

**ASX & Media Release**

22 March 2017

**ASX Symbol**

ARL

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**Issued Capital**

Shares  
67,000,747

Unlisted options  
12,310,022

ABN 30 614 289 342

## Cobalt drilling commences at Kalpini

RC drill program focuses on cobalt and chrysoprase aimed at elevating the Kalpini mineral resource for inclusion in the KNP Cobalt Zone



- Cobalt focused RC drilling commenced at Kalpini yesterday.
- Data generated will be used in conjunction with extensive historic data to appraise the cobalt potential of the area.
- The program aims to elevate Kalpini to the KNP Cobalt Zone, thereby significantly increasing the resource.
- Drilling will commence at Black Range in the KNP Cobalt Zone upon completion of the Kalpini program.

Ardea Resources Limited (ASX: ARL, "Ardea" or "the Company") is pleased to announce that cobalt-focused drilling commenced yesterday at Kalpini. Reverse circulation (RC) drilling aims to investigate and infill highly anomalous cobalt intercepts evident in historic drilling. In total, the program comprises 28 drill holes which are expected to average around 50 m deep.

Kalpini is not presently part of the KNP Cobalt Zone. However, interrogation of historic datasets shows extensive cobalt intercepts throughout parts of the area. This targeted drill program will provide additional data to the already extensive Kalpini dataset. Analysis and appraisal of the combined data will determine whether Kalpini can be elevated to form part of the high-grade KNP Cobalt Zone resource.

This drill program at Kalpini is effectively a pilot program for the testing of outlying cobalt occurrences throughout the KNP for promotion to the KNP Cobalt Zone.

As with all cobalt-nickel mineralisation throughout the KNP Cobalt Zone, mineralisation at Kalpini occurs in subhorizontal bodies usually within 20-40 m of surface. The mineralisation has developed near to surface as particular ultramafic rocks have weathered and broken down over the ages. This style of mineralisation is therefore very soft and, given its geometry, is very easy to mine.

Ardea looks forward to updating shareholders as results are received.

**For further information regarding Ardea, please visit [www.ardearesources.com.au](http://www.ardearesources.com.au) or [www.heronresources.com.au](http://www.heronresources.com.au) or contact:**

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**Compliance Statement (JORC 2012)**

*A competent person's statement for the purposes of Listing Rule 5.22 has previously been announced by the Company for:*

- 1. Kalgoorlie Nickel Project on 21 October 2013 and 31 June 2014, October 2016, 2016 Heron Resources Annual Report and 6 January 2017;*
- 2. KNP Cobalt Zone Study on 6 January 2017*

*The Company confirms that it is not aware of any new information or data that materially affects information included in previous announcements, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. All projects will be subject to new work programs following the listing of Ardea, notably drilling, metallurgy and JORC Code 2012 resource estimation as applicable.*

*The information in this report that relates to KNP Exploration Results is based on information originally compiled by previous and current full time employees of Heron Resources Limited. The Exploration Results and data collection processes have been reviewed, verified and re-interpreted by Mr Ian Buchhorn who is a Member of the Australasian Institute of Mining and Metallurgy and currently a director of Ardea Resources Limited. Mr Buchhorn has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the exploration activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Buchhorn consents to the inclusion in this report of the matters based on his information in the form and context that it appears.*

*The exploration and industry benchmarking summaries are based on information reviewed by Dr Matthew Painter, who is a Member of the Australian Institute of Geoscientists. Dr Painter is a full-time employee and a director of Ardea Resources Limited 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, Mineral Resources and Ore*

Reserves'. Dr Painter has reviewed this press release and consents to the inclusion in this report of the information in the form and context in which it appears.

### **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 ability to complete the Ardea spin-out, 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 complete the Ardea spin-out on the basis of the proposed terms and timing or at all, 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.**

# Appendix – About the KNP and the KNP Cobalt Zone

## The KNP

There is renewed global interest in cobalt owing to its prominent use in lithium ion batteries and associated technologies supporting renewable energy storage.

Ardea's Kalgoorlie Nickel Project (KNP – Figure 1) is a globally significant lateritic nickel resource that contains substantial concentrations of cobalt. The global resource for the KNP is **805.3 Mt at 0.048 % cobalt and 0.70 % nickel** (Table 1 below) which equates to over **386,000 t of contained cobalt metal**.

*Table 1 – KNP Resources breakdown*

Resource Category	Quantity (Mt)	Co (%)	Ni (%)
Measured	9.6	0.081	1.02
Indicated	244.0	0.052	0.75
<i>KNP Total Measured and Indicated</i>	<i>253.6</i>	<i>0.052</i>	<i>0.76</i>
Inferred	551.7	0.046	0.68
<b>KNP Total Resources</b>	<b>805.3</b>	<b>0.048</b>	<b>0.70</b>

Recent recalculation of these resources with a focus on cobalt rather than nickel concentrations shows that the KNP is **one of the world's largest cobalt resources**, and certainly the largest in the developed world.

## The KNP Cobalt Zone

A cobalt-rich subset of the KNP, known as the KNP Cobalt Zone, contains a significant cobalt and nickel resource in its own right. The KNP Cobalt Zone contains **49.7 Mt at 0.12 % cobalt and 0.86 % nickel** (Table 2 below) for a total **contained cobalt metal of just under 60,000 t**. Our aim is to substantially increase upon this initial resource through exploration of known outlying cobalt occurrences and drill intercepts, and through reinterpretation of the resource based on cobalt cut-off grades rather than the current 0.5 % nickel cut-off.

*Table 2 – KNP Cobalt Zone, Resource Statement from RMRC consulting group*

Area	Prospect	Resource category	Cutoff (% Co)	Size (Mt)	Cobalt (%)	Nickel (%)
<b>Goongarrie</b>	Goongarrie South	Measured	0.08	3.4	0.14	1.19
		Indicated	0.08	11.2	0.11	0.92
		Inferred	0.08	1.4	0.11	0.76
	Big Four	Indicated	0.08	4.5	0.11	0.89
		Inferred	0.08	0.2	0.11	0.95
	Scotia	Inferred	0.08	2.9	0.14	0.88
<i>Goongarrie subtotal</i>				<i>23.6</i>	<i>0.12</i>	<i>0.94</i>
<b>Siberia</b>	Black Range	Inferred	0.50(Ni)	20.1	0.10	0.75
<b>Yerilla</b>	Aubils	Inferred	0.08	6.0	0.15	0.90
<b>KNP Cobalt Zone total resources</b>				<b>49.7</b>	<b>0.12</b>	<b>0.86</b>

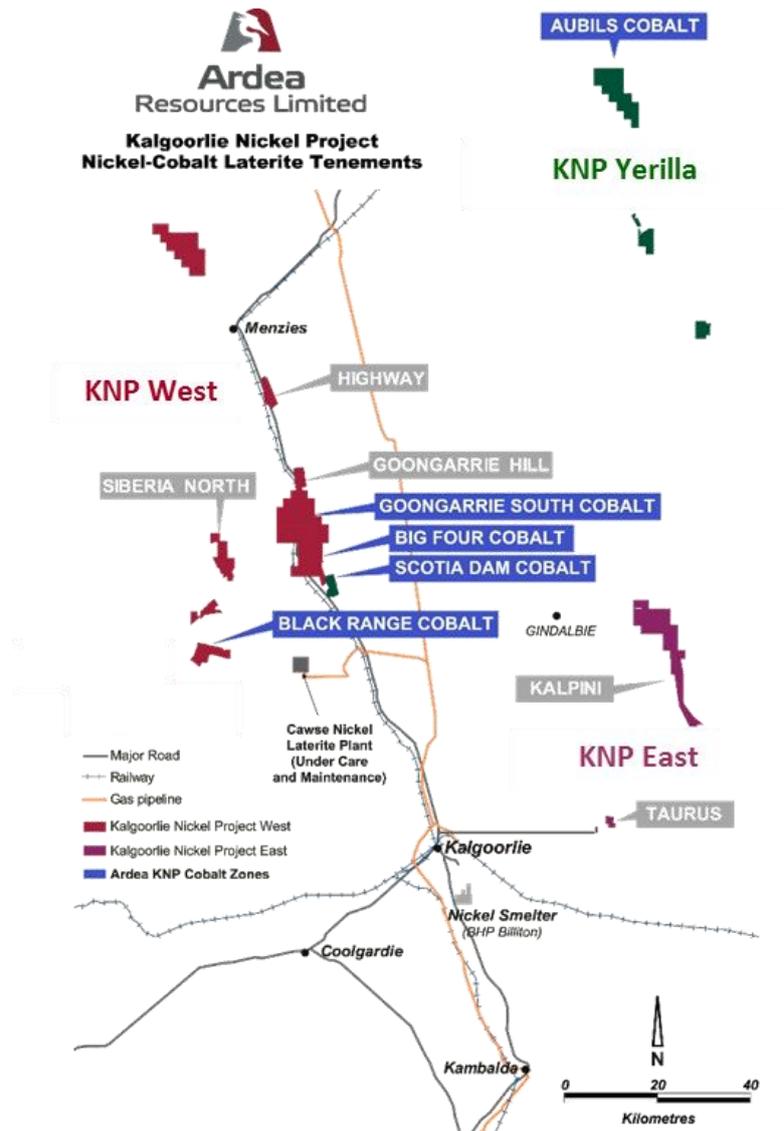


Figure 1 – The KNP and KNP Cobalt Zone, near Kalgoorlie WA

Table 3 – Ardea Benchmarks, ASX-listed companies (+ Glencore) ranked by contained cobalt metal

	Company	Size (Mt)	Cobalt (%)	Co metal (kt)	Project	Mineralisation style
1	Ardea Resources	805	0.05%	386.4	Kalgoorlie Nickel Project, WA	Laterite Ni-Co
2	Glencore	256	0.07%	179.4	Murrin Murrin WA	Laterite Ni-Co
3	CleanTeq	109	0.10%	114.0	Syerston, NSW	Laterite Ni-Co-Sc
4	GME	108	0.06%	65.1	NiWest Project, WA	Laterite Ni-Co
5	Ardea Resources	50	0.12%	59.6	KNP Cobalt Zone, WA	Laterite Co-Ni-Mn
6	Conico	32	0.12%	39.3	Mt Thirsty, WA	Laterite Ni-Co
7	Cobalt Blue	36	0.08%	30.0	Broken Hill, NSW	Co sulphide
8	Regal	4	0.72%	29.1	Kalongwe, DRC	Cu-Co sulphide
9	Havilah	18	0.10%	17.5	Mutooroo, NSW	Cu-Co sulphide
10	CuDeco	57	0.03%	16.7	Rocklands, Qld	Cu-Au-Co sulphide

Data sourced from SNL.com except for Murrin Murrin (Glencore 2014 Resources and Reserves Report)

Ardea plans to focus on the application of advanced metallurgical processes to optimise cobalt extraction and meet increasing cobalt demand from the booming vehicle electrification and energy storage sectors.

For reference, the ranking of the KNP and the KNP Cobalt Zone relative to other ASX listed companies and their cobalt resources, as well as Glencore's Murrin Murrin deposit, is shown in Table 3.

## Ethically sourced cobalt for technology industries and green energy

Cobalt is a major component of most lithium ion batteries, which are used in smartphones, computers, electric and hybrid vehicles, and solar power storage systems. Cobalt prices have risen substantially over the last year to \$US44,000 per tonne (London Metal Exchange, 18 February 2017).

Securing a reliable and ethical source of cobalt is becoming challenging for many users. In January 2016, Amnesty International highlighted the extensive use of child labour in cobalt mining operations in the Democratic Republic of Congo (DRC)<sup>1</sup>, the world's major supplier of cobalt. With presidential elections scheduled for next year in the DRC, the threat of political instability and interruptions to continuity of supply are also real.

Technology companies are looking to source cobalt from countries where ethical work practices are essential, particularly as these principled considerations become more acute as demand increases over time. The development of the KNP Cobalt Zone can provide a long-term stable supply of ethically sourced cobalt for our future technological and green energy needs.

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<sup>1</sup> \*Source: "This is what we die for: Human rights abuses in the Democratic Republic of the Congo power the global trade in cobalt." Amnesty International, January 2016 (AFR 62/3183/2016)