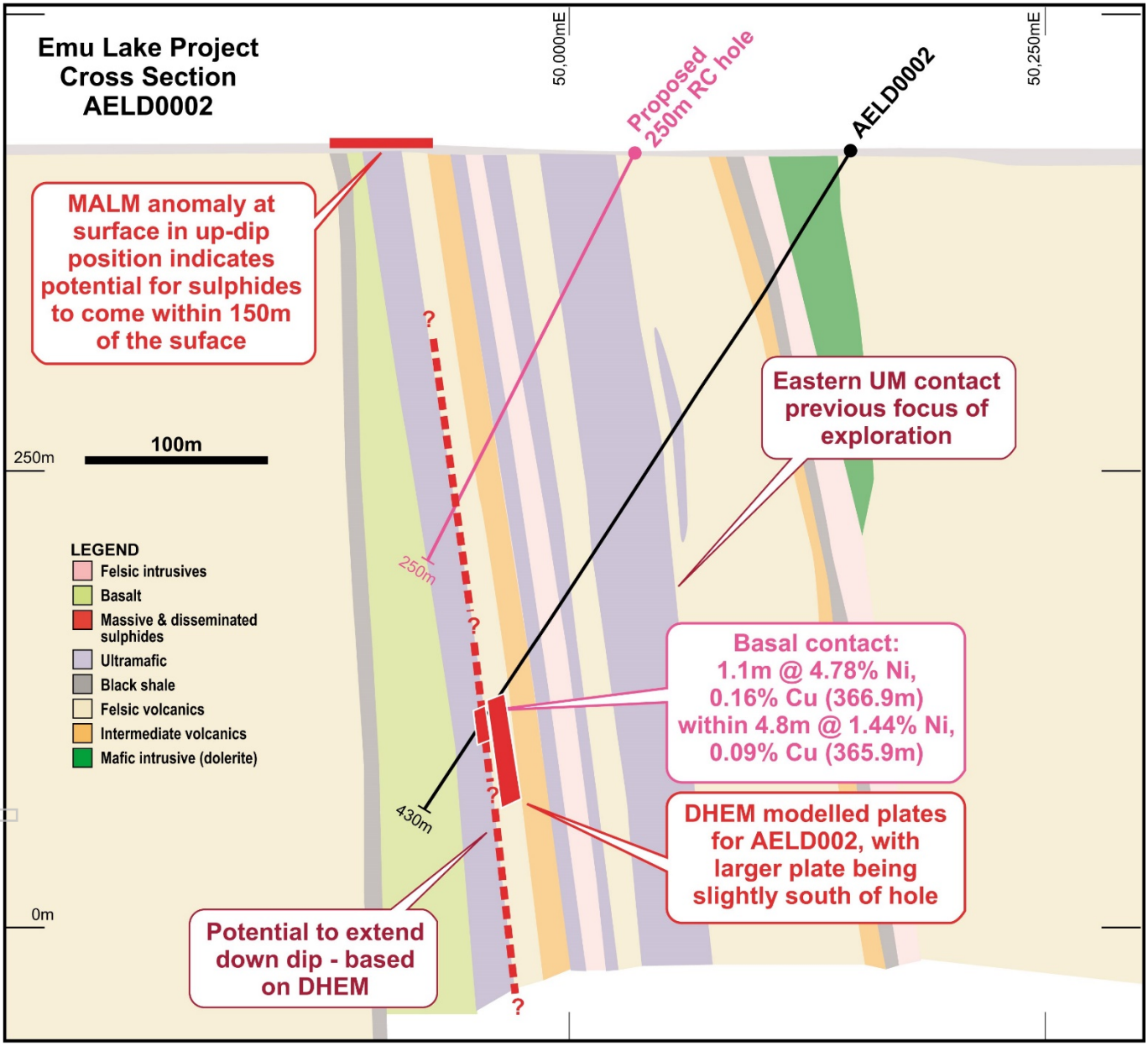


Figure 2: Emu Lake cross section looking north showing trace of drill hole, AELD0002, and interpreted geology with the new nickel sulphide zone on the Western Ultramafic unit. The Mise al la Masse anomaly at surface indicates potential for the nickel sulphide horizon to extend to within approximately 150m of the surface. See Figure 3 for the location of AELD0002 in plan view and the section line. Binti local grid.

A second RC drill hole has been planned targeting a recently identified moving loop electro-magnetic (**MLEM**) anomaly immediately west of the Eastern Ultramafic unit of the Kalpini project (ASX release 13 July 2021) at the

For personal use only

Wellington East C target (Figure 3). This exploration drill hole will target the modelled MLEM plate located below a strong copper anomaly on the edge of the main Kalpini Eastern Ultramafic unit. Copper in historic RC drilling (Vale, 2008) was up to 1,370 ppm in two holes 80m along strike.

The copper results were strong towards the end of the two holes suggesting they may be close to a primary sulphide source. The setting may well be a Volcanogenic Massive Sulphide (**VMS**), so requires drill evaluation.

A number of other nickel sulphide targets have been defined at Kalpini and continue to be reviewed (Figure 3).

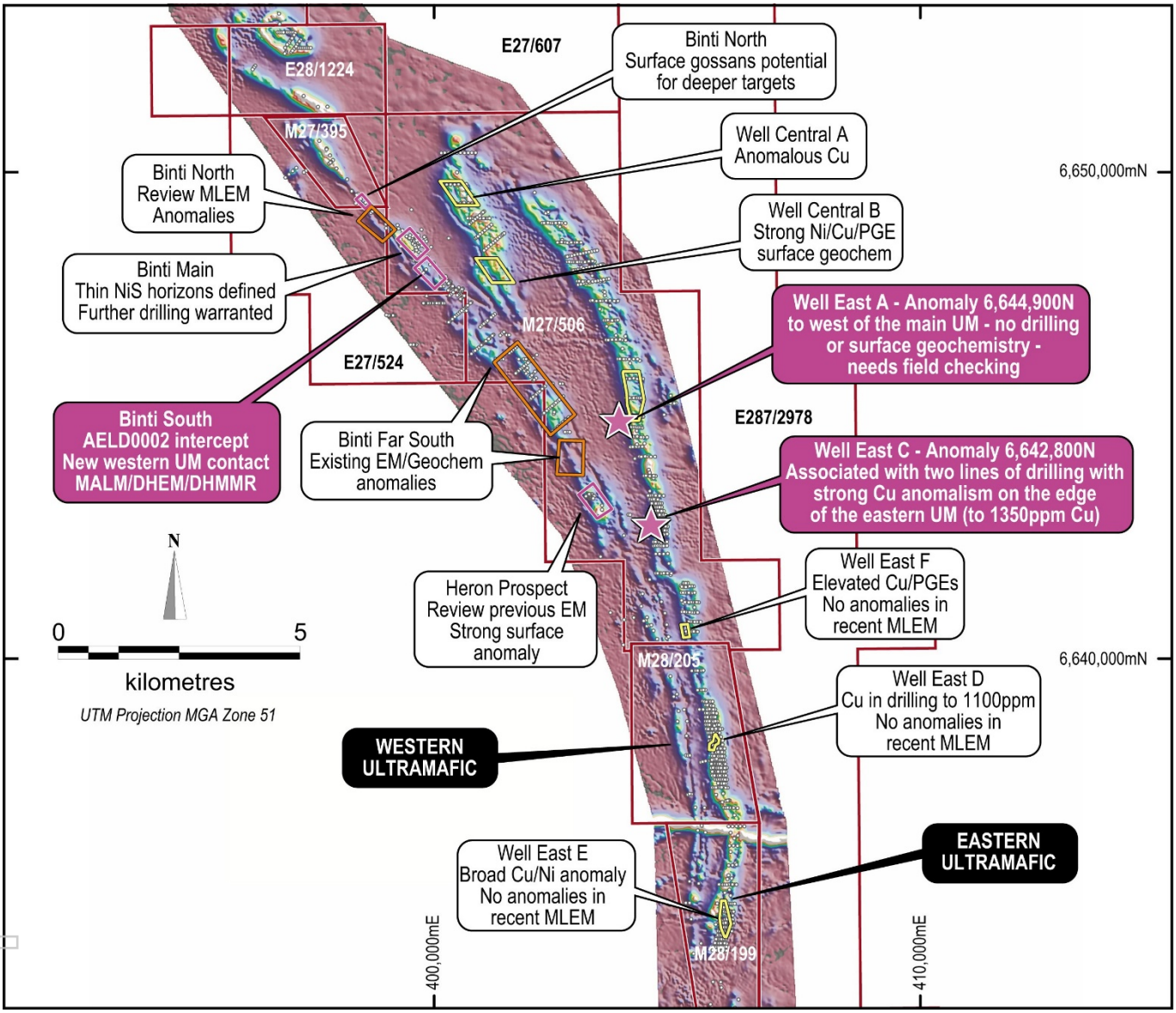


Figure 3: Nickel sulphide targets in the Emu Lake and broader Kalpini project area. The two recent MLEM targets on the Eastern Ultramafic are highlighted by the purple call out boxes, along with the location of the recent significant nickel sulphide drilling intercept (AELD0002) on the Western Ultramafic. The location of AELD0002 provides a reference line trending northeast to southwest for the cross section shown in Figure 2. Projection MGA Zone 51.

Background and Company Strategy

Ardea's focus continues to be the accelerated Kalgoorlie Nickel Project (**KNP**) feasibility study work streams (ASX release 31 May 2021), to ensure ethical and sustainable nickel-cobalt and scandium production for the rapidly expanding lithium-ion battery supply chain. However, Ardea's strategic tenure in the heart of the Eastern Goldfields of Western Australia is also highly prospective for both nickel sulphide and Critical Minerals with their active exploration complementing the development of the KNP.

For personal use only

It is important to note that any nickel sulphide discovery, as well as processing as a conventional sulphide flotation concentrate, has the potential to be processed through the High Pressure Acid Leach (**HPAL**) autoclave planned for Ardea's Goongarrie Hub (Figure 1) and has the added benefit of helping control autoclave oxidising potential and typically improving recoveries.

Authorised for lodgement by the Board of Ardea Resources Limited.

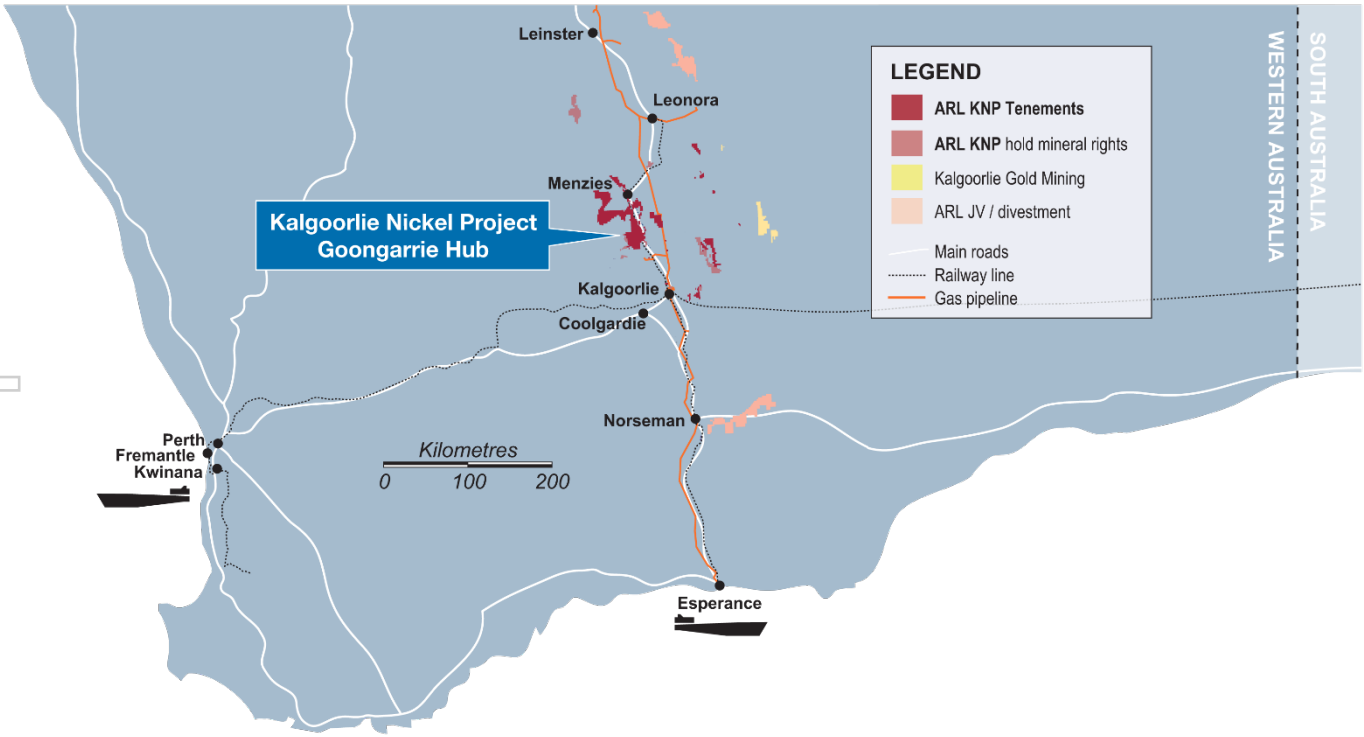
For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:

Andrew Penkethman
Managing Director and Chief Executive Officer
Tel +61 8 6244 5136

About Ardea Resources

Ardea Resources Limited (ASX:ARL) is an ASX-listed resources company, with a portfolio of 100% controlled West Australian-based projects, focussed on:

- Development of the Kalgoorlie Nickel Project (**KNP**) and its sub-set the Goongarrie Hub, a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in the developed world at **830Mt at 0.71% nickel and 0.046% cobalt for 5.9Mt of contained nickel and 380kt of contained cobalt** (ARL ASX announcement 16 June 2021), located in a jurisdiction with exemplary ESG credentials.
- Advanced-stage exploration at compelling nickel sulphide, Critical Minerals, and gold targets within the KNP Eastern Goldfields world-class nickel-gold province, with all exploration targets complementing the KNP nickel development strategy.



Follow Ardea on social media

For personal use only

For personal use only

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This news release contains forward-looking statements and forward-looking information within the meaning of applicable Australian securities laws, which are based on expectations, estimates and projections as of the date of this news release.

This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and amount of funding required to execute the Company's exploration, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information. Forward-looking information is based on the opinions and estimates of management at the date the information is given, and on information available to management at such time.

Forward-looking information involves significant risks, uncertainties, assumptions and other factors that could cause actual results, performance or achievements to differ materially from the results discussed or implied in the forward-looking information. These factors, including, but not limited to, the ability to create and spin-out a gold focussed Company, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.

Although the forward-looking information contained in this news release is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.

Competent Person Statement

The technical information in this report relating to Exploration Results is based on information reviewed or compiled by Mr Andrew Penkethman, who is a Fellow of the Australian Institute of Mining and Metallurgy and Member of the Australian Institute of Geoscientists. Mr Penkethman is an Ardea employee and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results. Mr Penkethman consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Mr Penkethman owns shares in Ardea.

For personal use only

Appendix 1

JORC 2012 Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section applies 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.*	No new drilling or sampling is being reported in this ASX release.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details.*	• No new drilling or sampling is being reported in this ASX release.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• No new drilling or sampling is being reported in this ASX release.
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.*	• No new drilling or sampling is being reported in this ASX release.
Sub-sampling techniques and sample preparation	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• No new drilling or sampling is being reported in this ASX release.
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.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory*	• No new drilling or sampling is being reported in this ASX release.

For personal use only

Criteria	JORC Code explanation	Commentary
	checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• No new drilling or sampling is being reported in this ASX release.
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.*	• No new drilling or sampling is being reported in this ASX release.
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.*	• No new drilling or sampling is being reported in this ASX release.
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.*	• No new drilling or sampling is being reported in this ASX release.
Sample security	• *The measures taken to ensure sample security.*	• No new drilling or sampling is being reported in this ASX release.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Given the early stage of the exploration results, no audits or reviews have been undertaken or considered necessary at this stage.

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	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures,*	• The project area locations are shown on Figure 1 and 3 of this report and described in the body of the report. • The tenure is considered to be secure and held

For personal use only

Criteria	JORC Code explanation	Commentary
land tenure status	*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.*	100% by Ardea under a granted Mining Lease. • Given the early stage of the exploration no mining specific applications have been made, but there are no known impediments (eg *overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings)* to mining in the tenure.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Emu Lake project has been explored for nickel sulphides since 2003 by Image Resources, Skryne Hill, Jubilee Mines, Emu Nickel, Xstrata – the majority of the drilling in the area was undertaken by these companies.
Geology	• *Deposit type, geological setting and style of mineralization.*	• The Company is seeking Archaean dunite hosted massive and disseminated nickel sulphide and related deposits at the Kalpini project.
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:*	• No new drilling data is being reported in this ASX release.
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.*	• No reporting of new assays has been undertaken in this release.
Relationship between mineralization 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.*	• No previously unreported mineralisation has been 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.*	• Where relevant, a diagram showing the hole positions relevant for current phase of exploration is included in the release.

For personal use only

Criteria	JORC Code explanation	Commentary
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Results.*	• The reporting is considered to be balanced taking into account the early stage of the exploration and the summary nature of this ASX report.
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.*	As previously reported in Ardea ASX release 13 July 2021: • A Mise al la Masse (MALM) and down-hole magneto-metric resistivity (DHMMR) survey was undertaken at the Emu Lake prospect area attempting to better define the nickel sulphide intercept in AELD0002. • Further details of these surveys and the results generated are provided in the body of the report.
Future work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Further drilling is warranted to test the geophysical anomalies generated around the nickel sulphide intercept in ALED0002 with the work planned summarised in this ASX release. • First phase exploration drilling is also warranted at the MLEM target generated at the Wellington East C target with the work planned summarised in this ASX release.