

Ardea sniffs out a sulphide

Ardea Resources Ltd is looking to firm up a potential nickel sulphide discovery which could deliver an unexpected production sweetener for its laterite-dominant Kalgoorlie nickel project (KNP).

Drilling has resumed at Emu Lake, part of the company's Kalpini tenements 70km north-west of Kalgoorlie-Boulder, after Ardea's exploration crew identified high-grade nickel sulphide mineralisation hosted within an ultramafic unit located on an intact felsic footwall contact.

A follow-up geophysical survey indicated this zone of nickel sulphide extends up and down plunge of the earmarked discovery hole, which returned a hit of 1.1m @ 4.78% nickel, 0.16% copper, 0.47 g/t platinum, and 0.2 g/t palladium from 366.9m downhole, consisting of semi-massive and matrix-style nickel sulphides within a broader zone of 4.8m @ 1.44% nickel, 0.09% copper, 0.2% platinum, 0.09 g/t palladium from 365.9m depth.

Ardea has so far focused on a development strategy for the laterite-based resources at its Goongarrie hub, about 100km west of Kalpini. The company recently confirmed that any nickel sulphides discovered on its extensive KNP ground package could be processed via the proposed HPAL autoclave which is currently the subject of a major feasibility study.

In another boost for the company, the potential nickel sulphide discovery was made on a granted mining lease.

Ardea managing director Andrew Penkethman said it was pleasing to see the full potential of his company's tenement portfolio, covering more than 4,000sq km in the Eastern Goldfields, being realised.

"We're quite fortunate that the nickel laterites which form our globally significant KNP resources are all hosted within ultramafic rocks, and it's that same ultramafic stratigraphy which is prospective for the nickel sulphide deposits," Penkethman told **Paydirt**.

"There's a number of different lava channels at Kalpini, each of which is prospective for hosting nickel sulphides... we can look at blending in any nickel sulphides with the laterite ore, and there's advantages in doing that, such as the oxidation potential and the nickel sulphides will all help naturally add heat to the whole system and potentially get increased nickel units.

"Similarly, if we made a nickel sulphide discovery but it was high in arsenic or other deleterious elements, that would preclude you from putting it through a traditional sulphide plant, whereas that's not an issue with the HPAL because everything goes in a solution and you can get rid of those contaminants quite easily."

The next 6-12 months is shaping to be one of the busiest periods in Ardea's five-year history with the company continuing to develop its flowsheet and updating the major feasibility study. Global engineering firm Wood Group plc is currently undertaking a gap analysis study, while Rockwater is reviewing the hydrogeology for the proposed Goongarrie hub.

Ardea is also progressing key partnerships with the Future Battery Industry Cooperative Research Centre and the CSIRO in a bid to maximise the KNP resource, in particular the high-grade Goongarrie and Highway deposits (combined 78mt @ 1% nickel and 0.069% cobalt for 784,000t nickel and 54,000t cobalt, based on a 0.8% nickel

cut-off).

Penkethman said the most recent flowsheet update in June, incorporating a conventional HPAL circuit alongside an atmospheric leach circuit, represented a potential "game-changer" for future nickel production from KNP.

"The benefits there are we're going to have a large-scale acid plant developed at Goongarrie and that same acid plant will obviously provide the sulphuric acid for the HPAL process, but will also generate the vast majority of our power, so it helps contribute to us having a lower carbon footprint and lower carbon emissions," he said.

"Equally as important, it enables you to keep that acid plant operating 24 hours a day, seven days a week. Once these big units are operating, you don't want to keep turning them on and off. We've seen other operations in Australia that have been forced to do that, and it's just no good for the process. You spend the capital to get these key pieces of equipment operating and so you want to get the maximum utilisation

"By having the atmospheric leach circuit, it means we can continue to keep the acid plant running. If we happen to have one of the HPAL circuits down for routine maintenance, we can still keep that acid going through the system. So, we're really excited by these flowsheet advancements."

Ardea took another important step towards development of the KNP in late August when it launched Kalgoorlie Gold Mining Ltd (KalGold), the proposed spin-out of its non-core gold assets via a \$12 million IPO.

KalGold is targeting a listing on the ASX this quarter, with Ardea shareholders to receive an in-specie distribution of shares in the new vehicle at nil cost plus the right to subscribe to further shares in the IPO.

"It really is the final piece of the puzzle for us in terms of completing all the project divestments that we set out to do some 2.5 years ago," Penkethman said.

"It's certainly the best outcome for shareholders...they got similar free in-specie shares for Godolphin [Resources Ltd]. In effect, it's a dividend for shareholders. We're not a producer just yet, so we can't pay a cash divvy, but those free shares are a really good outcome."

Inaugural Ardea managing director and current general manager of exploration Matt Painter has been tapped to lead the spin-out company.

– Michael Washbourne



Andrew Penkethman