Ardea Resources Limited

# Basal contact nickel sulphide intersected at Ardea's Emu Lake

- Drilling of the strong 8,000 siemens downhole EM conductor at Emu Lake has intersected a **1.75m zone of intact basal contact nickel sulphide** at the base of an ultramafic lava flow horizon. The entire Emu Lake stratigraphic sequence is overturned, hence the stratigraphic "basal contact" is intersected at shallower drill depths.
- The drillhole, AELD0002, intersected 0.65m of visible massive and semi-massive nickel sulphide and 1.1m of overlying matrix and disseminated nickel sulphide, as confirmed by handheld XRF Niton results. Laboratory assays are pending to confirm results and will be reported once available.
- The intersected nickel sulphide appears to be on the basal contact between a porphyritic intermediate volcanic unit and a serpentinised ultramafic lava flow unit. This represents **a new mineralised basal-contact position on a under explored ultramafic** horizon on the far west of the Southern Binti zone.
- DHEM has been completed with a **strong in-hole and off-hole response** being generated – based on the DHEM, **potential exists for a Silver Swan/Kambalda-style nickel sulphide channel to extend down-dip** from this intercept.

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to report drilling of the strong (8,000S) downhole EM conductor at Emu Lake has intersected a 1.75m zone of basal nickel sulphide at the base of a previously poorly tested upper ultramafic horizon at Emu Lake within the Kalpini Project area.

The Emu Lake Prospect, 70km north-east of Kalgoorlie (Figure 1), contains a sequence of ultramafic flows with proven Silver Swan/Kambalda-style nickel sulphide endowment. The AELD0002 intercept extends the nickel sulphide endowment to a previously untested sequence of ultramafic lava flows, significantly upgrading the prospectivity of a belt in which Ardea has full tenement coverage.

Ardea's Managing Director, Andrew Penkethman, said:

*"The discovery of a new basal contact nickel sulphide zone at Emu Lake is an important and exciting development. Many of the previous drilling intercepts at Emu Lake have been of thin remobilised stringer nickel sulphides which confirmed nickel sulphide endowment. This new basal contact 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 the hole which could extend for a considerable length in a similar fashion to the Silver Swan channel located 35km west, on a parallel ultramafic belt.*

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**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*

**Issued Capital**
*Fully Paid Ordinary Shares*
127,670,582
*Directors/Employee Performance Rights*
4,236,000

**ABN** 30 614 289 342

## Kalpini Project - Emu Lake Prospect

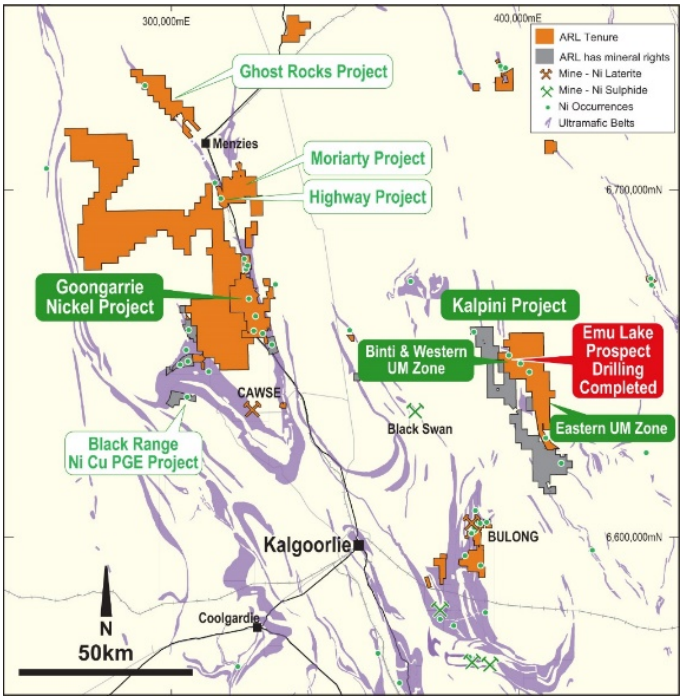



*Figure 1: Location of the Emu Lake prospect with other Ardea prospects near Kalgoorlie, Western Australia. Projection MGA 94 Zone 51.*

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 mostly within granted mining leases. The project is 35km east of the Black Swan Nickel Project, operated by Poseidon Nickel Ltd, within a parallel komatiite volcanic belt.

Ardea completed drilling its first Emu Lake core hole, AELD0001, targeting an interpreted legacy DHEM plate within the Binti target zone in late December 2020. The drill hole intersected a zone of remobilised stringer nickel sulphides with pentlandite and chalcopyrite over 0.65m from 336.7m within a highly sheared intermediate volcanic unit.

The stringer interval returned: AELD0001: 0.65m at 2.95% Ni and 755ppm Cu from 336.7m (ASX Release 2 March 2021).

DHEM surveying of AELD0001 defined an off hole conductor, modelled by Newexco geophysical consultants to be 50m to the north of AELD0001. The modelled plate was 100m long and 50m high with a conductance of 8,000 siemens, which is similar to typical Kambalda-style ore zones modelled in the past by Newexco.

AELD0002 was recently completed to 430m to test the DHEM conductor. It intersected 0.65m of visible massive and semi-massive nickel sulphides from 367.2m depth and 1.1m of matrix and disseminated nickel sulphides (Figure 2). The presence of massive and semi-massive nickel sulphides have also been confirmed by handheld XRF Niton readings, with laboratory assays pending to confirm results.

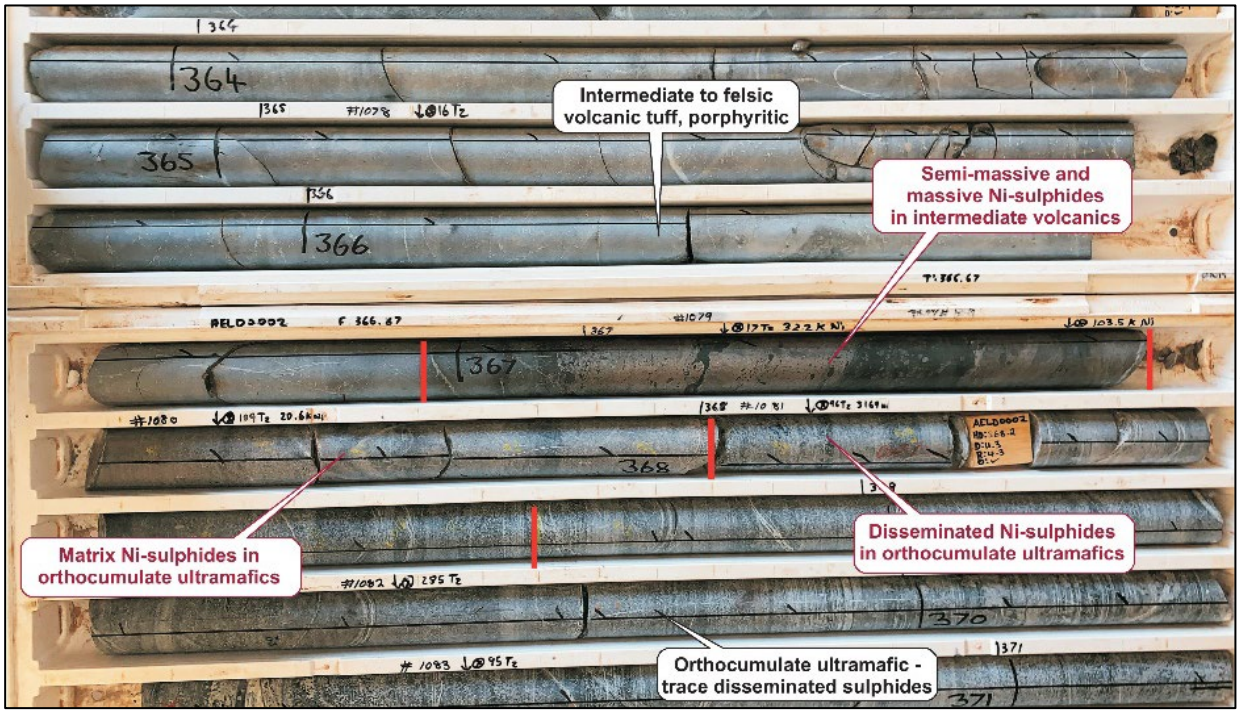



*Figure 2: Recently completed Ardea diamond drill hole, AELD0002, showing zone of nickel sulphide, stratigraphically above a porphyritic intermediate to felsic volcanic.*

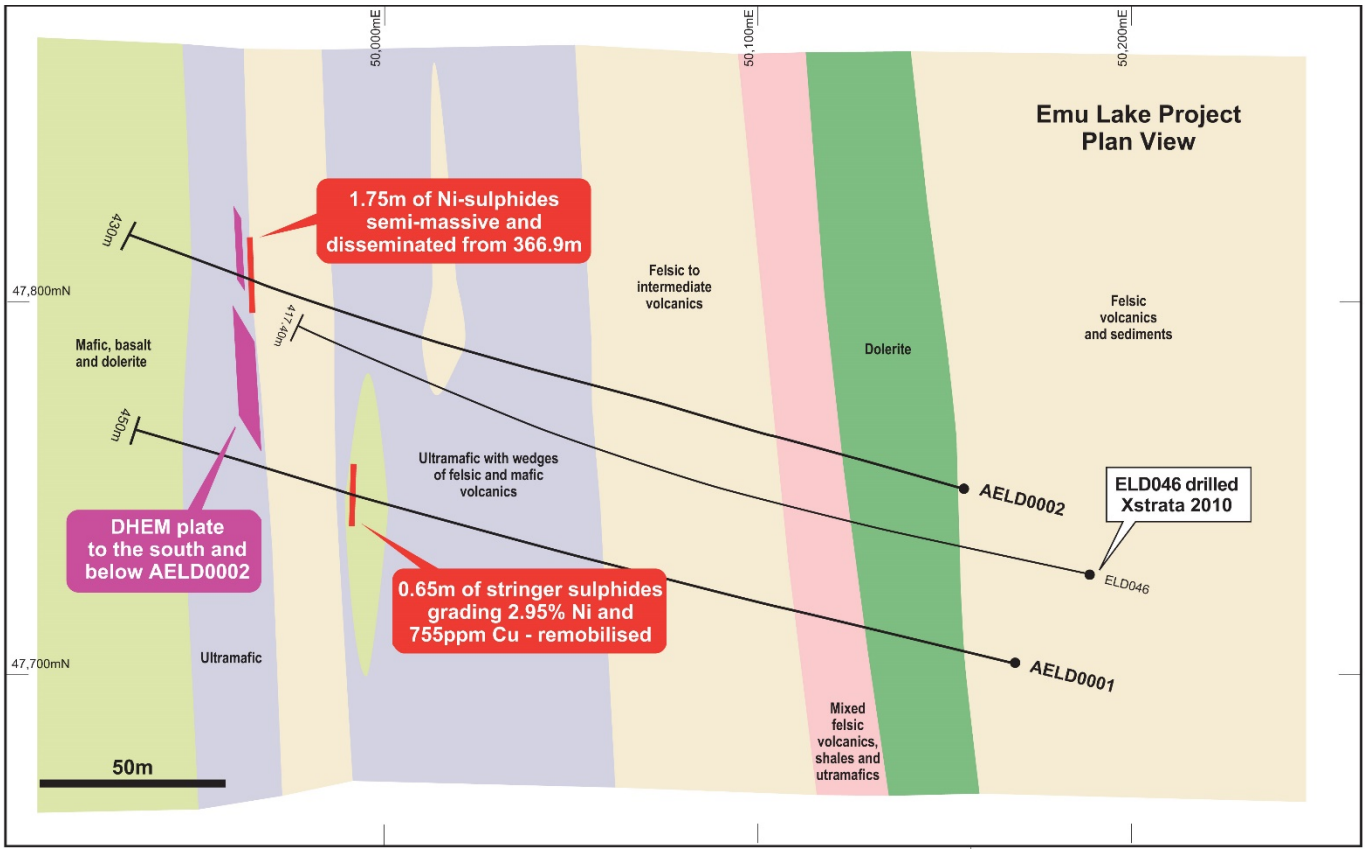



*Figure 3: Emu Lake prospect in plan view, showing recent drilling and DHEM plates, local Binti grid.*

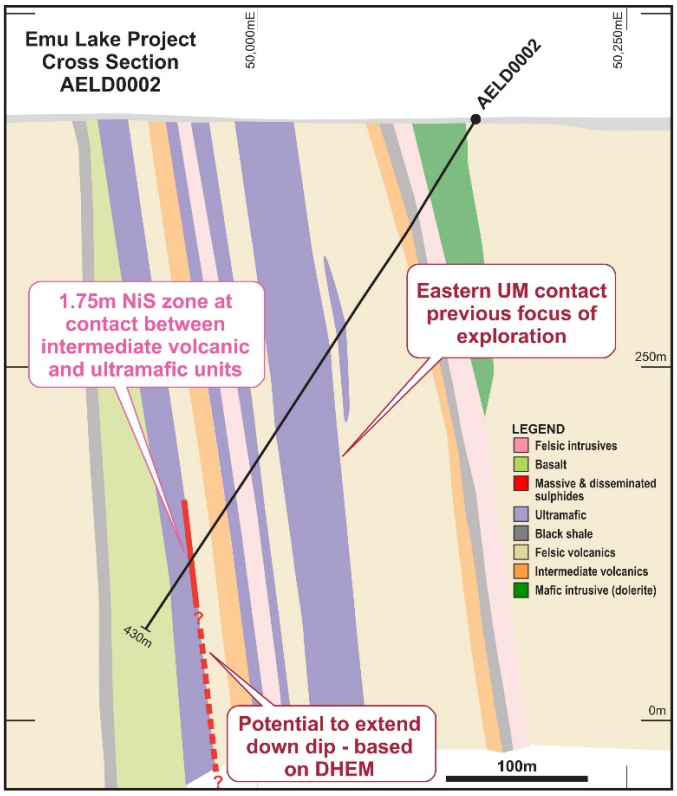



*Figure 4: Emu Lake cross section looking north showing trace of drill hole AELD0002 and interpreted geology with new nickel sulphide zone on the western upper ultramafic unit. DHEM modelled plates for AELD002 are also shown with the larger plate being slightly south of the hole.*

Geological contacts intersected in the AELD0002 drilling are all intact original volcanic flow contacts, with no evidence at all of shearing or re-mobilisation.

The intersected nickel sulphides are on the overturned basal contact between a porphyritic intermediate volcanic unit and a serpentinised ultramafic flow unit (Figure 3 and 4). This is particularly encouraging as it represents a new mineralised basal-contact position on a previously poorly tested upper ultramafic unit on the far west of the Binti Gossan zone.

DHEM has been completed with a strong in-hole and off-hole response being generated (Figure 5). Potential exists for a nickel sulphide channel to extend down-dip and plunging slightly to the south from the AELD0002 intercept. Future work will focus on refining the geophysical model for the mineralisation and target the down dip extension of this zone targeting increased nickel sulphide volumes.

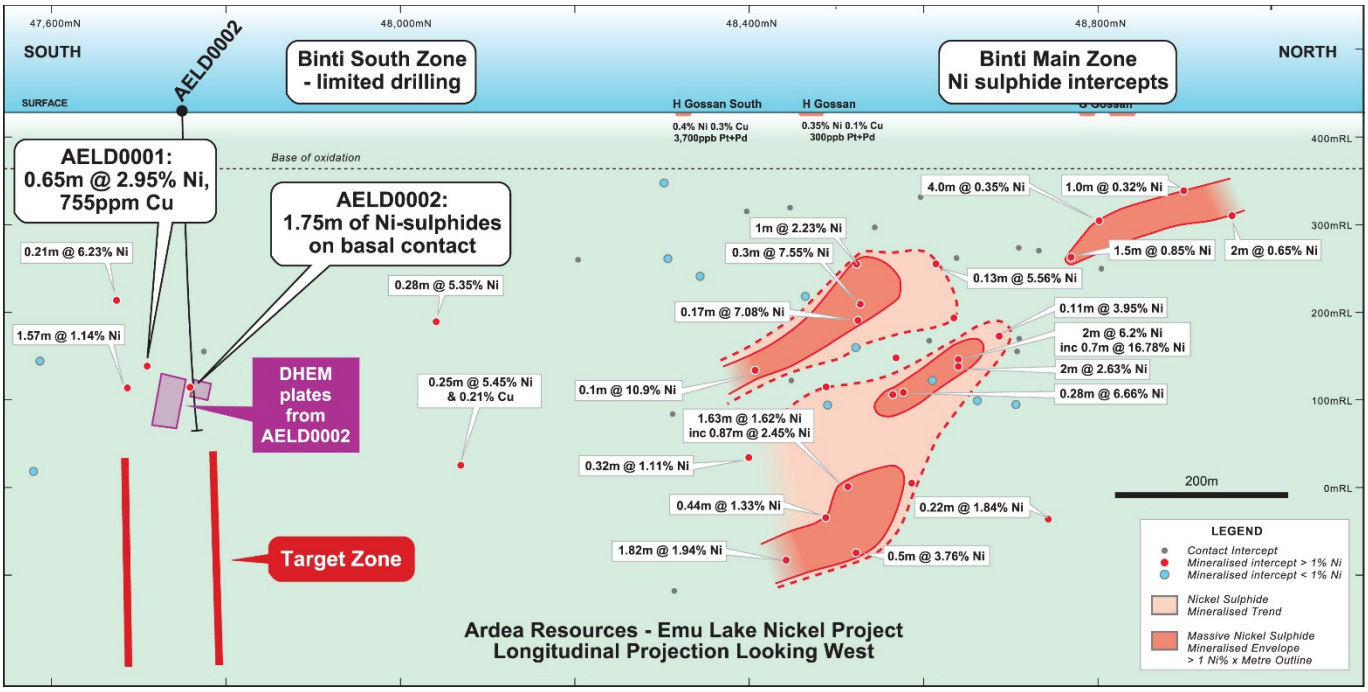



*Figure 5: Emu Lake long section looking west showing new DHEM conductors generated from surveying recently completed drill hole, AELD0002.*

## Kalpini Nickel Laterite

The ultramafic belts at Kalpini are divided into the Eastern Belt, which hosts Ardea's Kalpini nickel laterite resource and the Western Belt where the focus of the nickel sulphide exploration has been to date. Each belt has a 20km strike for an aggregate 40km of target nickel sulphide ultramafic, with only desultory historic assaying of copper, platinum group elements and sulphur. The minimal assays available confirm favourable nickel sulphide prospectivity indices.

The nickel laterite Mineral Resource has been reported as 75Mt at 0.73% Ni and 0.04% Co, for 549.7kt Ni and 32.6kt Co[1]. The nickel laterite drilling database provides an invaluable geochemical and geological database for the exploration of nickel sulphides. On the Eastern Belt ultramafic this drilling database has been used to target moving loop EM surveys that are currently being completed with a number of field anomalies currently being assessed for RC drill follow up.

## Exploration Strategy

With Ardea's Kalgoorlie Nickel Project tenement package covering one of the largest areas of ultramafic 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. Any drilling as part of the nickel sulphide programs will also assess nickel-cobalt laterite, Critical Minerals and gold mineralisation, but the over-riding priority continues to be nickel.

## Background and Company Strategy

Ardea's key focus continues to be the development of the Kalgoorlie Nickel Project (**KNP**), commencing with the Goongarrie Nickel Cobalt Project (**GNCP**), to ensure sustainable and ethical 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 development of the KNP.

[1] Ardea Annual Report 2019 (24 October 2019)

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 GNCP. As well as adding nickel and sulphur units to the autoclave, sulphides have the added benefit of helping control autoclave oxidising potential and typically improving recoveries. As such, the nickel sulphide exploration strategy complements Ardea's nickel laterite development plans.

Authorised for lodgement by the Board of Ardea Resources Limited.

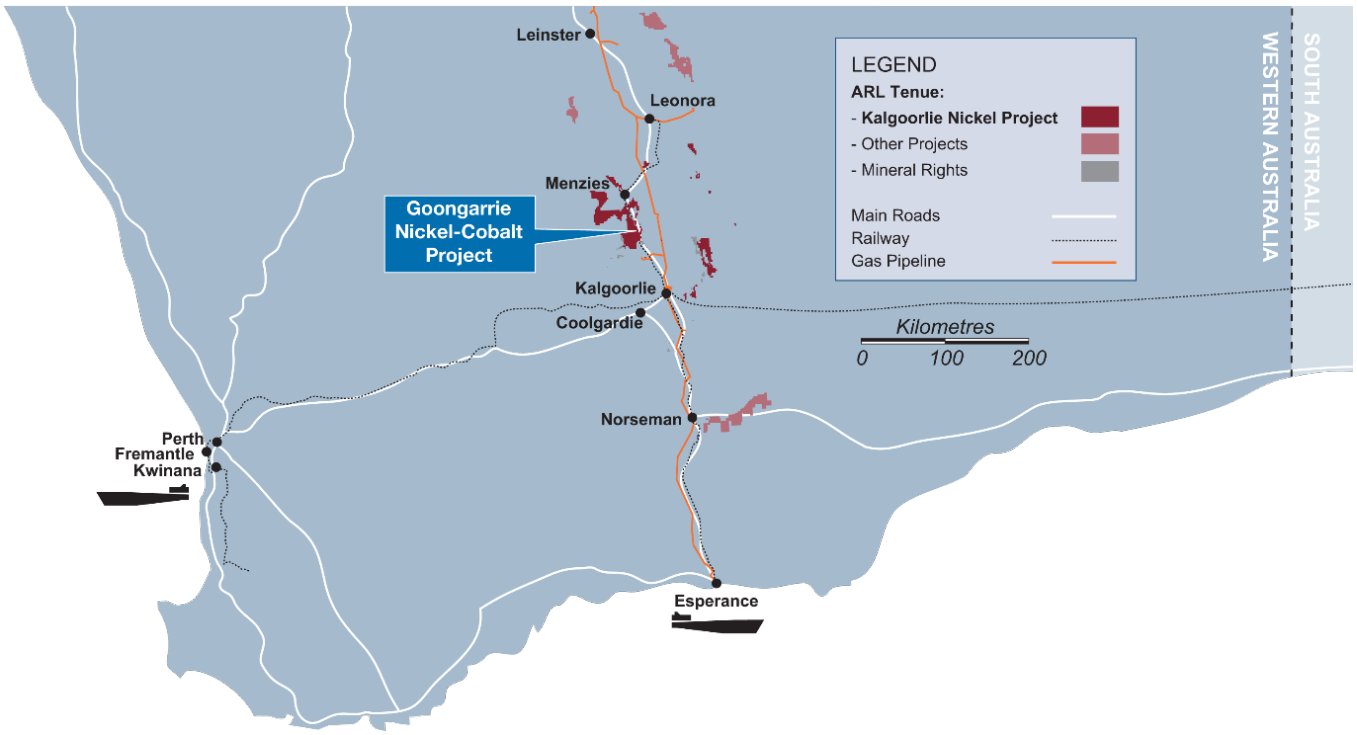
**For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:**

**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 Nickel Cobalt Project (GNCP), a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in the developed world; and
- Advanced-stage exploration at compelling nickel sulphide, Critical Minerals and gold targets within the KNP Eastern Goldfields world-class nickel-gold province.

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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 current round of drilling at Emu Lake.**

| 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 drillhole

## 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.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.* | • Samples 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.<br>• For AELD0001, the core samples were cut in half with one half remaining in the trays as a reference and the other half taken as the laboratory sample.<br>• For AELD0002, the core samples were cut in half with one half of the core sent to the GSWA as a reference (it being an Exploration Incentive Scheme (EIS) hole, partly funded by the GSWA) and the other half was cut in half again and this quarter core sampled and sent to the laboratory for assays.<br>• Assay results from AELD0002 have not yet been received but will be reported once available. |
| *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.<br>• 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.<br>• Samples were crushed and ground to nominal 75 micron size.<br>• The samples were split into a pulp fraction for |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | analysis and a pulp-reject for storage. |
| *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.*<br>• *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.<br>• The results are considered as a total digestion of the sample.<br>• QAQC samples (blanks and standards) were inserted every 10 samples. No material issues were recorded.<br>• Assay results from AELD0002 have not yet been received but will be reported once available. |
| *Verification of sampling and assaying* | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • No independent verification of results has been undertaken at this stage.<br>• All field and laboratory data has been entered into an industry standard database.<br>• No adjustment to assay data was done.<br>• An industry standard handheld Niton XRF unit was used on the drill core to help confirm minerals present and guide sample selection. Specific Niton XRF results have not been reported, with laboratory assay data required to confirm results. |
| *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.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | • Drilling is 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 mineralised lenses at a close to perpendicular angle. The mineralised lenses are dipping at approximately 50-70 degrees to the west and the drilling is approximately at 60 degrees to the east. This will vary from hole to hole. |
| *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 |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | 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.*<br>• *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.<br>• The tenure is considered to be secure and held 100% by Ardea under a granted Mining Lease (M27/506).<br>• 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.*<br>• *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.<br>• 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.*<br>• *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 as reported down-hole width. |

| 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 GEM geophysical contractors with the survey designed by Newexco geophysical consultants. The survey was successful in defining a strong EM conductor 20m to the north of AELD0001 with dimension of 100m long and 50n deep and conductance of 8,000 siemens.<br>• A further DHEM survey was undertaken in AELD002 and defined both an in-hole and larger off-hole conductor. The off-hole conductor is of most interest, lying to the south and slightly below AELD0002. The modelled conductor plates are shown in the figures 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.<br>• Future work at Emu Lake will entail:<br>  • Further assessment of DHEM and other geophysical data sets for the area to determine the best areas for follow-up drilling – at this stage this is pointing to a zone below and slightly south of AELD0002. |