Ardea Resources Limited

Compelling nickel-copper-platinoid sulphide drill target defined at Black Range

- Induced Polarisation (IP) surveys at Ardea's Black Range Prospect targeting magmatic base and precious metal sulphides in a layered mafic-ultramafic complex have returned a strong chargeability anomaly
- Located below a weathered zone Ni-Cu-PGE anomaly indicative of a primary sulphide source for these regolith metals
- The anomalies are located within the ultramafic zone of the Ora Banda Sill, a stratigraphic position in Layered Mafic Complexes favourable for Ni-Cu-PGE accumulations
- An RC drill program has been designed to test this compelling target

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to report a strong chargeability anomaly has been returned from an Induced Polarisation (**IP**) survey recently completed at the Black Range Prospect.

The Black Range Prospect is located 65km north-west of Kalgoorlie within the broader Kalgoorlie Nickel Project (**KNP**) and contains a 5 kilometre section of the Ora Banda Sill layered mafic/ultramafic sill enriched in nickel (**Ni**), copper (**Cu**), cobalt (**Co**), scandium (**Sc**) and platinum group element (**PGE**) metals. The Ora Banda Sill is 2.5 kilometres wide in the prospect area and has a distinctive ultramafic base, grading into a pyroxenite zone (target horizon) before passing into a mafic gabbro at the top of the sill.

IP chargeability anomalies can relate to zones of disseminated sulphides which may represent the outer halo around massive sulphide occurrences. The IP anomaly at Black Range is potentially related to a lava feeder zone/pipe within the Ora Banda Sill that is enriched in Ni-Cu-PGE metals. A 280 metre reverse circulation (RC) drillhole is proposed to test the anomaly at depth.

Ardea's Managing Director, Andrew Penkethman, said:

"Ardea remains focussed on their Kalgoorlie Nickel Project nickel laterite and developing this project to provide sustainable and ethical nickel and Critical Mineral supply for the rapidly expanding lithium-ion battery supply chain. In tandem with this priority, compelling nickel sulphide and Critical Mineral exploration opportunities continue to be evaluated that can provide further upside.

The recently defined IP anomaly at Black Range occurring in association with a very strong Ni-Cu-PGE geochemical anomaly is highly significant. The Ni-Cu-PGE anomalism has been known about for some time, but a clear vector to test for the metal source in fresh rock had not previously been defined. With the results from Ardea's recent IP survey, the anomaly defined now provides a clear drill target and impetus to test this zone at depth with the goal of making a significant discovery.

Some of the most significant Ni-Cu-PGE discoveries including Nova (ASX:IGO) and Julimar (ASX:CHN) have been within Layered Mafic Complexes as they can have large scale potential. As such, the Black Range anomaly represents an exciting and compelling drill target. The Ardea team look forward to drill testing this feature once a suitable drill rig becomes available."

ASX & Media Release
19 April 2021

ASX Symbol
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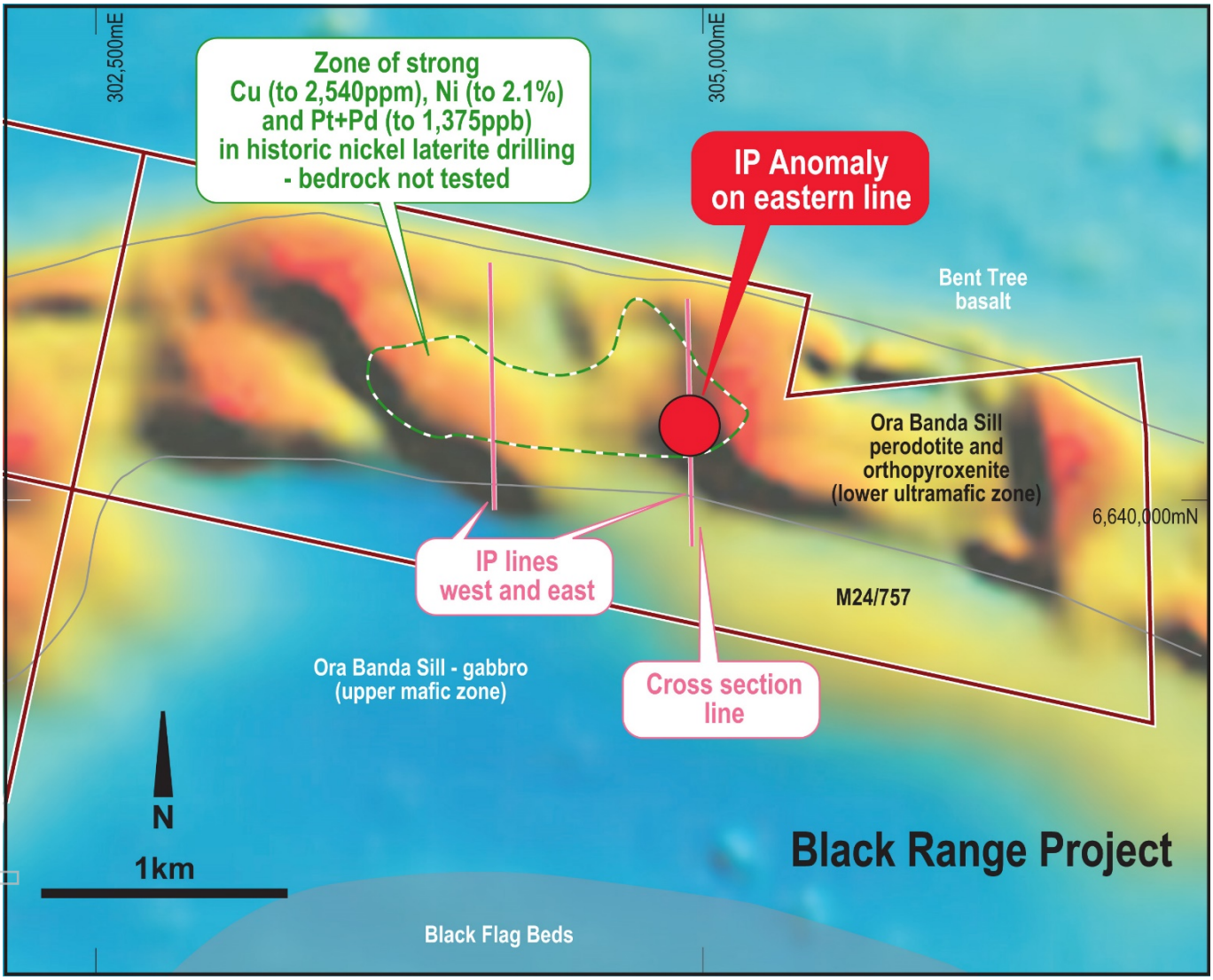
Compelling sulphide target defined by new IP survey at Black Range

With oversight from the Company's geophysical consultants, Newexco, an induced polarisation (**IP**) geophysical survey has recently been completed on two north-south lines (Figure 1) at Black Range. The IP survey was a dipole-dipole survey with 100 metre spaced receiver stations along approximately one kilometre lines, providing a depth of investigation down to approximately 400 metres below surface.

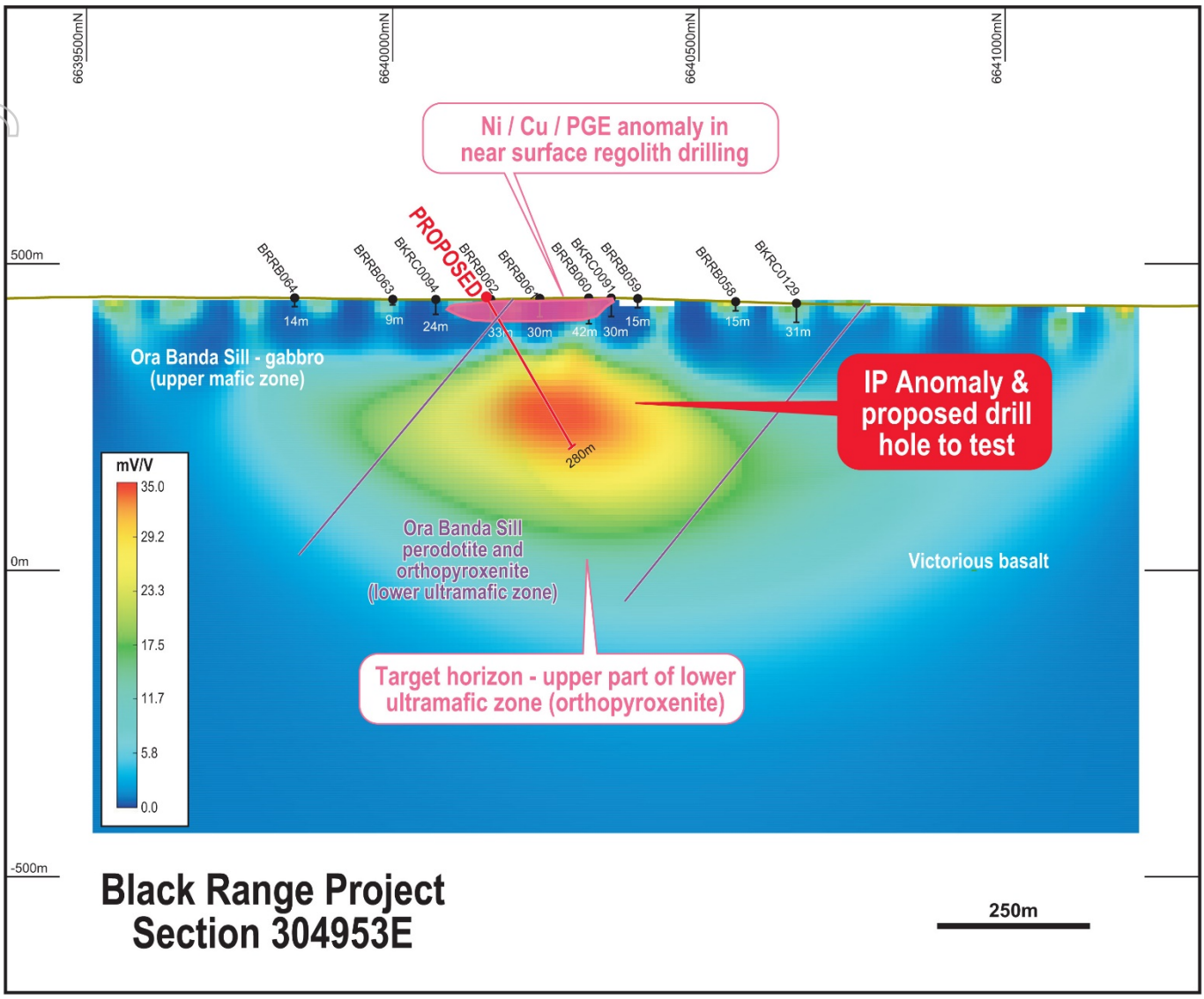
Figure 1: Black Range Prospect, Ardea tenements over Geology and TMI aeromagnetic image showing the outline of the zone enriched in nickel, cobalt, copper, scandium and PGE metals with location of IP lines. Projection MGA 94 Zone 51.



The chargeability anomaly (Figure 2) lies in the middle of the ultramafic zone just below the interpreted position of the orthopyroxenite unit. The target may represent a mineralised conduit or lava pipe "feeder structure" within the sill and hence could be off-set from the orthopyroxenite unit. The IP data on the western line is essentially quiet with a possible chargeability response at the limit of the depth penetration for the survey, 400 metres below surface. This is poorly defined and may also be an artefact of the noise within the survey. No further work is proposed here at this stage, but it will be kept in mind that the anomalous zone may be plunging to the west.

A review by Newexco, of historic moving loop electromagnetic (MLEM) data (Heron Resources ASX release 31 December 2011) has also confirmed a clear mid-time, twin-peak inflection that is coincident with the IP anomaly. The combination of the strongly anomalous geochemical results and two independent geophysical surveys (MLEM and IP) has defined a compelling target.

Figure 2: Black Range cross-section looking west showing IP anomaly (mV/V) withing the ultramafic zone of the Ora Banda Sill. The target orthopyroxenite unit is dipping to the south and the anomaly may be related to a separate feeder channel within the sill. Projection MGA 94 Zone 51.



To test the IP anomaly target, a 280 metre deep reverse circulation (RC) drill hole is proposed (Figure 2). This hole is designed to quickly and cost-effectively test the zone at depth. Once an RC rig has been secured, this compelling exploration target will be tested.

About the Black Range Prospect

The Black Range Prospect is located 65km north-west of Kalgoorlie and contains a 5 kilometre zone of the Ora Banda mafic/ultramafic sill enriched in nickel, cobalt, copper, scandium and PGE metals (Figure 1 and 3).

Ardea has defined a multifaceted laterite Mineral Resource[1] at Black Range comprising:

- **19.20Mt at 0.68% nickel and 0.09% cobalt**, for 130.7kt nickel and 17.8kt cobalt metal;
- **8.70Mt at 65.6g/t scandium** for 570,000kg scandium metal ; and
- **6.55Mt at 0.33g/t Pt and 0.21g/t Pd** for 70,300oz platinum and 44,000oz palladium metal.

[1] Ardea ASX announcement "Black Range cobalt, nickel, scandium and platinum/palladium resources" (31 October 2017).

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The Ora Banda Sill is one of a number of differentiated mafic/ultramafic sills in the Archaean greenstone stratigraphy of the Kalgoorlie geological domain. It is the thickest of the sills in the area, reaching a maximum thickness of 2.8 kilometres.

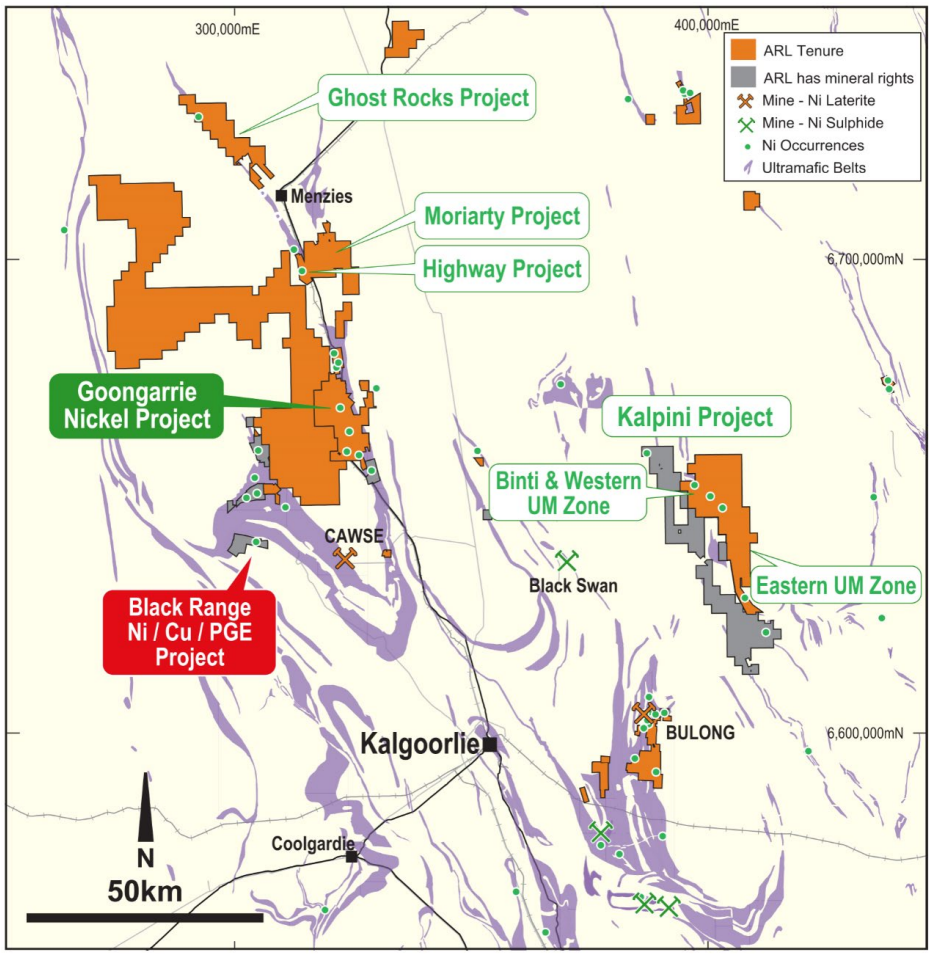
It consists of a southerly facing sequence of basal ultramafic overlain by gabbro and topped with a thin coarse-grained granophyre. The ultramafic zone is made up of lower peridotite overlain by a distinctive orthopyroxenite unit with a sharp change to the upper gabbro zone. The ultramafic zones have a distinct magnetic-high signature contrasting with the magnetic-low of the gabbroic units. As with other layered intrusive systems the PGE mineralisation appears to be focussed within the orthopyroxenite unit.

A number of drilling campaigns have been completed over the Ora Banda Sill (most recent in 2017) which delineated a zoned distribution of nickel, cobalt, copper, scandium and PGE metals. High Ni-Cu-PGE zones include: [2]

- ABR0001/4-20m, 16m at 0.24% Ni, 0.11% Cu, 0.29g/t Pd, 0.38g/t Pt
- ABR0016/2-18m, 16m at 0.45% Ni, 0.17% Cu, 0.15g/t Pd, 0.26g/t Pt
- ABR0021/4-24m, 20m at 0.18% Ni, 0.09% Cu, 0.29g/t Pd, 0.36g/t Pt

This geochemical signature, particularly the high Cu and PGE values, is consistent with a sulphidic metal source and is quite different to the usual KNP nickel laterite geochemistry. The Black Range laterite geochemical signature, notably for copper, is comparable to the initial aircore drilling results at what became the Nova Ni-Cu-PGE sulphide discovery.

Figure 3: Location of the Black Range Prospect with other Ardea KNP prospects near Kalgoorlie, Western Australia. Projection MGA 94 Zone 51.



Comparable drilling results relating to the discovery of the Nova ore body included: SFRA0450, 7m at 0.49% Ni and 0.1% Cu from 72m and SFRA0457, 3m at 0.45% Ni and 0.1% Cu from 84m (refer Sirius Resources NL, ASX announcement, 10 May 2012, 26 July 2012).

Background and Company Strategy

Ardea's 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.

[2] Ardea ASX announcement "Black Range cobalt, nickel, scandium and platinum/palladium Resources" (31 October 2017).

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Additionally, 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.

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 and has the added benefit of helping control autoclave oxidising potential and 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:

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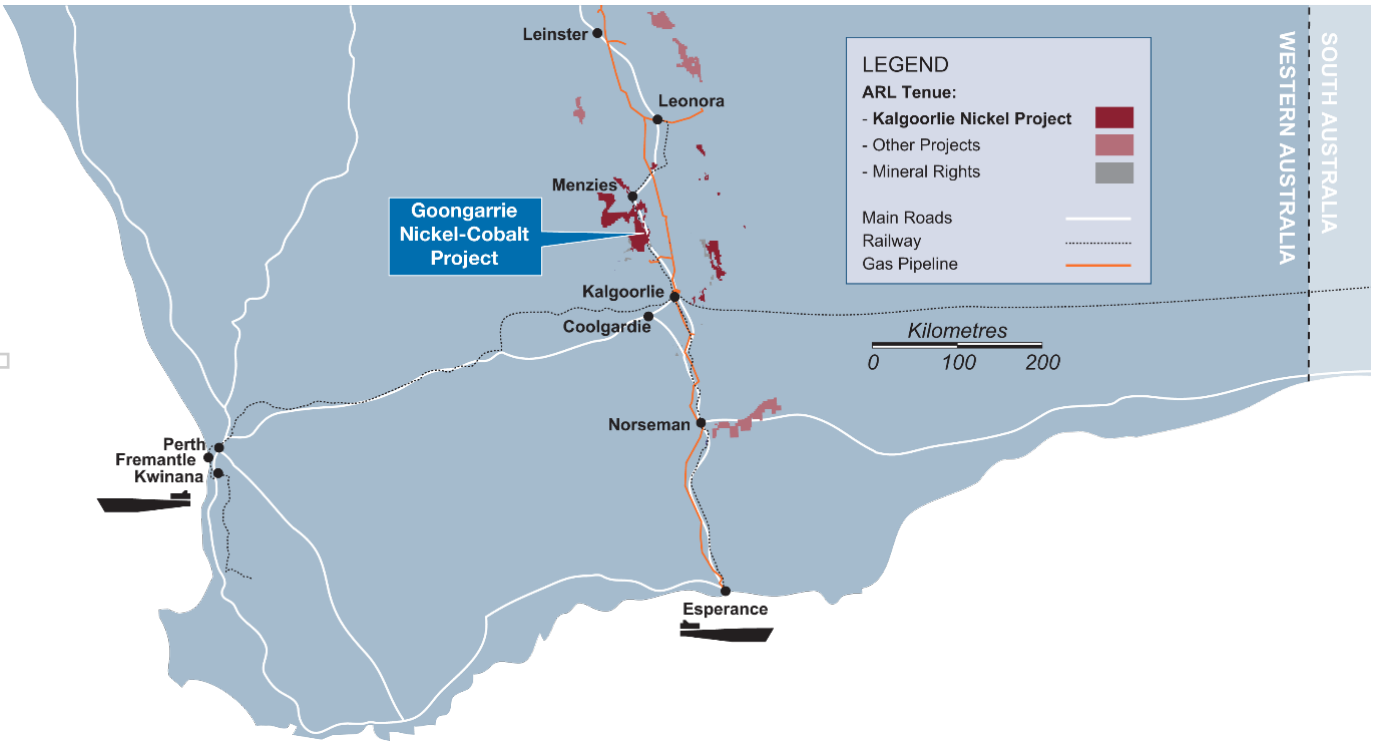
Tel +61 8 6244 5136

About Ardea Resources

Ardea Resources Limited (ASX:ARL) is an ASX-listed resources company, with a large and strategic 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-scandium resource in the developed world; and
- Advanced-stage exploration at compelling nickel sulphide 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.

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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 sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details.*	• No drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• No sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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 drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
Sub-sampling techniques and sample preparation	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• No sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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.*	• No sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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,*	• No sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.

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Criteria	JORC Code explanation	Commentary
	data storage (physical and electronic) protocols. • *Discuss any adjustment to assay data.*	
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 sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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 drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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 drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
Sample security	• *The measures taken to ensure sample security.*	• No sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No sampling undertaken – the ASX release is related to the release of geophysical data and interpretation.

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 location is shown on Figure 3 of this report and described in the body of the report. • The tenure is considered to be secure being under granted Mining Lease, M24/757. M24/757 is being transferred 100% into the name of Ardea Resources Ltd (awaiting stamp duty assessment) at which point Ardea will own all mineral rights apart from gold. The gold rights are owned by a third party company. • Given the early stage of the exploration no mining specific applications have been made. • An Aboriginal heritage site has been defined at Mt Carnage the peak of which is just south of the southern boundary of M24/757. A 200m curtilage zone was emplaced around the base of Mt Carnage and while this zone does not cover the area of the IP anomaly or the proposed drill

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Criteria	JORC Code explanation	Commentary
		hole, it could impact on future step out drilling to the south of the IP anomaly. Alternative drilling angles may need to be employed to avoid the curtilage zone.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The project areas have been explored extensively in the past for nickel laterite and nickel laterite resources have been defined. This work has mostly been undertaken in the past by Heron Resources Ltd.
Geology	• *Deposit type, geological setting and style of mineralization.*	• The Company is seeking Archaean mafic and ultramafic hosted Ni/Cu/PGE 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:*	• No drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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 drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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 drilling undertaken – the ASX release is related to the release of geophysical data and interpretation.
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	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical*	• Induced Polarisation (IP) surveys were conducted. The IP surveys were conducted by Moombarriga Geophysics Pty Ltd in March 2021 used the SearchEx 50kVA transmitter and EMIT SmarTEM

Criteria	JORC Code explanation	Commentary
exploration data	*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.*	receivers. The survey was conducted using a dipole-dipole configuration, with 'a' spacing of 100m. Transmitted signal was 0.125Hz using a 50% duty cycle and achieved currents ranged from 10.5-62.0A. Line length at Black Range was approximately 1.0 kilometre giving a nominal depth of investigation down to 400m below surface in the centre of the lines.

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 mafic and ultramafic hosted Ni/Cu/PGE sulphide deposits on its extensive tenement holding in the Eastern Goldfields of Western Australia.
		• Specifically at Black Range Ardea is seeking mafic/ultramafic intrusive related Ni/Cu/PGE sulphide deposits associated with the Ora Banda Sill.
		• Future work at Black Range will entail:
		  ○ Drilling of the IP survey when a suitable drilling rig becomes available and necessary approval are in place. Follow-up drilling as warranted.
		  ○ Additional geophysical surveys may be undertaken if the proposed drilling demonstrates the anomaly is related to sulphide mineralisation.

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