

**ASX & Media Release**

30 October 2018

**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**

Katina Law  
*Executive Chair*

Ian Buchhorn  
*Technical Executive Director*

Wayne Bramwell  
*Non-Executive Director*

**Issued Capital**

*Fully Paid Ordinary Shares*  
104,990,413

*Unlisted options  
exercisable at \$0.25*  
12,310,022

*Directors/Employee  
Performance Rights*  
3,240,000

**ABN 30 614 289 342**

## Goongarrie Pilot Plant trial produces battery grade crystals

- **Ardea pilot plant testing has successfully produced nickel and cobalt sulphate crystals**
- **Crystals meet specifications of several battery industry off-takers**
- **Marketing samples can now be evaluated by off-takers and battery end-users**

Ardea Resources is pleased to announce that it has taken a major step forward in the development of the Goongarrie Nickel Cobalt Project with the pilot plant trial producing crystalline battery-grade nickel and cobalt sulphate.



*Figure 1 –Nickel Sulphate Crystals*

The successful test is significant as nickel and cobalt sulphates are key ingredients in the manufacture of lithium-ion batteries but not all orebodies are amenable to producing the quality required.

Ardea Executive Chair Katina Law described the event as a significant milestone.

“The pilot plant trial has demonstrated that a high-quality product can be produced from the ore at Goongarrie and this will be critical during our current search for a strategic partner and potential off-takers. The samples we have produced will now be sent to interested parties for evaluation.”

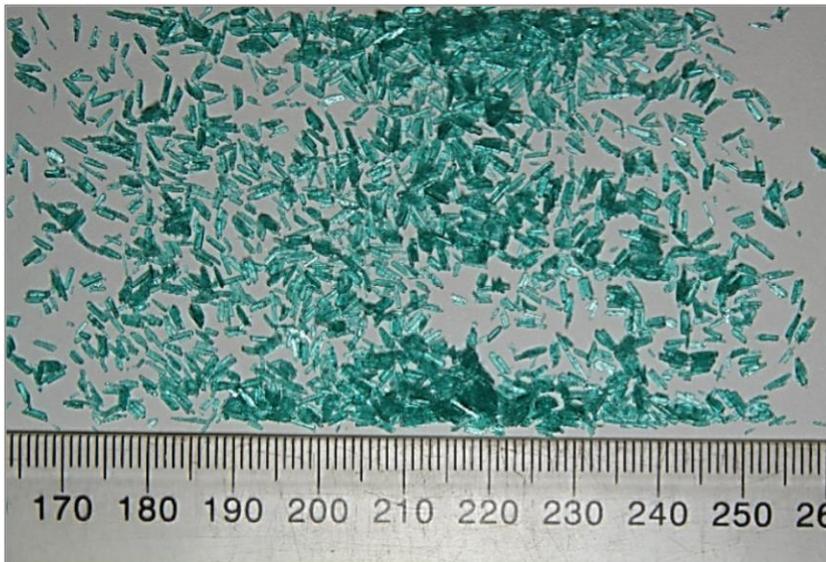
The Ardea pilot plant testing utilised the refined Goongarrie flowsheet which is an optimised version of the PFS flowsheet. Piloting has produced crystals that meet the strict specifications of several potential off-takers including trading houses and electric car manufacturers.

## Pilot Plant Trial Overview

The pilot plant run was completed in two stages. In the first stage, continuous piloting produced a Mixed Sulphide Product (MSP). Leaching extractions for nickel and cobalt for Goongarrie goethite ore exceeded 95% in continuous piloting, using the refined Goongarrie flowsheet.

In the second stage, which was completed at SGS in Perth, the MSP was refined using pressure oxidation, neutralisation, solvent extraction and ion exchange to produce battery grade crystals.

The pilot plant testing forms part of the Definitive Feasibility Study programs that are currently underway following the release of the positive Pre-Feasibility Study results in March 2018 (see ASX announcement 28 March 2018).



*Figure 2 - Nickel Sulphate Crystals*



*Figure 3 - Cobalt Sulphate Crystals*

## ABOUT ARDEA RESOURCES

Ardea Resources Limited (ASX:ARL) is an Australian resources company which owns 100% of the Kalgoorlie Nickel Project (KNP), a globally significant series of nickel-cobalt laterite deposits which host the largest cobalt resource in the developed world. Ardea is focused on the development of the Goongarrie Nickel Cobalt Project (GNCP) within the KNP, 80km north of Kalgoorlie WA. Ardea has completed a Prefeasibility Study for a 1Mtpa and 1.5Mtpa case on the GNCP and also a scoping study for a 2.25Mtpa case. Ardea is currently working with KPMG Australia Corporate Finance to secure a Strategic Partner to jointly develop the GNCP. Ardea also owns an extensive portfolio of projects in Western Australia and New South Wales which are highly prospective for gold, nickel sulphide and zinc.

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

### **Ardea Resources:**

Ms Katina Law

Executive Chair, Ardea Resources Limited

Tel +61 8 6244 5136

### **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.**