Ardea Resources Limited

Semi-massive nickel sulphide intercept at Emu Lake

- Assays for recently completed drillhole, AELD0002, confirm a Silver Swan/Kambalda-style komatiite-hosted basal high-grade nickel sulphide zone above a felsic volcanic footwall contact on a new western ultramafic horizon at Binti South, at the Emu Lake Prospect within the KNP.
- AELD002 returned assays of:
  - **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.
- This ultramafic contact is at the far west of the Binti Complex and has received very little exploration attention in the past, with this intercept opening up a new search space for the project.
- As previously reported, DHEM on AELD0002 has indicated a target directly south and below this intercept. A recent Mise a la Masse geophysical survey has also demonstrated the potential of this zone, defining a clear conductor target in the up-plunge position.

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to report that assay results for recently completed drillhole, AELD0002, confirm komatiite-hosted basal nickel sulphide located above a felsic volcanic footwall contact at the Emu Lake Prospect, 70km north-east of Kalgoorlie (Figure 1). Emu Lake lies within Ardea's wholly owned Kalpini nickel laterite hub and is part of the Kalgoorlie Nickel Project (**KNP**). Kalpini contains a sequence of ultramafic flows with proven Silver Swan/Kambalda-style basal flow nickel sulphide endowment.

AELD0002 was drilled by Ardea in April 2021, targeting a strong down-hole electromagnetic (DHEM) anomaly 50m north of AELD0001 and intersected 0.65m of massive and semi-massive nickel sulphides and 1.1m of matrix and disseminated nickel sulphides. Assays for this zone returned:

- **1.1m @ 4.78% Ni, 0.16% Cu, 0.47g/t Pt, 0.20g/t Pd from 366.9m (semi-massive sulphide)**, within a broader zone of:
- **4.8m @ 1.44% Ni, 0.09% Cu, 0.20% Pt, 0.09g/t Pd from 365.9m** (including the disseminated zone down to a cut-off of 0.3% Ni).

This represents one of the best nickel sulphide intercepts at Emu Lake to date and demonstrates the prospectivity of this new western ultramafic position that has received minimal attention from historic exploration, thus opening up an entirely new target horizon.

Ardea's Managing Director, Andrew Penkethman, said:

"This new basal contact intercept provides a platform to test along this stratigraphic horizon for channel positions where the sulphides are insitu and expected to be thicker. The available geophysics is showing there is potential for such a channel to exist below AELD0002 which could extend for a considerable length in a similar fashion to the Silver Swan channel. It is interesting to note that earlier surface EM surveys have not been able to detect these sulphides, demonstrating the potential to open up a previously un-tested, albeit deeper, search space at Emu Lake".

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ASX Symbol
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Issued Capital
Fully Paid Ordinary Shares
127,670,582

Directors/Employee Performance Rights
4,236,000

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ASX Listing

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Background and Company Strategy

Ardea's key focus continues to be the development of the Kalgoorlie Nickel Project (**KNP**), commencing with the Goongarrie Hub, 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 active exploration complementing the future development of the KNP.

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 and has the added benefit of helping control autoclave oxidising potential and typically improving metal recoveries. As such, the nickel sulphide exploration strategy complements Ardea's nickel laterite development plans.

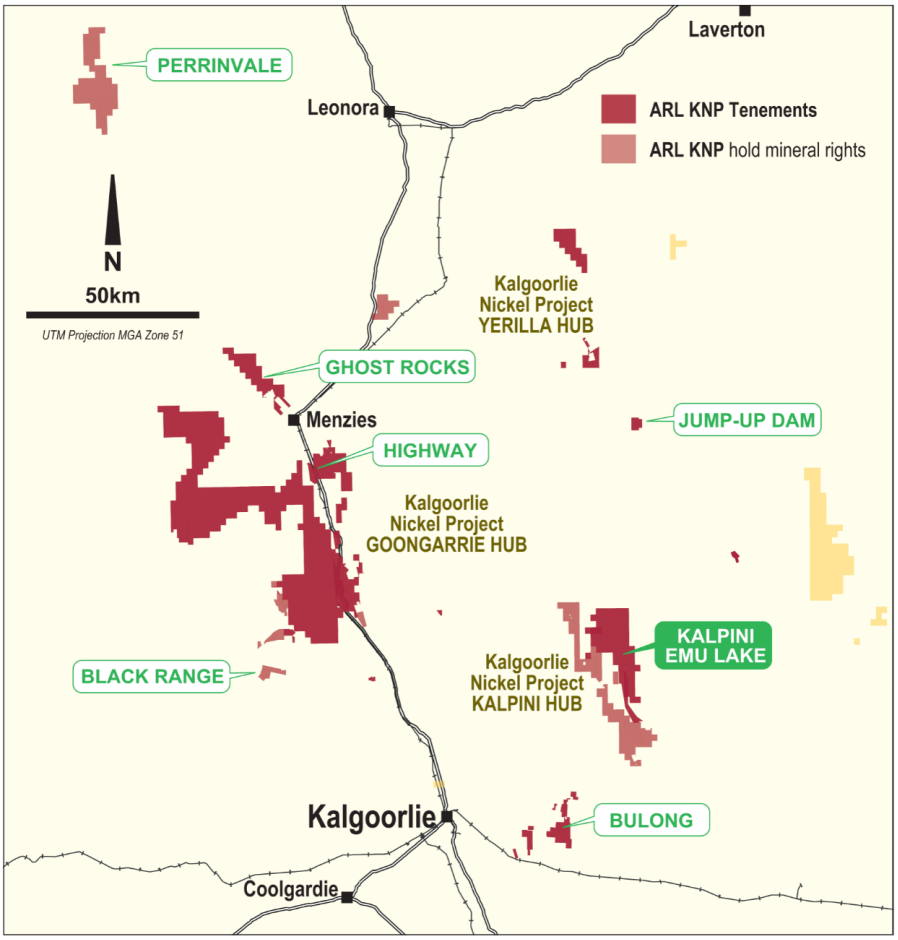
Kalpini Project - Emu Lake Prospect

The Kalpini Project extends over 240km^2, with the leading nickel sulphide target, Emu Lake, located 70km north-east of Kalgoorlie (Figure 1). This strategic tenement package contains 20km of strike of prospective ultramafic stratigraphy held 100% by Ardea and within granted mining leases. The project is 35km east of the Black Swan Nickel Project, operated by Poseidon Nickel Ltd, within a parallel western komatiite volcanic belt.

Remobilised stringer nickel sulphide mineralisation intersected in Ardea drill hole, AELD0001, confirmed the project prospectivity, but the nickel sulphides had been re-mobilised into a shear zone within intermediate volcanics. The primary source is considered to be a massive sulphide accumulation within a nearby komatiite host rock. Down hole electro-magnetic (DHEM) surveying of this hole returned a very strong conducter 50m to the north of AELD0001 (ASX release 2 March 2021).

This conductor was drilled with drillhole AELD0002 in April 2021 and intersected a zone of semi-massive high-grade nickel sulphide over 0.65m from 367.2m (Figures 2 to 5). A further deeper zone of matrix and disseminated nickel sulphides extends for 1.1m, stratigraphically above this semi-massive zone (the mineralisation is stratigraphically overturned).

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



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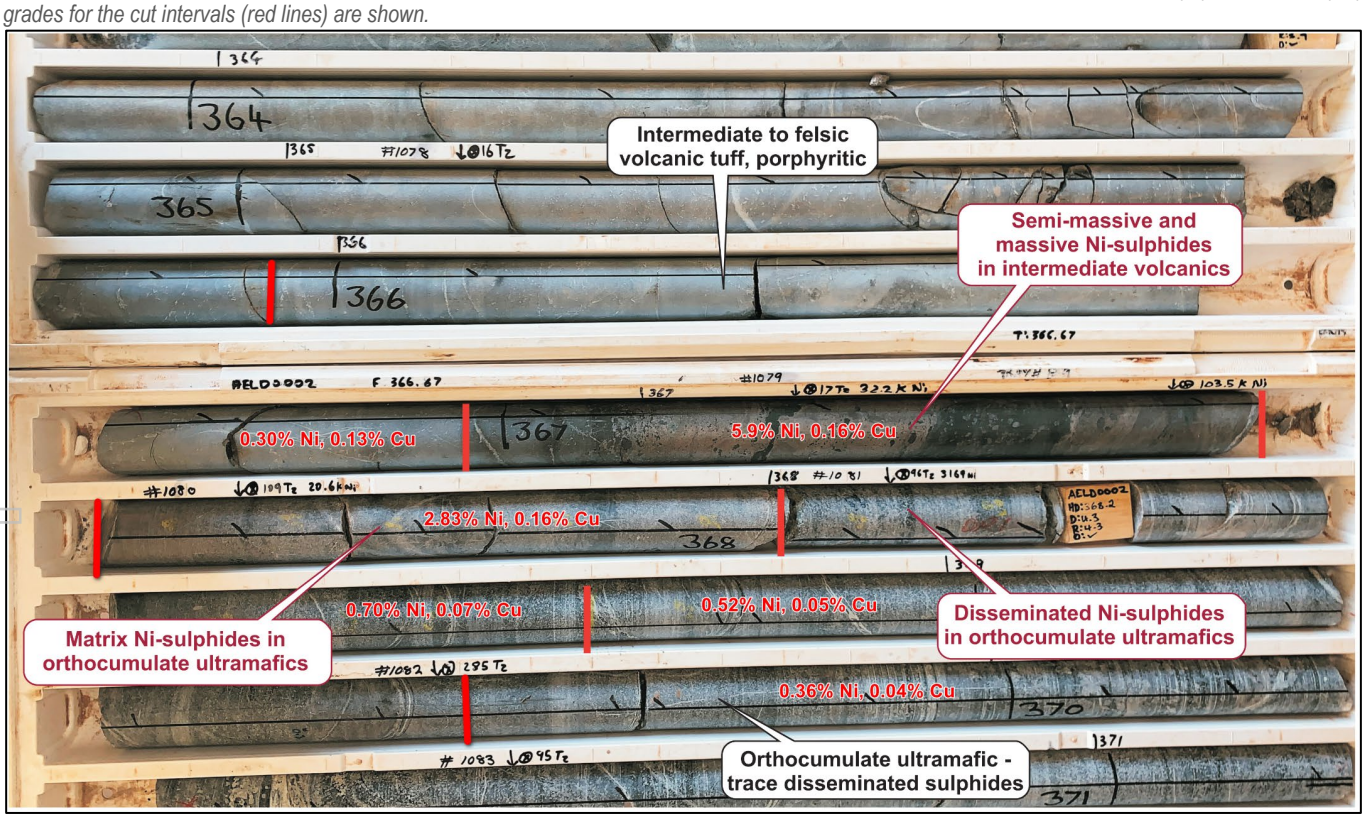
Assays results for AELD0002 have now been received and have confirmed the sulphide zone as logged:

- **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.**

This represents one of the better nickel sulphide intercepts at Emu Lake to date and demonstrates the prospectivity of this new western ultramafic position that has received very little attention in the past. Most drilling has been concentrated on the Binti Main Zone to the north and has intersected thin often remobilised stringers of high -grade nickel sulphides. As previously reported (ASX release 27 April 2021) DHEM surveys on AELD0002 generated a strong off-hole response directly south and below the intercept providing a target for future drilling. The DHEM is indicating the massive sulphides could extend down dip as relatively narrow, but depth extensive ribbon of nickel sulphide mineralisation, similar to the Silver Swan mineralisation. As shown in Figure 5, the stratigraphy is dipping steeply east and has been slightly overturned with the way-up to the west. The drillhole has intersected the stratigraphy at a steep angle and true widths are probably marginally less than those stated here, however, there is not enough information to accurately define the true width of the mineralisation at this stage. Surface EM surveys have not been able to detect these sulphides, demonstrating the potential to open up a previously un-tested, albeit deeper, search space at Emu Lake. A Mise al la Masse survey is being conducted on the AELD0002 sulphide zone as a further tool to map out the nickel sulphides along the target contact.

The drilling of AELD0002 will be partly funded (50% of drilling costs) through the Geological Survey of Western Australia's Exploration Incentive Scheme and the Company is appreciative of the assistance provided through this proactive State Government initiative.

Figure 2: AELD0002 showing zones of nickel sulphides stratigraphically above a porphyritic intermediate to felsic volcanic tuff. Nickel (Ni) and Copper (Cu) grades for the cut intervals (red lines) are shown.



Exploration Strategy

With Ardea's Kalgoorlie Nickel Project tenement package covering one of the largest areas of ultramafic exploration stratigraphy in Australia, the Company is well positioned to make nickel sulphide and Critical Mineral discoveries. Ardea will continue to rank and prioritise fit-for-purpose exploration for nickel sulphides on its high-quality portfolio of Eastern Goldfields of Western Australia tenements.

Figure 3: Emu Lake prospect in plan view, showing recent drilling with nearby defined DHEM plate and proposed drillhole, local Binti grid.

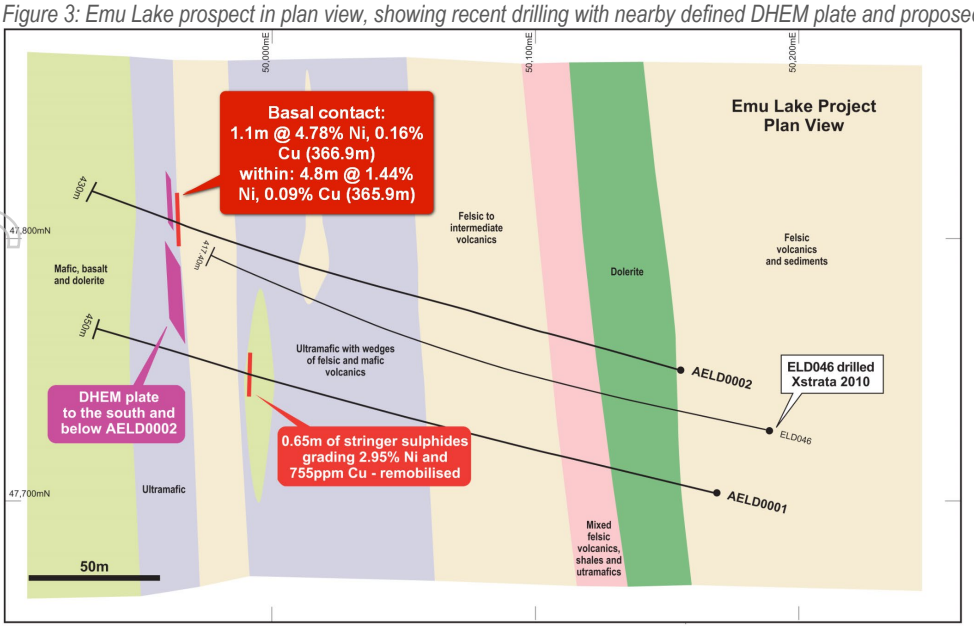
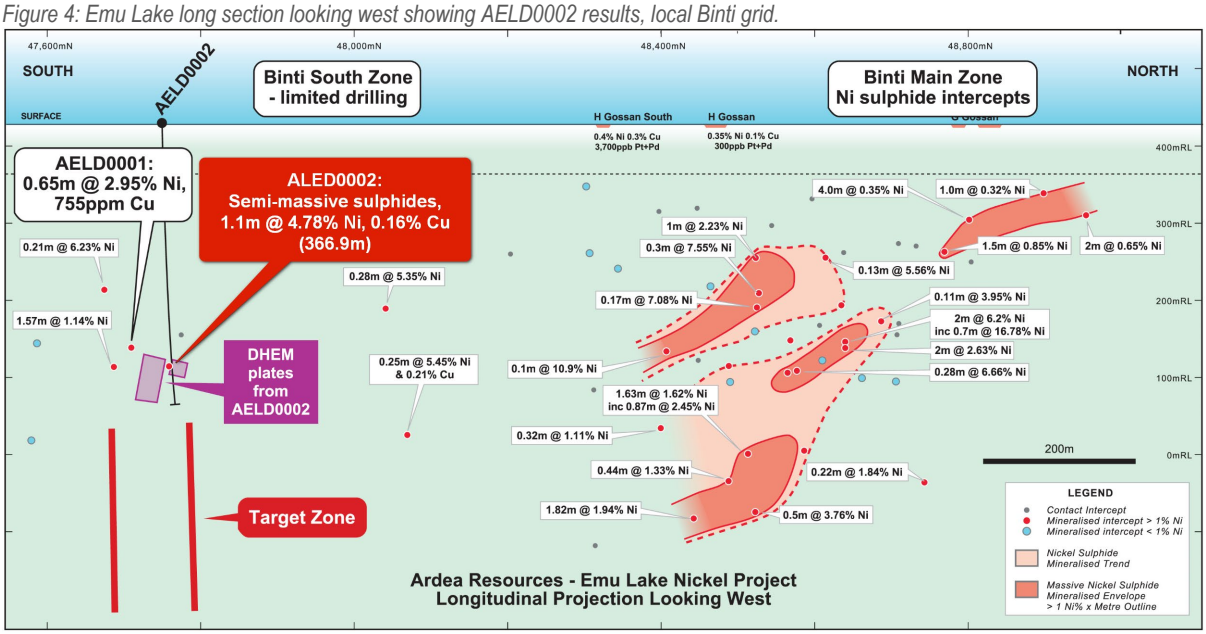


Figure 4: Emu Lake long section looking west showing AELD0002 results, local Binti grid.



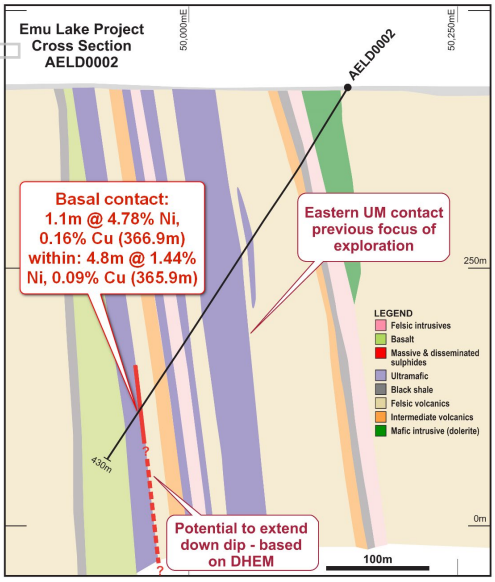


Figure 5: Emu Lake cross section looking north showing trace of AELD0002 and interpreted geology with new nickel sulphide zone on the western ultramafic unit. DHEM modelled plates for AELD002 are also shown with larger plate being slightly south of the hole.

Authorised for lodgement by the Board of Ardea Resources Limited.

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

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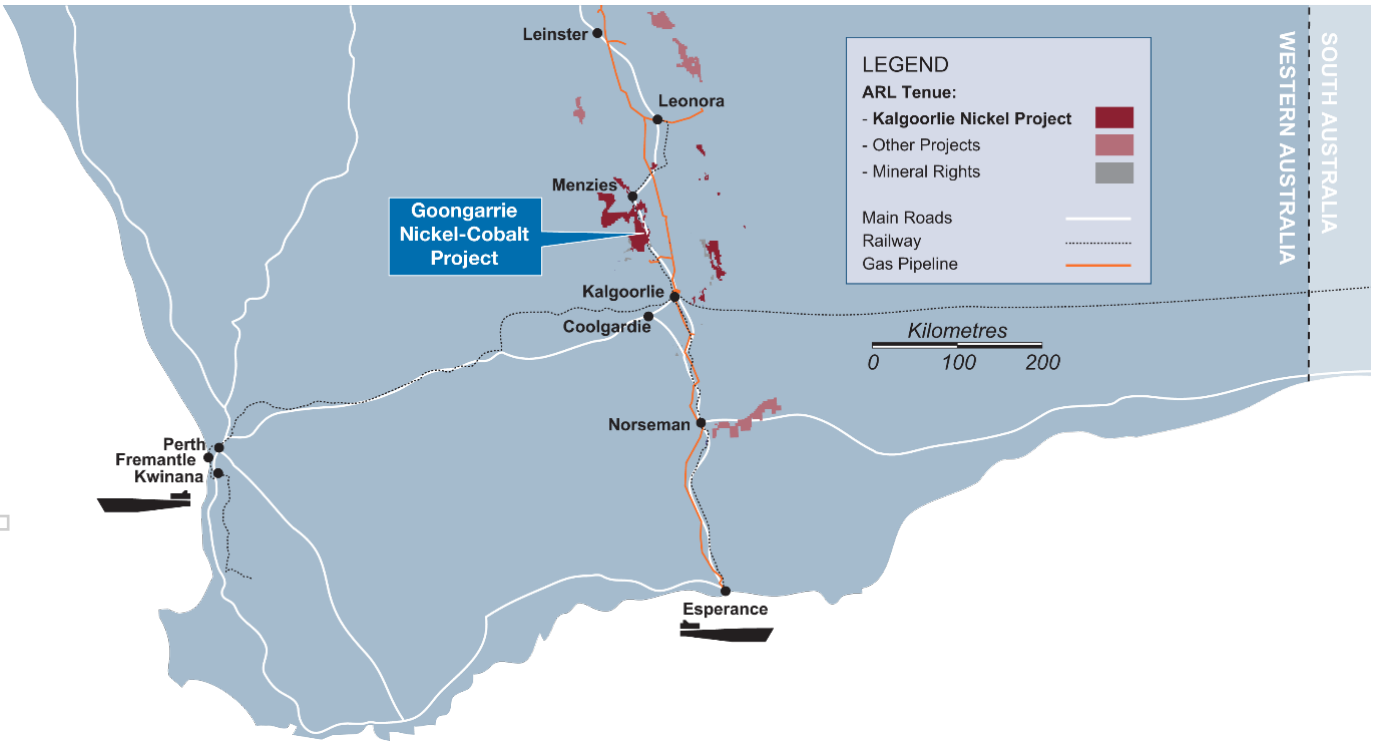
About Ardea Resources

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 **826Mt at 0.70% nickel and 0.046% cobalt for 5.8Mt of contained nickel and 384kt of contained cobalt** (ARL ASX announcement 15 February 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.



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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 compiled by Mr David von Perger, who is a Member of the Australian Institute of Mining and Metallurgy (Chartered Professional – Geology). Mr von Perger is an independent geological consultant providing services to Ardea 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 von Perger consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Mr von Perger owns shares in Ardea.

Appendix 1: Detail of Drilling and JORC (2012) Table 1

Details of Drill Hole at Emu Lake reported in this release.

Hole ID	Tenement	Total Depth	MGA51 East	MGA51 North	RL	Dip	Azimuth (Magnetic)
AELD0001*	M27/506	450m	400139	6647849	426	-57.5	242.5
AELD0002	M27/506	430m	400096	6647875	428	-58.0	242.5

** Previously reported hole.*

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.*	• Samples from the diamond-core hole were taken from NQ sized core and sampled on a nominal 1 metre basis taking into account smaller sample intervals up to geological contacts and massive sulphide zones. • The core samples were cut in half and quarters with one quarter taken as the laboratory sample, one quarter left as a reference and the remaining half placed into new trays and dispatched to the Geological Survey of Western Australia for their reference as part of the Exploration Incentive Scheme program.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details.*	• Diamond core drilling commencing with HQ size and then reducing to NQ size when fresh rock was encountered. • Drilling was undertaken by West Core Drilling Pty Ltd.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• Drill sample recovery was recorded from the drilling blocks – no material issues were reported and apart from some zones of broken ground, recoveries were greater than 90%.
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.*	• The diamond core was geologically logged by qualified geologists and recorded in the database.
Sub-sampling techniques and sample preparation	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• Samples were prepared and assayed in industry standard laboratories and significant results reported to JORC (2012) standards. • Samples were crushed and ground to nominal 75 micron size. • The samples were split into a pulp fraction for analysis and a pulp-reject for storage.

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Criteria	JORC Code explanation	Commentary
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 checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Samples were assayed in industry standard laboratories and significant results reported to JORC (2012) standards. • The results are considered as a total digestion of the sample. • QAQC samples (blanks and standards) were inserted every 10 samples. No material issues were recorded.
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 independent verification of results has been undertaken at this stage. • All field and laboratory data has been entered into an industry standard database. • No adjustment to assay data was done.
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.*	• The drill collars were located with handheld GPS which is considered sufficient for the DHEM survey. Downhole surveys were taken every 30m downhole with a north seeking gyro tool.
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.*	• Drilling was of an exploration nature and no resource style drilling requiring specific drill spacing was undertaken.
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.*	• The drilling orientation was designed to intersect the mineralisation at close to perpendicular angle. The mineralised lenses are dipping at approximately 70 degrees to the west and the drilling is approximately at 60 degrees to the east.
Sample security	• *The measures taken to ensure sample security.*	• Sampling was undertaken by Ardea personnel and reputable laboratories used. No issues with sample security are reported.
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 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.*	• The project area locations are shown on Figure 1 of this report and described in the body of the report. • The tenure is considered to be secure and held 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 was undertaken by these companies.
Geology	• *Deposit type, geological setting and style of mineralization.*	• The Company is seeking Archaean komatiite hosted nickel sulphide and related deposits in the project areas.
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:*	• Significant intercepts from the Emu Lake drilling have been provided by Ardea in previous ASX reports.
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 reported assays are weighted for their assay interval width. • No cutting of grades has been undertaken.
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.*	• True width of the reported sulphide zones has not been attempted during this early stage of reporting. True width is considered to be approximately the same or slightly less than reported down-hole width.

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Criteria	JORC Code explanation	Commentary
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.
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.*	• A down-hole electromagnetic survey was undertaken by Vortex geophysical contractors with the survey designed by Newexco geophysical consultants. The survey was defined a strong conductor south of AELD0002 (as described 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).*	• Ardea is seeking Archaean komatiite hosted nickel sulphide deposits on its extensive ultramafic tenement holding in the Eastern Goldfields of Western Australia. • Further exploratory drilling of the basal contact mineralisation define in AELD0002 is warranted, targeted in conjunction with the geophysical responses generated from the various surveys.