Ardea Resources Ltd: $2.5m R&D Refund Raises Cash Position to $11.8m

21.05.2019 | ABN Newswire

Perth, Australia - Ardea Resources Ltd. (ASX:ARL) (OTCMKTS:ARRRF) (Ardea) is developing its flagship Goongarrie Nickel Cobalt Project (GNCP) as a "state-of-the-art" battery metals project, with innovative Research and Development (R&D) a key pillar of the metallurgical programs. The quality of the GNCP research has been recognised with a $2.5 million refund from the Federal Government Australian Tax Office.

The 2018 GNCP Research and Development programme focussed on:

- Pilot Plant - 15 tonnes of specially drilled GNCP core and ancillary drill material was processed in a pilot-scale High Pressure Acid Leach (HPAL) circuit to produce Mixed Sulphide Product (MSP).

- Crystal Production - the MSP then underwent multiple experiments at bench-scale to remove impurities and produce nickel sulphate and cobalt sulphate that met battery industry quality requirements.

- Geo-metallurgy - all GNCP drill samples are subject to a 67-element assay suite with 12 specific ratios, X-ray Diffraction (XRD) and specialised geological logging then used as a predictive tool to hypothesize future HPAL plant performance.

- Multiple product revenue streams - the detailed analytical suite has quantified multiple potential co-products that can value add to the nickel and cobalt sulphate, including manganese sulphate, scandium trioxide, vanadium pentoxide, High Purity Alumina (HPA) and Rare Earth Elements (REE) for magnet production.

- Onsite Neutraliser - the key innovation was identifying material within mine waste that could be used for process plant neutraliser following the HPAL dissolution of the ore.

Chief Executive Officer, Andrew Penkethman stated:

"The Ardea R&D programme has focussed upon innovative flowsheet development leading to pilot-plant testing that produced a commercial quality of battery feed grade nickel sulphate and cobalt sulphate.

The upstream battery market is a dynamic space and the R&D undertaken is geared to position Ardea as a potential key strategic player in the burgeoning Electric Vehicle and Static Storage Battery sectors.

I would like to acknowledge the Ardea project teams who have shown considerable initiative and energy in creating future Shareholder value through these research and development programmes."

Processing Research and Development

The GNCP has had several unique attributes identified in Ardea Research and Development programs in 2018:

- Carbonate is necessary for neutralising autoclave discharge - Bench-scale test-work was completed to quantify neutralisation rate and recovery of the accessory nickel and cobalt naturally present in the onsite Saprock carbonates.

- Comminution media available from mine sub-grade - a very specific geo-metallurgical ore type that is a biscuity goethite ore that has been re-cemented by massive haematite or jasper at the top of the orebody to generate a highly indurated rock (term "Jasper" as field term) that is potentially available as SAG mill grinding media.

- Comminution media as mine floor sheeting - trafficability on wet ore for mine vehicles was identified as a potential mining issue, solved by the use of Articulated Dump Trucks. Additionally, research identified that the "Comminution Jasper" would be ideal as a road sheeting in wet ore, since the material when mined from the road on the following bench down would then act as comminution media for the SAG mill.

- Tailings research has demonstrated exceptional filtration ability - facilitating dry-stack tailings disposal rather than traditional slurry tailings. A cost/benefit analysis is underway.

- Detailed core logging combined with multi-element geochemistry and XRD mineralogy has identified potential co-products - including scandium trioxide (scandia) and manganese sulphate from the HPAL/MSP circuit, and in the laterite overlying the Ni-Co-Sc ore zones, recoverable High Purity Alumina (kaolin as precursor), scandia, vanadium and Rare Earth Elements (REE).

- Detailed core logging combined with multi-element geochemistry and XRD mineralogy - has also generated Material Characterisation algorithms that allow mine waste to be variously characterised for environmental use around waste landforms and tailings management.

- Geo-metallurgical/geological experiments - A geological model has been developed for the KNP (including GNCP) which consolidates the current 1,093 holes for 50,561m of Ardea drilling since listing in February 2017. The Ardea model focuses on the mineralised regolith (the weathered mantle), and its relationship to the underlying protolith (the unweathered ultramafic bedrock). In particular, a marked bedrock structural control on overlying laterite mineralisation has been recognised in research studies. Thicker mineralisation is associated with the eastern fault contact of the Walter Williams Formation host rock, with REEs defining a favourable late stage alkaline intrusive protolith that is associated with deep "funnels" of mineralisation.

- Renewable energy - opportunities associated with mining voids and site infrastructure are under consideration involving solar, wind, pumped hydro, bio-reactor and forestation carbon-credits.

The 2018 R&D experiments have highlighted multiple co-product revenue opportunities within the broader Kalgoorlie Nickel Project (KNP) which were never considered in the 1998-2016 period prior to Ardea acquiring the KNP. The 2018 R&D programs have facilitated Ardea recognizing significant revenue potential from previously considered second tier projects. In particular, the R&D programs have provided impetus to research projects at the KNP Black Range, Ghost Rocks and Bulong projects which could significantly enhance the overall GNCP project economics.

To view figures, please visit:
http://abnnewswire.net/lnk/TJ2FL86M

About Ardea Resources Ltd:

Ardea Resources Ltd. (ASX:ARL) (OTCMKTS:ARRRF) (FRA:A91) is an ASX-listed resources company, with 100%-controlled Australian-based projects, prioritising a three-pronged value creation strategy which is:

- development of the Goongarrie Nickel Cobalt Project, which is part of the Kalgoorlie Nickel Project, a globally significant series of nickel-cobalt-scandium deposits which host the largest cobalt resource in the developed world;

- advanced-stage exploration at WA gold and nickel sulphide targets; and

- the demerger of the NSW gold and base metal assets with planned in-specie share distribution.

Source:

Ardea Resources Ltd.

Contact:

Ardea Resources Ltd.: Andrew Penkethman Chief Executive Officer, Ardea Resources Ltd. Tel: +61-8-6244-5136