

**ASX & Media Release**

30 April 2019

**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  
*Executive Director*

Wayne Bramwell  
*Non-Executive Director*

**Issued Capital**

Fully Paid Ordinary Shares  
106,145,424

Unlisted options  
exercisable at \$0.25  
11,155,011

Directors/Employee  
Performance Rights  
3,390,000

ABN 30 614 289 342

## QUARTERLY OPERATIONS REPORT

For the Quarter ended 31 March 2019

### CORPORATE

Cash position at end of Quarter of **\$10.7M**.

Andrew Penkethman commenced as Chief Executive Officer.

### DEVELOPMENT

#### Goongarrie Nickel Cobalt Project (GNCP)

- **Strategic Partner** process continues to see strong interest from battery producers and end-users wanting to secure long-term supplies of nickel and cobalt.
- **High grade pit optimisations and neutralisation** test-work ongoing.
- **Approvals Studies** continue with expert reports for flora, fauna, surface water and tailings being finalised.

### EXPLORATION

#### WA Gold and Nickel Sulphide

Technical reviews completed, targets defined and initial drilling completed.

- **Mt Zephyr** – initial Ardea drilling confirmed a large low-grade gold system at **Gale**, and nickel sulphide gossan at **Jones A**.
- **Bardoc Tectonic Zone** – aircore drilling north of Big Four has made a magnesite neutraliser discovery, drilling commenced near the historic **Big Four Gold Mine**.

#### NSW Gold and Base Metals

IPO of NSW assets advancing, technical reviews with field programs confirm high prospectivity targets across all tenure:

- **Lewis Ponds** – data base update to support resource estimate underway.
- **Mt Aubrey** – high priority epithermal gold system identified in historic drill data. Prospectivity further confirmed by soil auger geochemical anomalies up to **103ppb gold** and porphyry molybdenum target defined with anomalies up to **108ppm molybdenum**. Additional tenure applied for covering mineralisation strike extension.
- **Yeoval** – high priority porphyry copper system confirmed by soil auger geochemical anomalies up to **1,720ppm copper**.
- **Gundagai** – gold-copper system confirmed by soil auger geochemical anomalies up to **94ppb gold** and 767ppm copper, localised within broader 0.2% manganese halo.

## March 2019 Quarter

Andrew Penkethman, Ardea's Chief Executive Officer commented:

*"I am excited to take on the role of Ardea's Chief Executive Officer. I have previously managed exploration, development and production teams, feasibility studies and the partnership process for a large scale, strategic resource project. This experience will be applied to advance the Goongarrie Nickel Cobalt Project to development and also help maximise the value of Ardea's extensive land position in Western Australia and New South Wales."*

*Goongarrie is our core asset, with systematic progress achieved during the March 2019 Quarter including completion of Goongarrie South block models for high grade mine scheduling and finalisation of key environmental reports and finalisation of bench-scale metallurgy on neutraliser.*

*Ardea is proceeding with its stated strategy to advance its West Australian gold and nickel sulphide targets, with drilling confirming the prospectivity of the Mt Zephyr project by definition of a large-scale gold system at Gale and nickel sulphide gossan at Jones A. At Big Four on the Bardoc Tectonic Zone, initial gold and infrastructure site drilling was completed.*

*The planned IPO of the New South Wales assets has advanced considerably during the Quarter, with target definition followed by on-ground exploration completed at all projects. The IPO prospectus is on-track for lodging in H2, 2019.*

*Ardea has a clear development strategy and is well-funded with this financial strength providing the capacity to execute our work programs and enhance the value of our asset base during 2019.*

*I very much look forward to building upon the solid work completed to date by the Ardea team and engaging with our Shareholders and the investment community."*

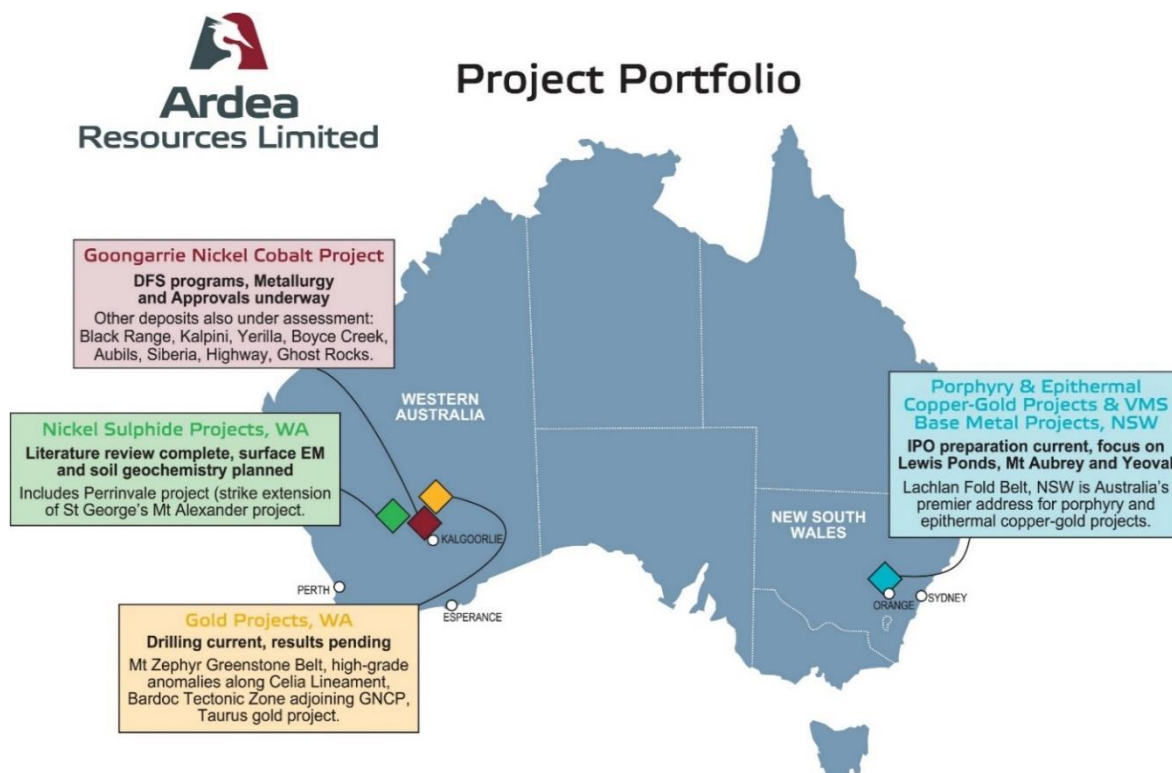


Figure 1: Ardea Projects Map

# 1. Goongarrie Nickel Cobalt Project

## Overview

The Company continues to advance the Goongarrie Nickel Cobalt Project (GNCP) with a focus on delivering the best outcome for Shareholders. Recent results and ongoing work streams include:

- **Strategic Partner Update** – KPMG and Ardea executives continue to engage with potential international project partners interested in securing nickel and cobalt off-take from the large scale and strategic GNCP. Interest in off-take from the GNCP remains high, with a firm requirement by Ardea that offtake rights must include a commensurate project funding commitment.
- **Resource Update** – The drill-hole database has been updated with results from the 50,561m of drilling completed by Ardea since listing in 2017. This data, along with the extensive legacy drill-hole information, is being used to define new wireframe models which incorporate nickel, cobalt and scandium mineralisation, as well as Material Characterisation for projected metallurgical performance. Wireframe modelling has been completed over the majority of the extensive 16km of mineralisation strike. Deposits yet to be updated include Big Four and Scotia Dam. A resource and reserve update is expected in Q3 2019, once the optimum plant throughput is finalised.
- **High Grade Mine Schedule** – Open pit optimisations and detailed mine scheduling, including pit back-fill schedule, waste landform locations and Material Characterisation are in progress utilising the updated GNCP wireframes and block models. The objective is to focus upon higher grade mining areas during the GNCP capital payback period.
- **Metallurgical Variability Work** – Final laboratory reports have been received for all pilot and bench-scale metallurgical research, apart from the Q4 2018 refinery program. Management are now reviewing the various reports for input into the current mine schedule study.
- **Mineralised Neutraliser** – Neutraliser bench-scale research test-work has demonstrated viable on-site neutraliser results from material containing recoverable nickel-cobalt and scandium mineralisation. These results once confirmed and evaluated will be incorporated into the mine scheduling work which is expected to allow their value to be captured in updated financial models.
- **Approvals** – Draft reports for all flora, fauna and water surveys commissioned in Q4 2018 are presently being reviewed and consolidated, as inputs to the mine site layout design. It is not currently planned to lodge any development applications with the various State authorities until the scale and footprint of the GNCP is finalised, this being part of the ongoing Strategic Partner process.
- **Tenement Consolidation** – As opportunities arise, GNCP tenure is being consolidated and adjoining infrastructure sites secured. Several of the new acquisitions include opportunistic gold and nickel sulphide targets, which are being worked up ahead of testing.
- **Stakeholder Engagement** – Is ongoing with strong Community support being received during the current Stakeholder engagement process, notably with Local Government.

Once completed, the results from the above work streams will help refine the key inputs to be carried forward into a Definitive Feasibility Study, notably production scale and type of nickel-cobalt product to be produced.

## Feasibility Programs

Work for the Quarter was focussed on resource modelling, pit optimisations, metallurgy and availability of infrastructure sites. These programs shape and define the planned site layout, which is the critical parameter for the approvals process.

### Resource Modelling

The GNCP mineralisation is remarkably consistent, occurring as a uniform goethite sheet beneath barren lateritised alluvial cover and above a carbonated saprock basement. In the resource modelling, the “Base of Alluvium” and “Top of Saprock” are the key contacts. The goethite material between these two contacts uniformly exceeds 0.5% Ni, which fortuitously is also the mineral resource cut-off grade for the GNCP.

The Alluvium is part of an ancestral Lake Goongarrie river and lake system. It is easily recognised in drill-hole logging, being variously a green-grey nontronite lake clay, white kaolin lake clay, quartz sand, re-worked haematite clast gravel, and most importantly, a gravel cemented with nodular dolomite or magnesite which carbonate can be used for neutralising the autoclave acidic discharge. All Alluvium variants have distinct geochemical signatures, which are the basis for interpreting the Base of Alluvium in resource modelling.

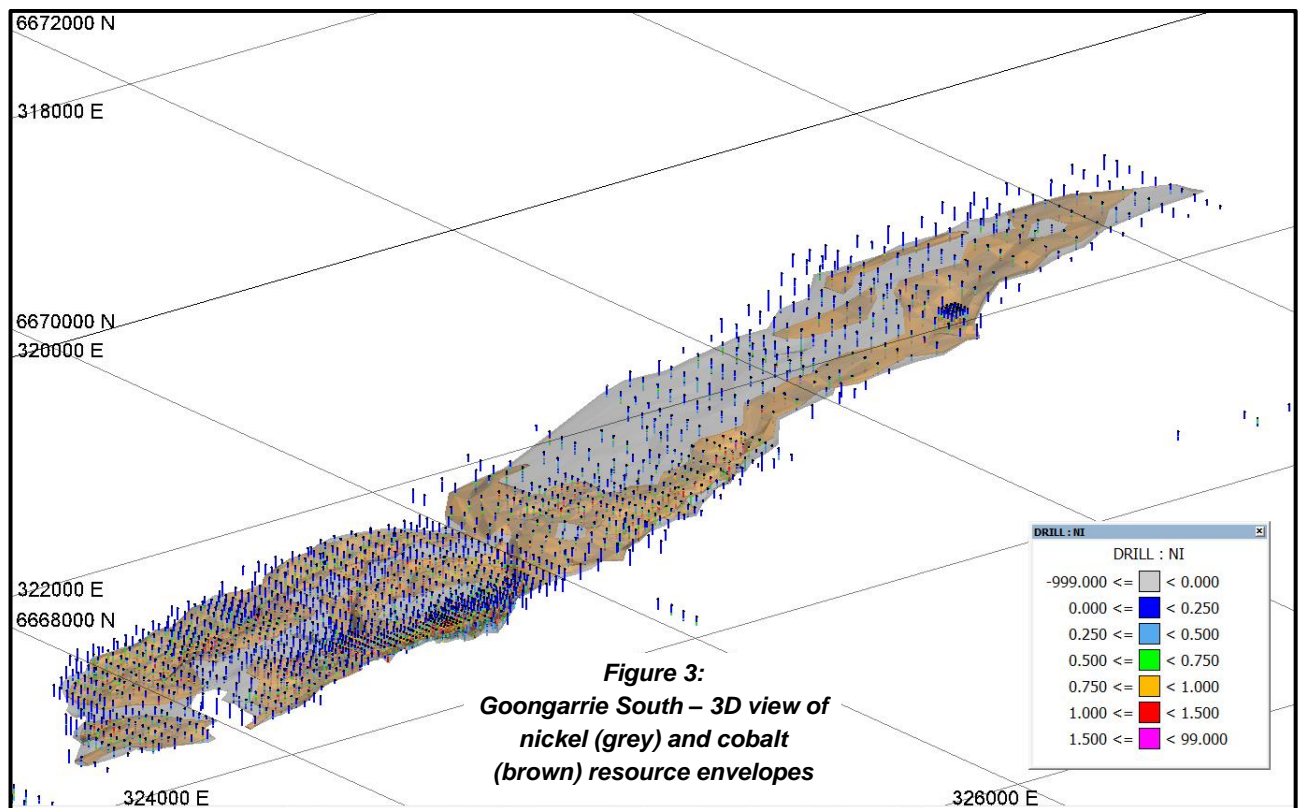
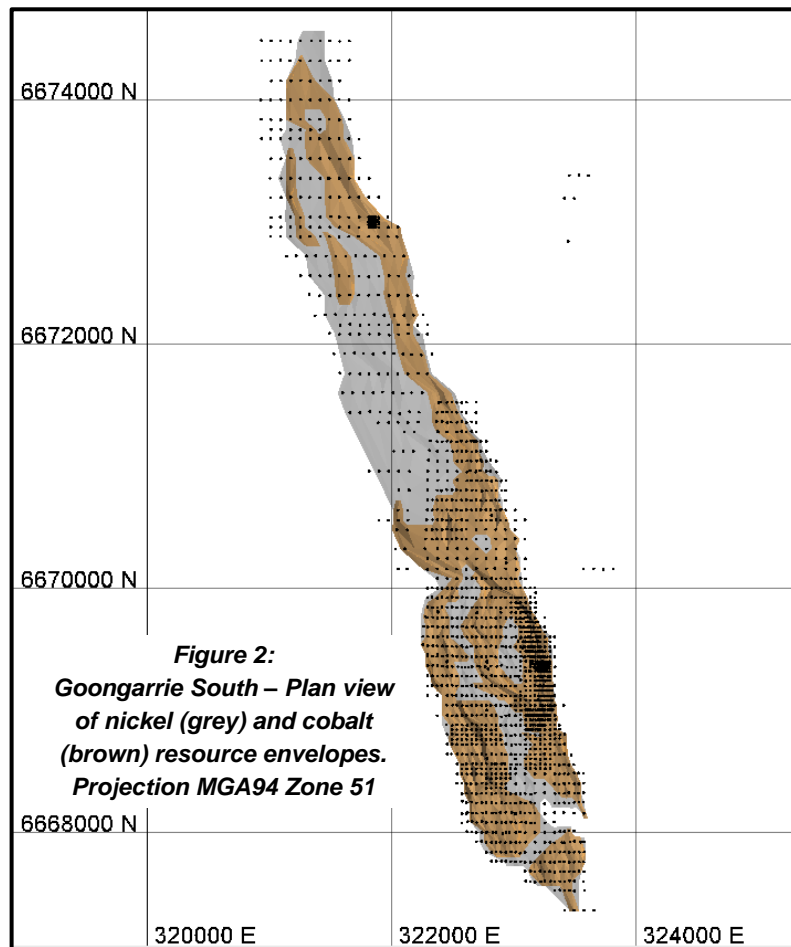
The nickel-cobalt laterite mineralisation is invariably associated with the hydrated iron oxide mineral, goethite. The base of laterite mineralisation is defined by the Top of Saprock. Saprock is an indurated weathered bedrock consisting variously of dolomite-magnesite-silica-serpentine. The hard competent Saprock contrasts sharply with the soft clay mineralisation, so will allow excellent visual grade control in mining. The Saprock dolomite and magnesite will be the main GNCP neutraliser source. In contrast to the barren Alluvium cover, nickel grade persists down into Saprock at 0.3-0.8% Ni, being the source of the GNCP “Mineralised Neutraliser”.

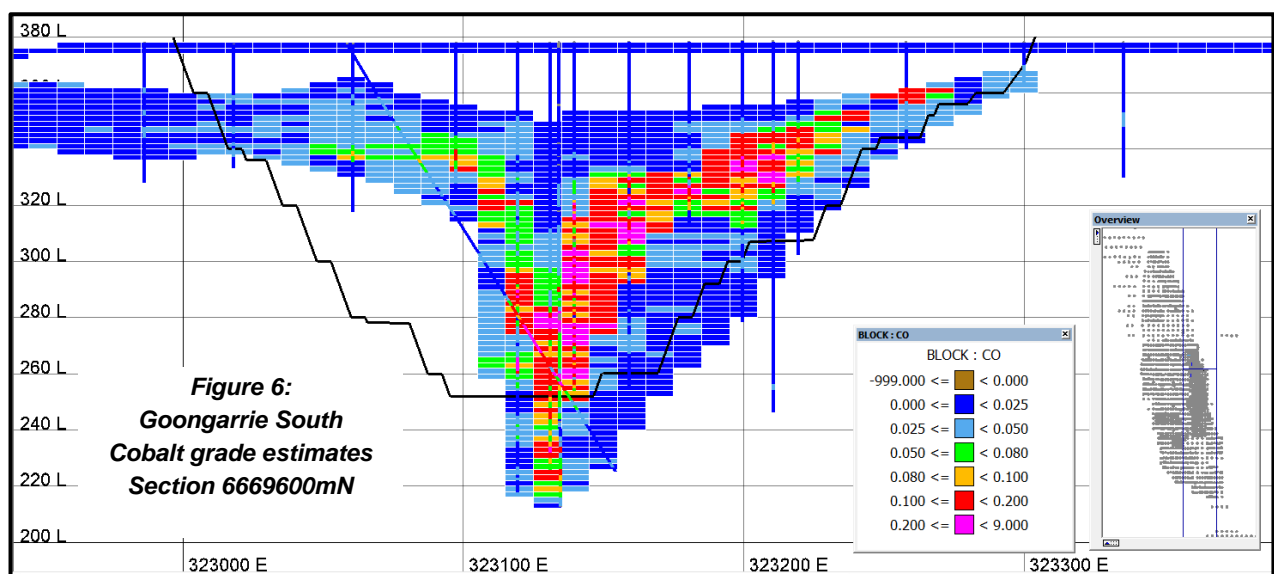
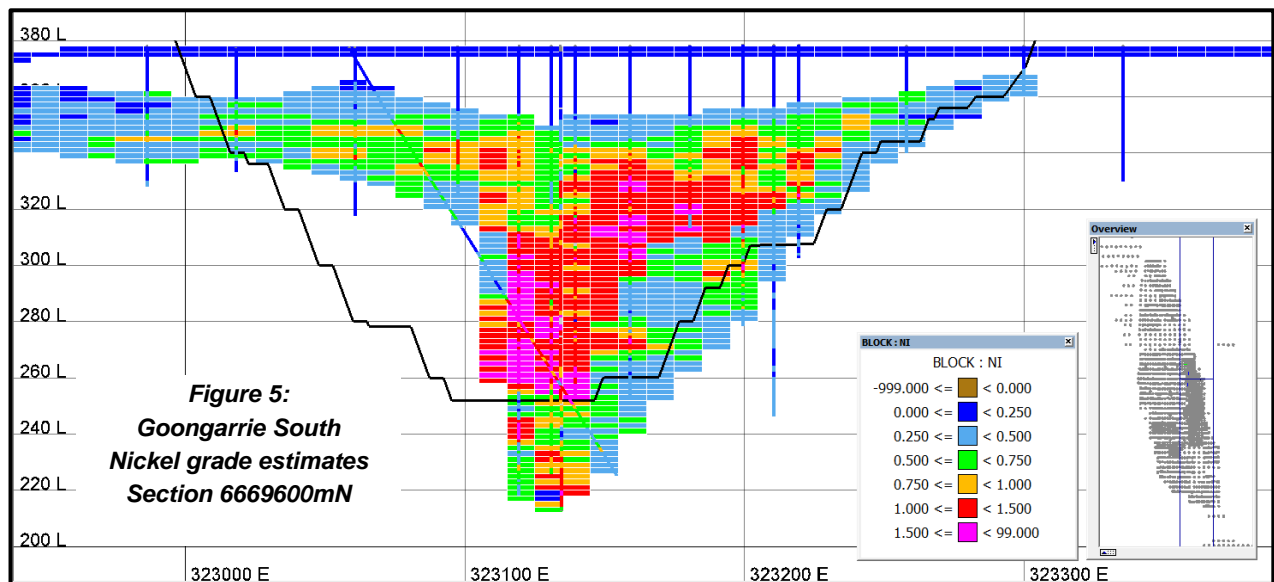
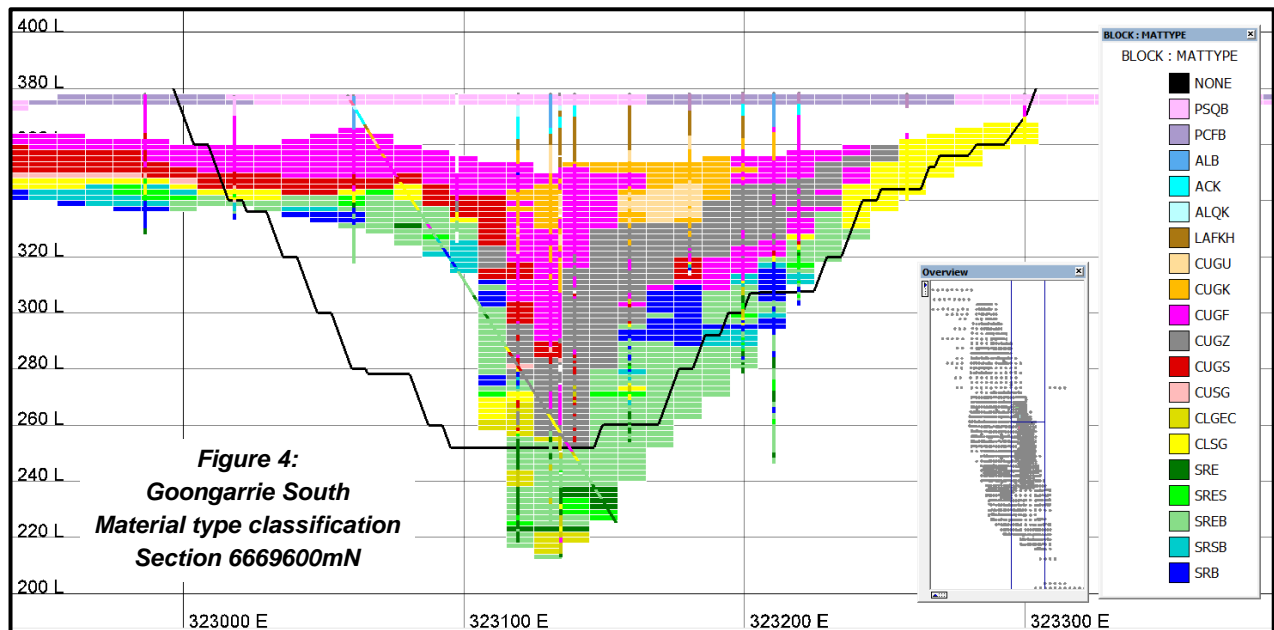
Updated wireframe model extents of the nickel and cobalt mineralisation at Goongarrie South have been modelled based on notional 0.25% Ni and 0.05% Co cut-off grades and are displayed in plan and 3D isometric views in **Figures 2 and 3**. Additional features interpreted and modelled to constrain the updated resource estimates include the base of near surface calcrete and dolomite, envelopes capturing paleochannel carbonate mineralisation, the base of alluvium and the top of saprock.

Resource grade estimation is being undertaken using local uniform conditioning for nickel (Ni) and cobalt (Co), and ordinary kriging for MgO, FeO, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Mn, Cr and LOI. The block model geochemistry allows specific Material Characterisation attributes to be assigned to each block within the 3D model. The blocks in the current model are 10x10x2m, compared to 40x40x4m in historic GNCP block models. The smaller block size will facilitate more accurate mine scheduling.

Representative cross sections of the drilling and updated resource model through the Pamela Jean Zone at Goongarrie South are displayed in **Figures 4 to 6**. **Figure 4** shows the drilling and resource model colour coded by the newly defined material type classification scheme for the GNCP while **Figures 5 and 6** display the same cross section colour coded by the updated nickel and cobalt grade estimates for the deposit. A description of the GNCP material types is presented in **Table 1**.







Code	Profile	Description
PSQB PCFB	Pedolith	Pedogenic sand, quartz & carbonate - calcite and or dolomite Pedogenic clay, Fe oxide & carbonate rich – calcite and or dolomite
ALB ACK ALQK LAFKH	Alluvial (Transported)	Alluvial channel with carbonate cemented sediments Alluvial clay, kaolinite rich Alluvial sand, quartz and kaolinite rich Laterite ferruginous, goethite + kaolinite + haematite
CUGU CUGK CUGF CUGZ CUGS CUSG	Clay Upper	goethite + gibbsite goethite + kaolinite goethite + undifferentiated Fe oxide goethite + asbolite goethite + silica silica + goethite
CLGEC CLSG	Clay Lower	goethite + serpentine + chlorite silica + goethite
SRE SRES SREB SRSB SRB	Saprock	serpentine dominant serpentine + silica serpentine + dolomite &/or magnesite serpentine + silica + dolomite &/or magnesite dolomite &/or magnesite dominant

Table 1: Description of GNCP material types for reference with Figure 4.

It is clear that a strong correlation exists between high Nickel-Cobalt grades and the CUGZ goethite-asbolite variant of mineralisation (grey colour unit in **Figure 4**). This goethite-rich association also manifests in pit optimisation studies.

It should be noted that the “Saprock Neutralisers” SREB, SRSB, SRB occur at the base of mineralisation within the pit shell (green colours in **Figure 4**), confirming a neutraliser source that is in any event captured within optimised pit shells. This, along with the ancillary nickel and cobalt credits generated, is an important and valuable attribute of the GNCP that enhances project economics.

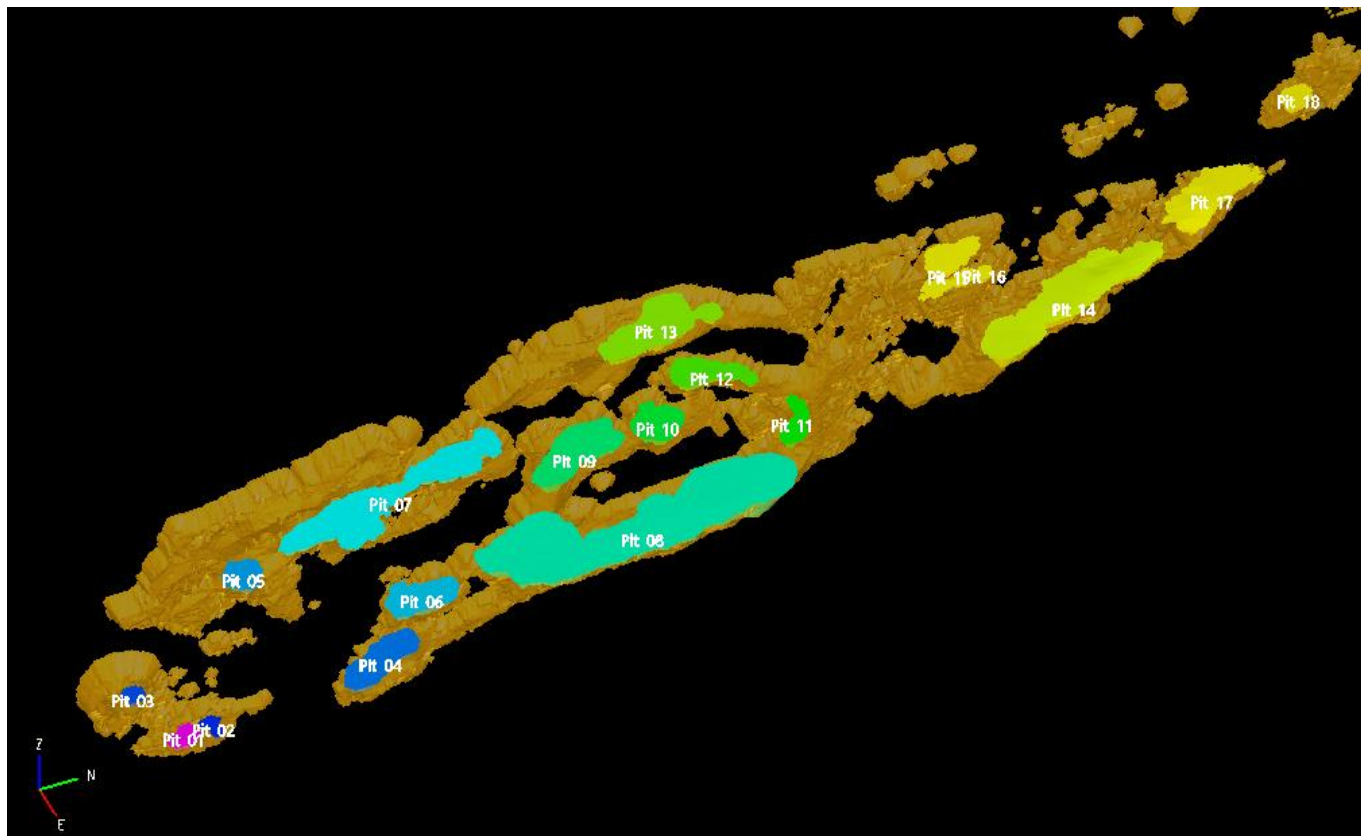
## High Grade Mine Schedule

Pit optimisations are currently being finalised for Goongarrie South, with multiple pits defined as suitable High Grade (HG) areas for mining during the Payback Period (5.1 to 5.6 years in 2018 PFS and Expansion Study respectively). Pit optimisation results to date have also identified pits at Pamela Jean (Pit 08 **Figure 7**) and Patricia Anne (Pits 14 and 17, **Figure 7**) on the eastern margin of Goongarrie South as two of the highest value pit areas which will significantly contribute to the High-Grade mining period.

The confirmation of Pamela Jean as one of the prime GNCP revenue sources as well as being centre of gravity for the Goongarrie South deposit, validates the Pamela Jean east crest area as the preferred plant site, with construction earthworks materials sourced from the Pamela Jean waste pre-strip.

Provisional mining sequence to date indicates Patricia Anne ore mining starting in Year 1 to its full Life-of-Mine depth to create a void for future tailings disposal with ore mining then likely to move to Pamela Jean. All lower grade ores not required for processing during the High-Grade period will be stockpiled on surface for processing at a later date, consistent with previous studies. Work is currently ongoing to confirm final pit sequencing for the High-Grade period as well as selection of the ultimate pit limits.

As well as ore and waste mining, ongoing work to finalise the updated mine schedule is addressing neutraliser sources for process plant feed from within and surrounding the optimised pits, and tailings/waste back-fill requirements.



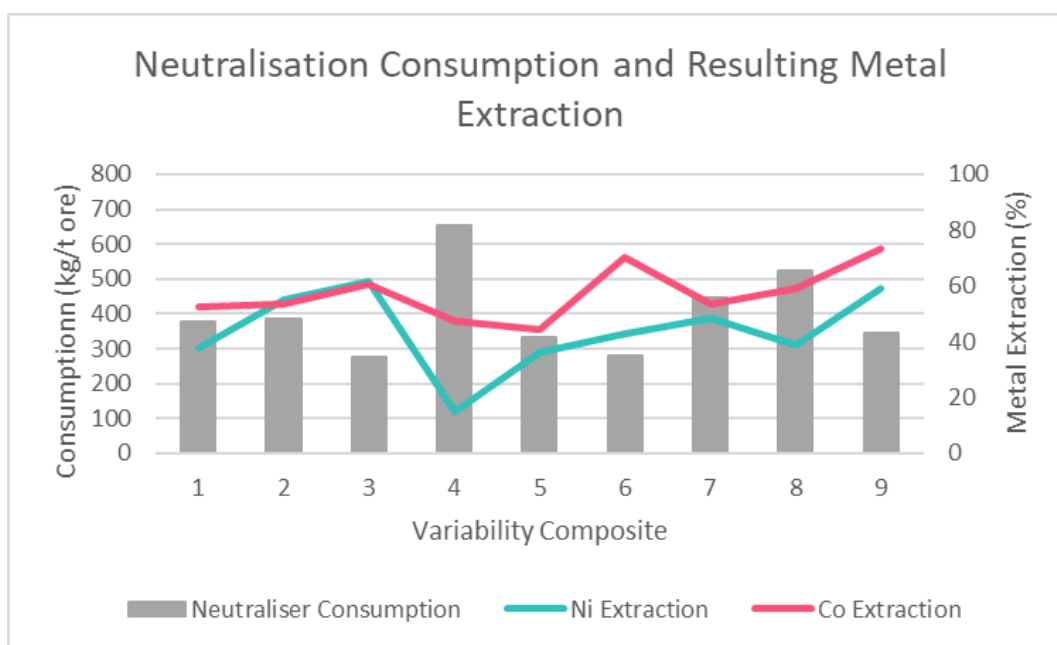
**Figure 7:** Goongarrie South optimised pits. The High-Grade pit shells are based on a Revenue Factor of 0.40 (i.e. viable at 0.4 of the model metal prices). The potential Life-of-Mine pit is the encompassing brown pit shell based on a Revenue Factor of 0.70. The field of view from bottom left hand to top right hand is approximately 4km.



## Metallurgical Variability Work

Preliminary neutralisation test-work was performed on Goongarrie South drill core samples to confirm that Palaeo-channel and Saprock carbonates are effective neutralisers. This material is recovered in the course of normal mining operations and provides a cost-effective alternative to importing limestone neutraliser with no recoverable nickel and cobalt grades, that would otherwise have to be sourced off-site.

A total of nine composites were metallurgically tested under simulated process plant conditions and provided a range of neutraliser consumption rates that were calculated per tonne of process plant feed. Nickel and cobalt extractions obtained as the neutraliser was reacted with the sulphuric acid solution were also measured. A summary of the test-work and calculated data is shown in **Figure 8** below.



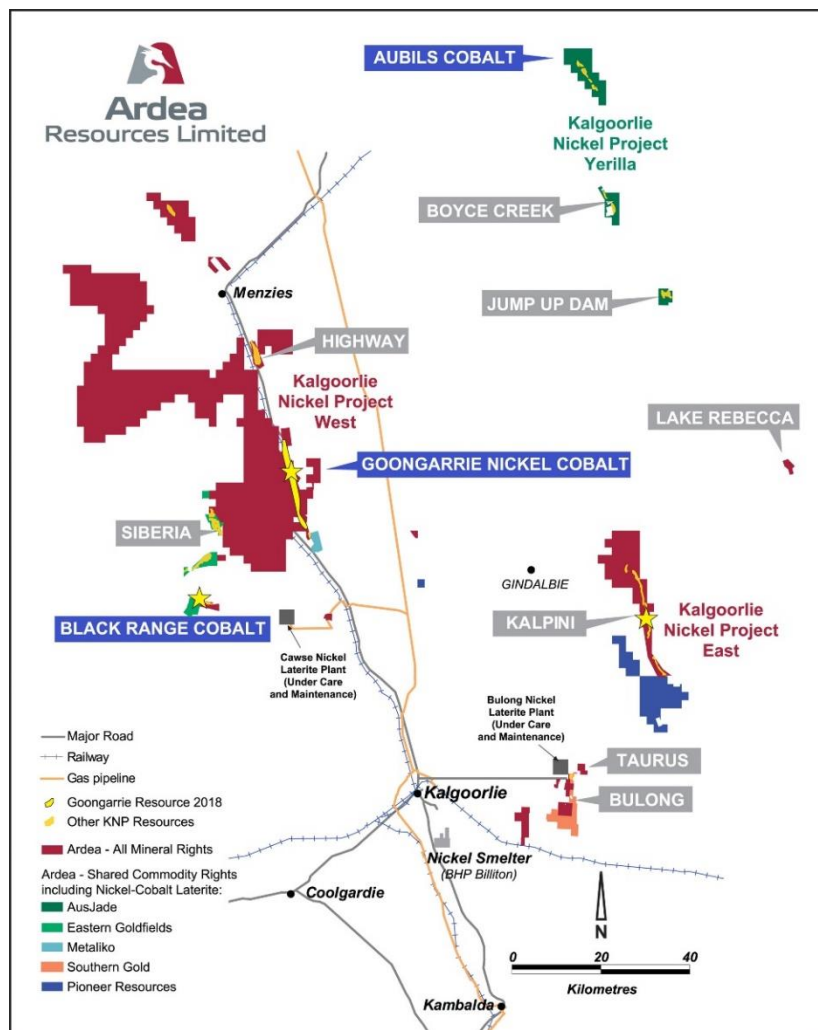
*Figure 8: Neutraliser bench-scale test-work results*

The neutralisation capacity of the tested composites ranged between 276 and 655kg/t ore with an average value of 420kg/t. Nickel and cobalt extraction values averaged 44% and 57% respectively. The nickel and cobalt grade of the neutraliser composites generally varied between 0.1 to 0.5% Ni and 0.01 to 0.02% Co respectively.

Further variability test-work is planned to investigate beneficiation options for the neutraliser to improve neutralisation capacity.

Final reporting is in progress for all H2 2018 metallurgical programs, notably the piloting, to inform current mining schedule studies.

Figure 9: Kalgoorlie Nickel Project location and infrastructure plan.



## Environment and Approvals

The Goongarrie Nickel Cobalt Project is being designed to minimise its environmental impact. Key attributes include:

- The strip ratio is low at approximately 2:1, minimising project waste generation.
- Waste is either used for construction of integrated waste landforms, progressive back-fill of exhausted pits or rehabilitating completed mine areas.
- Tailings are deposited in exhausted pits or in integrated waste landforms.
- Early-mined nodular surface laterite waste is particularly well suited as road base for site access roads or rehabilitation materials.
- The ultramafic mine waste from anecdotal observation favours local flora assemblages for revegetation.
- There are no indications to date of Acid Mine Drainage risk.

A GNCP site visit was completed with all environmental and mine scheduling consultants, to ensure consistency and optimised use of mined material.

An update to the mine schedule and amended materials balance is in preparation to determine optimal sequencing and project footprint requirements for stockpiling of low-grade ore and construction of integrated waste landforms.

Studies during the Quarter have extended Materials Characterisation to the overburden, noting that specific waste material is better suited to all manner of civil uses, including mottled nodular laterite for haul roads, nontronite clay for settling dam liner and indurated laterite for pit ramp sheeting, all of which contributes to minimising the surface footprint of waste landforms.

Water supply has focussed on aquifers associated with paleo-channels (within granted Ardea mining tenure) and where possible linked to pit de-watering.

GNCP is favoured by a benign arid environmental setting, which is much easier managed than wet tropical settings requiring submarine tailings disposal or valley-fill tailings dams. These environmental attributes favour GNCP as a future source of the “ethical” nickel and cobalt that the Electric Vehicle and Static Storage Battery industries increasingly favour.

Environmental reports as required for future statutory approval lodgement continue to be finalised.

## Processing Research and Development

The GNCP has had several unique attributes identified in Ardea Research and Development (R&D) programs, with research a continuing priority during the March 2019 Quarter:

- **Carbonate is necessary for neutralising autoclave discharge** – Bench-scale test-work was completed with interpretation underway to quantify neutralisation rate and recovery of the accessory nickel and cobalt naturally present in the site Saprock carbonates. Research into the upgrade of carbonate content by beneficiation is ongoing.
- **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, >50% Fe, 0.5% Ni, 1.5% Cr is potentially available as SAG mill grinding media). Representative drill-core was logged and data sets updated.
- **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 oxide (scandia) and manganese sulphate from the HPAL/MS circuit, and in the laterite overlying the Ni-Co-Sc ore zones recoverable High Purity Alumina (kaolin as precursor), scandium, vanadium and Rare Earth Elements (REE). Research analysis of mineralisation at Black Range as a satellite feed to the GNCP was completed, with overburden identified as a potential static chloride leach feed for HPA-Sc-V-PGM.
- **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 Research and Development

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 (see **Figures 4, 5 and 6**), with REEs defining a favourable late stage alkaline intrusive protolith that is associated with deep “funnels” of mineralisation.

The research focus is the early-mined pits at Patricia Anne and Pamela Jean.



## 2. WA Gold and Nickel Sulphide projects

The Ardea nickel laterite tenure represents a strategic land holding in one of Australia's premier gold and nickel sulphide provinces. The Kalgoorlie Nickel Project (KNP), Mt Zephyr, Perrinvale and Bedonia projects are all highly prospective for both gold and nickel sulphides.

Ardea has a significant number of additional projects outside of the GNCP. Most of these projects host nickel-cobalt laterite resources (that could supplement future GNCP production) but also host significant "greenfields" gold and/or nickel sulphide mineralisation (**Figure 11**).

Having completed desktop evaluations of all the Company's gold and nickel sulphide plays in WA, initial drill testing was completed at **Mt Zephyr** with 135 aircore holes for 2,765 metres and 22 RC holes for 1,310 metre, and at Big Four in the **Bardoc Tectonic Zone** 110 aircore holes for 2,762 metres.

### Mt Zephyr

#### Gale Gold Prospect

Ardea's first drill-holes at Gale have successfully defined broad intercepts of strong gold anomalism using wide-spaced drilling (160x160 metre pattern) across the sub-cropping part of the prospect (see **Figure 10**).

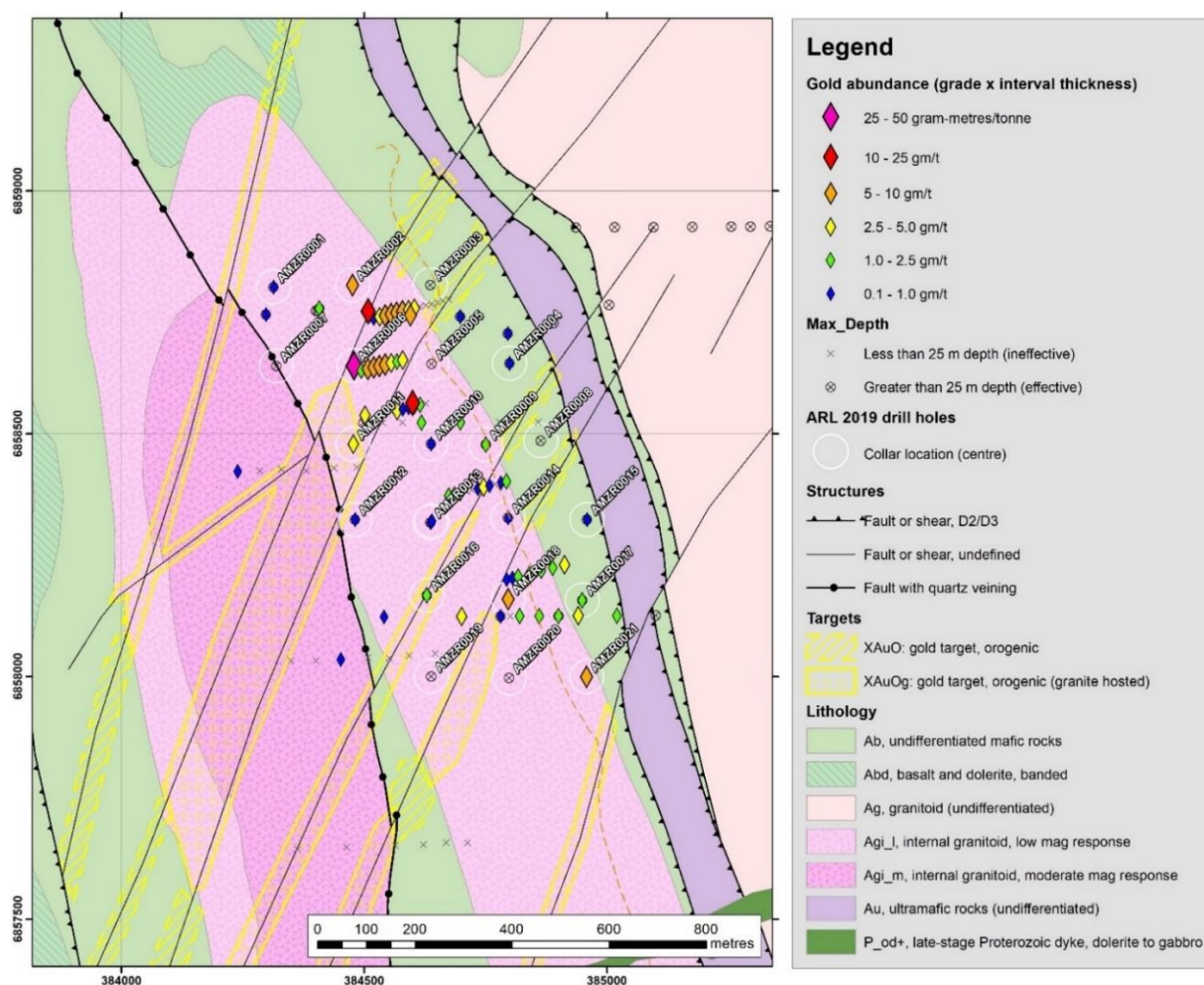


Figure 10: Results of Ardea's initial drill program at Gale (white circles) are shown in context of all available historic drill results. Results are shown as grade-metre values (where grade is multiplied by the thickness of the intercept) to provide a plot of the distribution of gold. Based on observations from the first program, a series of targets (yellow cross-hatching) are shown.



Presently these vertical gold intercepts must be taken as down hole lengths only, as the orientations of the controlling structures are unknown (but likely steep), so true thicknesses cannot be determined (refer Ardea ASX announcement 11 April 2019 for JORC 2012 Table 1). Intercepts include:

- AMZR0006: **96m at 0.28 g/t Au** from 2m  
*including 22m at 0.48 g/t Au from 10m*
- AMZR0021: 24m at 0.24 g/t Au from 4m
- AMZR0002: **22m at 0.25 g/t Au** from 6m  
*including 4m at 0.79 g/t Au from 6m*
- AMZR0018: 20m at 0.20 g/t Au from 44m

The host granitoid is interpreted to be a syenite, based on high REE backgrounds. The syenite is strongly pyrite-sericite altered, with up to 2g/t Ag and 168ppm Mo. Results suggest that late-stage NE-striking structures that cross-cut the Gale syenite are host to the gold mineralisation. Though none of the broad intercepts are of mineable grade, they represent a strong anomaly showing that there has been a significant flux of gold mineralising fluids through the rock sequence at Gale.

Based on AMZD0006 and adjoining historic drill-holes, a NE/SW fault system striking 1000m, say 50m wide and continuous to 100m depth is indicated (AMZD0006 stopped at 98m due to drill bit failure in 0.4g/t Au associated spatially with hole near-peaks of 600ppm As, 30ppm Mo, 0.8% S, 2.5% K, 110ppm Rb (K-Rb indicating sericite alteration) and overall increasing Alteration Index (i.e. potential for system to improve with depth).

The Mt Zephyr-Darlot East metallogenic model for Ardea's 910km<sup>2</sup> tenement holding is:

- The gold structural target is the shallow east-dipping Celia Lineament and 10km to the east (from north to south localises the Jupiter, Wallaby, Sunrise Dam gold mining centres).
- Syenite-host, Ardea assaying confirms an alkaline igneous association with distinctive Ba-Sr-Ce-La-Nd association, alteration is dominantly pyrite with subordinate sericite, and alteration chemistry dominantly anomalous As-Mo-W.

Follow-up is planned, since the Gale vertical drill-hole orientation assumed flat target structures comparable to the Jupiter syenite-hosted gold located on the host Celia Lineament some 50km south. Based on the recent Ardea drilling, the Gale NE Fault is assumed to be a steep structure, so inclined follow-up drill-holes are required.

### **Jones A Nickel Sulphide Prospect**

Reconnaissance aircore drilling at Mt Zephyr at Jones A defined nickel sulphide and VMS exhalative targets for follow-up:

- Jones A nickel sulphide, drill-hole AMZA0015 up to 0.23% Ni, 0.04% Cu, 0.06% Co, 25ppb Pd, 25ppb Pt, 28.6% Fe (gossan), 5.2% S (as surface gypsum), 3.6% Mn, 1.0% Cr, hosted by weathered ultramafic.
- Jones A VMS, AMZA0015 up to 1.7g/t Ag, 0.08% Cu, 141ppm Ce in altered basalt.
- Jones A nickel sulphide, AMZA0022 up to **0.83% Ni**, 0.02% Cu, 0.03% Co, 20.6% Fe, 2.4% S (as surface gypsum), 0.4% Cr in ultramafic.

The AMZA0015 and 22 targets warrant follow up ground EM, prior to any RC testing.

### **Dunn's Line Prospect**

Aircore drilling at Dunn's Line and Dunn's Line North confirmed highly REE-enriched mafic and syenite systems, and intersected a peak gold assay of 0.4 g/t Au, from 14 to 16 metres, within a lateritised felsic, in AMZA0126, which went to 18 metres depth. This result requires follow up drilling to determine its significance.

Of interest, laterite developed on alkaline mafic rocks has a uniform scandium-vanadium anomaly of 50-140g/t Sc with consistent 0.1% V and up to 0.13% Co. The presence of a layered mafic complex is suggested.

The alkaline setting is confirmed by aircore hole AMZA0061 with up to 0.6% Ba, 384ppm Ce, 199ppm La, 217ppm Nd, 54ppm Pr and 36ppm Sm.

## **Bardoc Tectonic Zone**

### **Big Four Magnesite and Gold Prospects**

Aircore drilling targeting gold mineralisation at Big Four commenced. This program is designed to identify gold anomalism located at the eastern contact of the Walter Williams Formation (WWF) nickel laterite mineralisation within the Siberia Komatiite and within the structural influence of the Bardoc Tectonic Zone (BTZ).

The drilling was on a nominal 320x80m pattern using existing grid lines and tracks and was designed to test structural and magnetic targets for gold in an area of minimal previous drilling.

The area of aircore drilling is also the planned site for GNCP Big Four waste rock landforms and infrastructure, so locations with gold potential needed to be evaluated as previous explorers identified the Big Four, Zeus and Dionysus gold prospects that have been traversed in this aircore drilling program. Results are pending. Initial drilling was focussed in the northern Big Four area east of the WWF, as it is closest to the proposed GNCP plant site.

Phase 1 aircore drilling with initial drill data interpretation was completed for Big Four (refer Ardea ASX announcements 8 October 2018 and 11 April 2019 for description of standard Ardea JORC 2012 Table 1 Sampling Techniques and Reporting):

- Aircore drill-hole ABFA0001 is located some 2km south of the proposed GNCP plant site and has indicated a potentially significant magnesite discovery, 6-25m (EOH) being 19m of 14.4-20.4% Mg and 27-38% LOI occurring as white porcellanous (cryptocrystalline) magnesite.
- ABFA0044 VMS target, up to 2.5g/t Ag, 0.09% Cu, 0.03% Zn, 0.4% Mn, 172ppm Ce, 107ppm Nd within an altered basalt in the Black Flag Bed volcanoclastics.
- ABFA0049 VMS target, 0.7g/t Ag, 0.04% Cu, 5.2% S, 0.5% Mn within an altered basalt.
- ABFA0059 Gold-VMS target, up to 0.2g/t Au, 0.03% Cu, 0.03% Zn within an altered basalt.
- ABFA0106 VMS target, up to 0.5g/t Ag, 0.1g/t Re, 0.17% Zn, 0.3% Mn, 45ppm Ce, 78ppm Nd within an altered basalt.

The drilling has identified a clearly alkaline dacitic volcanoclastic stratigraphy within the predominant mafic volcanic suite of the Siberia Komatiite which overlies the WWF.

Likely feeder dykes for the dacitic flows are identically finger-printed in the dykes intersected in the WWF laterite drilling which show a strong spatial association with gold intercepts within the nickel laterite succession.

A comprehensive RC follow up program is required once all Big Four aircore drilling is completed. In particular, the ABFA0001 magnesite discovery requires an RC drill out. The location is ideal as a starter pit for GNCP neutraliser mining ahead of Year 1 laterite mining.

### **Lady Isobel Gold Prospect**

Lady Isobel is associated with the BTZ at the northeast contact of the Ghost Rocks WWF nickel laterite. The Lady Isobel line of lode includes a major, historic underlay shaft, with mullock assays of up to 5.3g/t Au (Ardea Prospectus). Approval has been sought for a follow up soil auger drilling program.

### **Twelve Mile Base Metal Prospect**

Up to 0.6% Ni with 14.3% Cu occurs in historic 1969 and 1974 rock-chip samples. Approval has been sought for a follow up soil auger drilling program.

### **Ghost Rocks Southeast Gold and Nickel Prospect**

Tenure was purchased from prospectors as well as ground pegged to consolidate tenure southeast along strike from the Ghost Rocks nickel laterite, nickel sulphide and gold prospects.

Approval is being prepared for a soil auger drilling program.

## **Perrinvale**

Grant of tenure is targeted during the June Quarter.

The Ardea exploration target is based on recent nickel sulphide discoveries immediately west of Perrinvale which occurrences have an ENE strike towards Perrinvale. Nickel sulphide prospects are overlain by thick cover, so geophysical methods will be employed to facilitate targeting.

Any nickel sulphide occurrence located at Perrinvale could be potential GNCP autoclave feed, to provide additional sulphur and nickel units to the reaction vessel.

## **Bedonia**

The metallogenic model at Bedonia was nickel sulphide and PGM associated with the Proterozoic-aged Jimberlana Dyke, with mineralisation at an historic prospect, Mordicus, as the proof of concept. Field programs by Ardea identified targets at the Cleanthes and Lila gold prospects (historic drilling up to 2.7g/t Au) located on the Cunderlee Fault at Albany Fraser Province western boundary.

Soil auger drilling programs have been defined and heritage clearance programs have been sought.

## **Mulga Plum**

The recently acquired Mulga Plum Prospect is a gold-base metal VMS target located 40km NE of Menzies between Ardea's Menzies and Aubils projects (see **Figure 11**).

Field reconnaissance and sampling was completed following which an option was entered with a prospector. Significant gold workings are present within a NE trending structural corridor. Historic drilling which tested the target assumed a N-S strike, with drilling failing to replicate the gold grades seen in surface workings.

The field reconnaissance also confirmed a significant strike and thickness of gossan likely derived from the weathering of massive sulphides (pyrite-pyrrhotite dominant). As well as being a Jaguar-Bentley style base metal VMS target, the prospect could have potential to be a future strategic source of sulphur (for sulphuric acid production) for the GNCP. Sample results are pending.



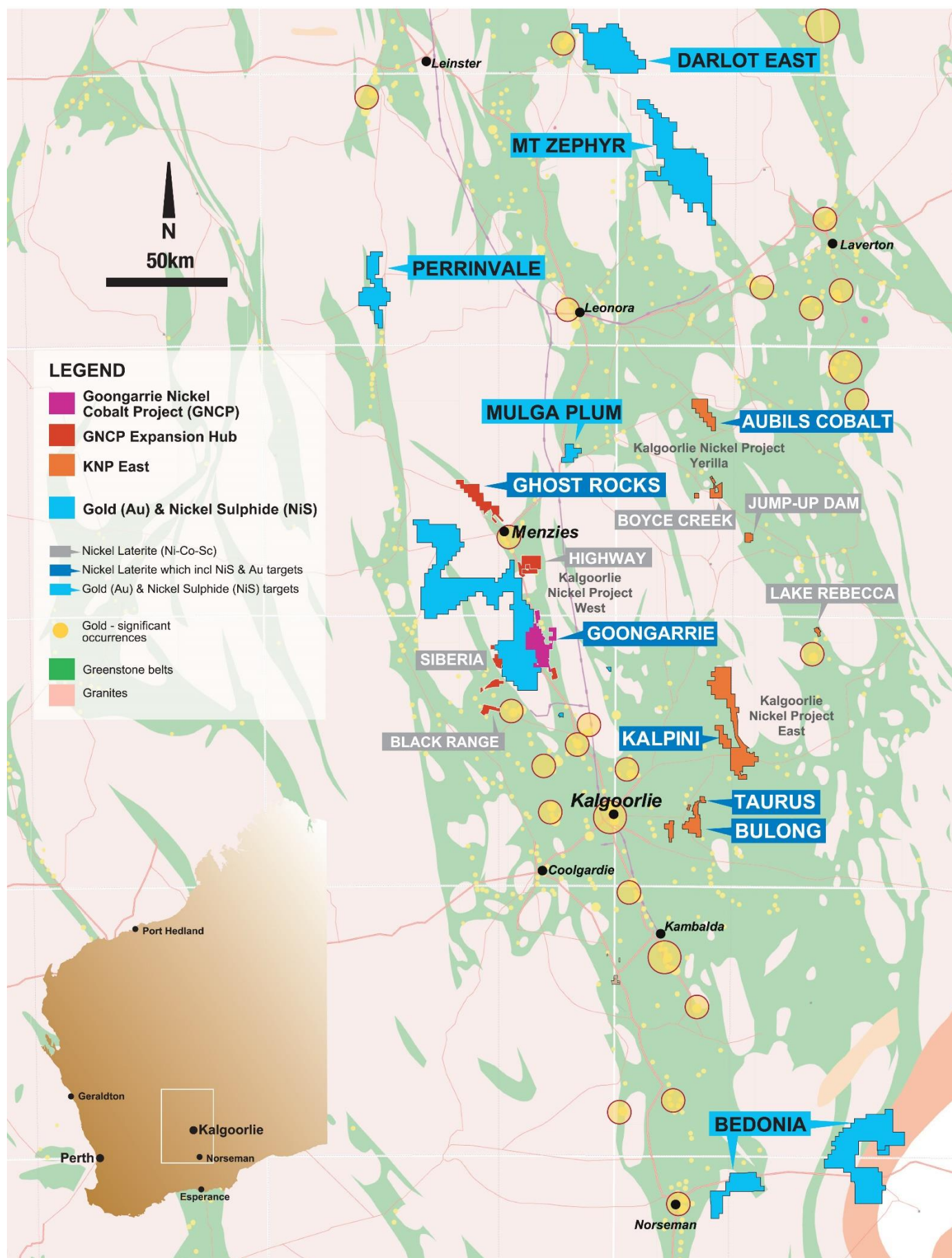


Figure 11: Ardea's Western Australian projects



### 3. NSW Gold and Base metals projects (100% Ardea)

The planned lodging of the prospectus for IPO of Ardea's NSW mineral assets is on track for Half 2, 2019.

Ardea controls a suite of highly-prospective tenements in NSW within the Lachlan Fold Belt (see **Figure 12**) which hosts multiple bulk-tonnage deposits such as Northparkes, Cadia-Ridgeway and Cowal.

Data validation and resource estimation is underway for Lewis Ponds and Mt Aubrey. At the Yeoval, Copper Hill East, Ophir and Wiseman's Creek projects located on the Lachlan Transverse Zone and at Gundagai, historic exploration data has been compiled and where access was secured, soil auger or conventional manual soil geochemistry was completed over targets in order to firm up drilling programs. Data compilation is current at Calarie and Restdown, and land access negotiations commenced.

The following projects summary is based on information provided in the 29 April 2019 ASX release, Ardea advances NSW Gold and Base Metals IPO.

#### Lachlan Fold Belt copper-gold, NSW

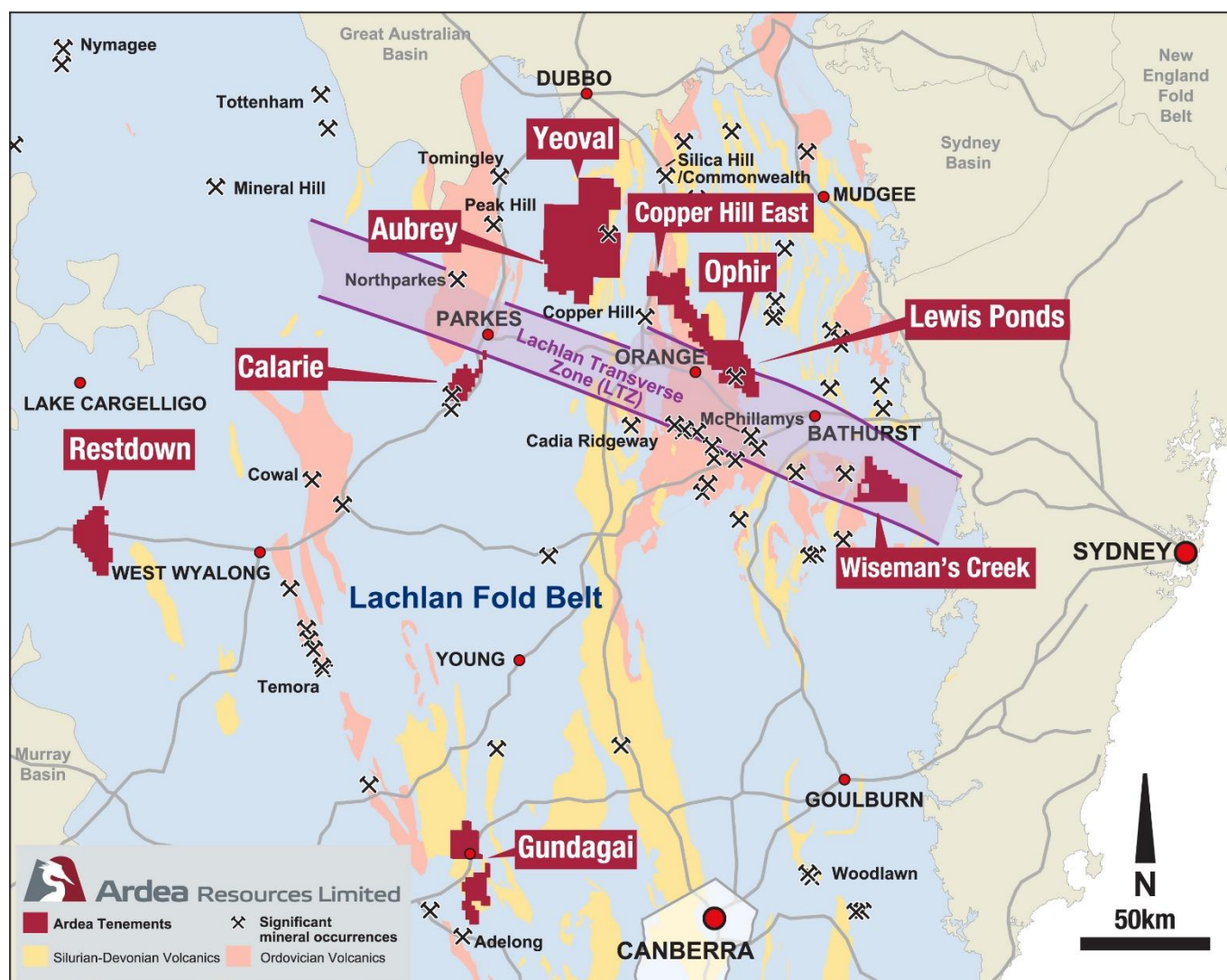


Figure 12: Ardea's projects in the highly prospective Lachlan Fold Belt of NSW.

## Lewis Ponds, NSW (Lewis Ponds, Ophir and Copper Hill East gold-base metal project – EL5583, 8323 and 8556)

These projects cover a 50km strike length of the highly prospective Godolphin-Copperhania Thrust, which hosts Volcanogenic Massive Sulphide (VMS) base metal deposits notably at Lewis Ponds and significant orogenic shear-hosted gold deposits including the McPhillamys deposit some 20km south of Lewis Ponds.

Historic Lewis Ponds hard-copy drill data was acquired and has been digitised as part of re-interpretation of Lewis Ponds as a bulk-tonnage system.

The Lewis Ponds data base compilation has proved challenging, with some historic holes geologically logged up to four times, often with differing geology rock-codes, which requires consolidation into Ardea's single digital data base. The target is to complete the new resource estimation to JORC-2012 requirements prior to the IPO.

### Copper Hill East

The geological setting is favourable, being Macquarie Arc andesite (Fairbridge Volcanics). The aim is to locate porphyry copper style intrusives of the Copper Hill style which is located 15km west. Soil auger geochemistry (see **Figure 13** and **14**) defined a zoned copper anomaly exceeding 200ppm associated with a likely dioritic intrusive complex. Geophysical modelling is planned in order to generate drilling targets.

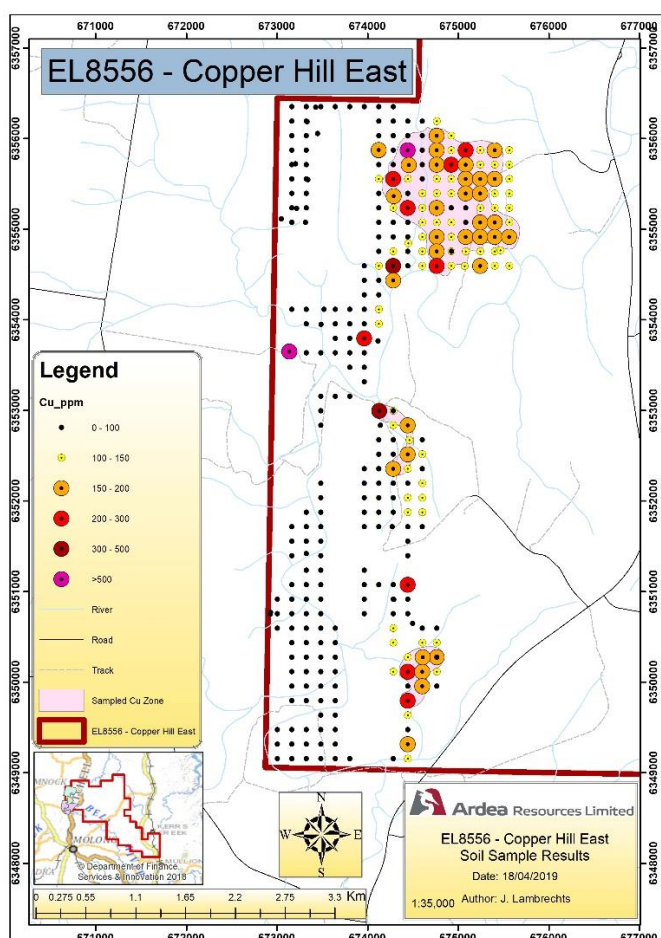


Figure 13: Copper Hill East, Copper (ppm) in soil auger drilling.

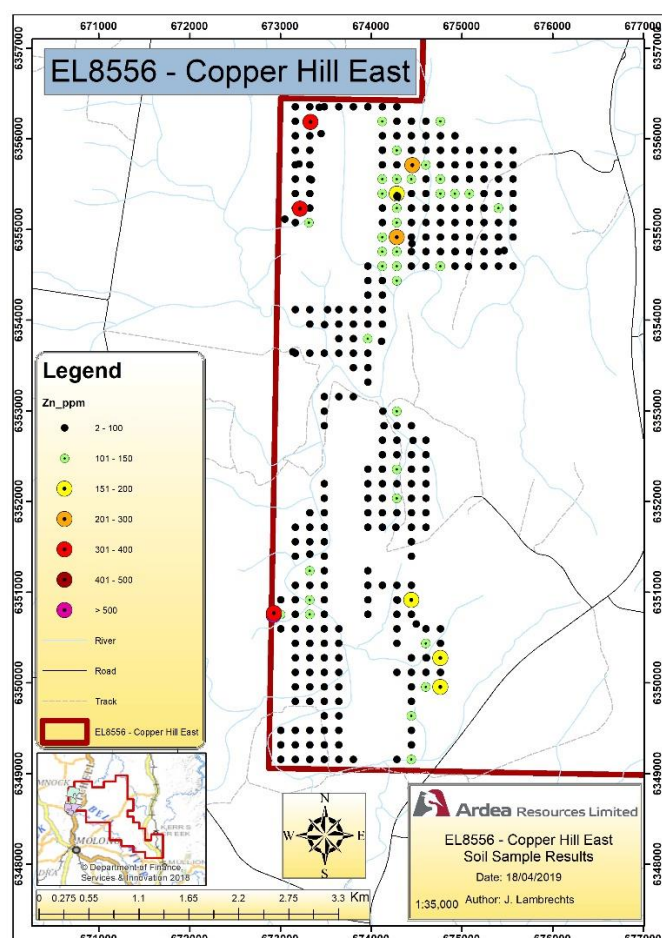


Figure 14: Copper Hill East, Zinc (ppm) in soil auger drilling.



## Mt Aubrey epithermal gold-silver project – EL8532

Mt Aubrey is located at the east contact of the highly mineralised Macquarie Arc Ordovician andesites some 30km northeast of Parkes and 30km southeast of the historic Peak Hill epithermal gold mine.

Mt Aubrey was acquired by Ardea as an epithermal gold system. Gold mineralisation is typically hosted by 0.5–3m thick chalcedonic epithermal quartz veins and stockworks.

A historical data review was completed for the Mount Aubrey epithermal gold vein system. Three small pits mined the deposit in the 1980s and were then back-filled. End of mine open pit surveys have not been located, to account for the mined material, so a resource following JORC 2012 guide lines cannot yet be defined. Ardea expects to be able to generate a compliant resource by completing approximately 900m of confirmatory RC drilling and a ground penetrating radar survey to define the backfilled open pits.

Soil auger drilling was completed on targets defined from Ardea's compilation of historic work, with multiple anomalies defined in preliminary results (refer Appendix from Ardea ASX release 29 April 2019 for JORC 2012 Table 1 Sampling Techniques and Reporting). Ground truthing and follow up of targets is planned:

- Samples ARMA190061-077, **Epithermal Gold, 22-103ppb Au**, 51-155ppm As, 3.8-10.7ppm Sb, 40-92ppm Cu, 50-191ppm Zn, 250-920ppm Mn, associated with strongly chlorite-altered basalt.
- Sample ARMA190109, **Epithermal Gold, 80ppb Au**, 129ppm As, 14.6ppm Sb, associated with strongly chlorite-altered basalt.

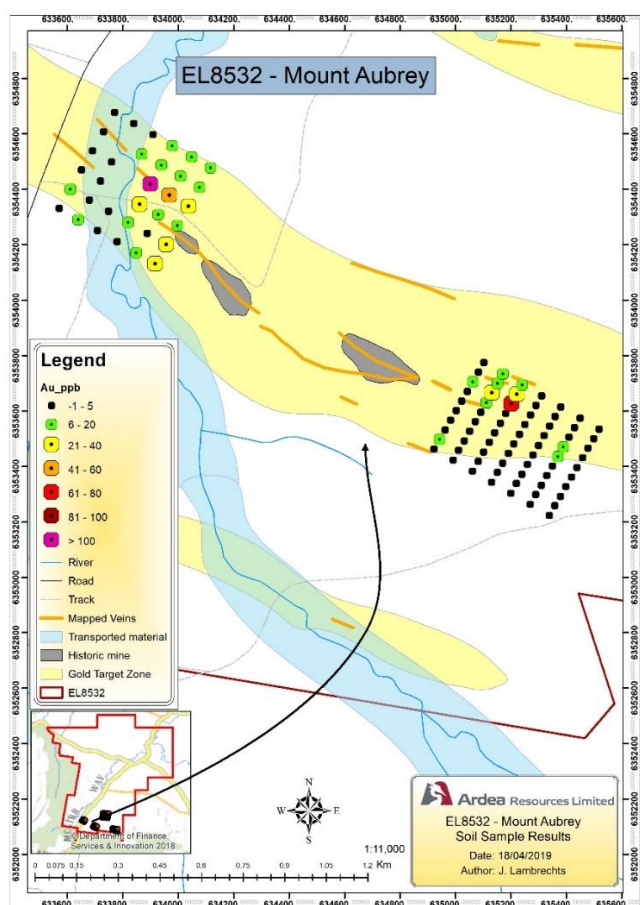


Figure 15: Mt Aubrey West, Gold (ppb) in soil auger drilling, gold anomalism is associated with mapped epithermal quartz veins, up to 103ppb Au.

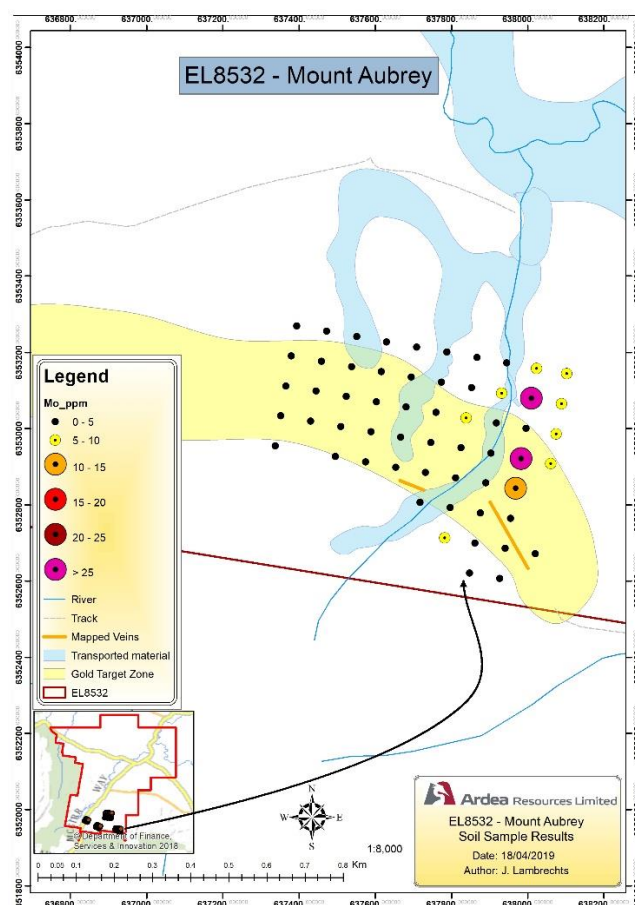


Figure 16: Mt Aubrey Emu Swamp, Molybdenum (ppm) in soil auger drilling, up to 108ppm Mo.

Base metal targets were defined peripheral to the gold targets:

- Samples ARMA190118-121, Epithermal Zinc-REE, 116-204ppm Zn, 0.3-0.8ppm Ge, 267-500ppm Ce, 99-350ppm La, associated with strongly sericite-altered rhyolite.
- Samples ARMA190130-131, Epithermal Zinc-REE, 146-202ppm Zn, 0.2-0.4ppm Ge, 159-500ppm Ce, 93-231ppm La, associated with strongly sericite-altered rhyolite.

A high priority molybdenum target was generated at Emu Swamp east of the Mount Aubrey pits. Samples ARMA190206-217, **Porphyry Molybdenum, 8-108ppm Mo**, 0.2-0.9g/t Ag, 40-237ppm As, 54-209ppm Zn, 244-500ppm Ce, associated with strongly sericite-altered rhyolite.

Additional tenure was applied for to cover the eastern strike extension of the Emu Swamp target.

## Yeoval Porphyry copper-gold-molybdenum-rhenium project – EL8538

Yeoval is located within the Macquarie Arc, 60km northeast of the Northparkes copper-gold mine. The tenement covers an area of 138km<sup>2</sup> and is intensely mineralised with more than 60 historic copper workings trending in a north-easterly direction along a 20km strike. The Ardea exploration target is a large tonnage porphyry copper-gold-molybdenum-rhenium system.

Soil auger geochemistry was completed over a 2km N-S strike covering small historic copper workings. Ardea rock-chip sampling of 16 representative rocks returned up to 0.47% Cu with variously 1.7g/t Ag, 59ppm Mo, 99ppm W, 42ppm Se and 27ppm Se. This is a typical porphyry copper metal suite.

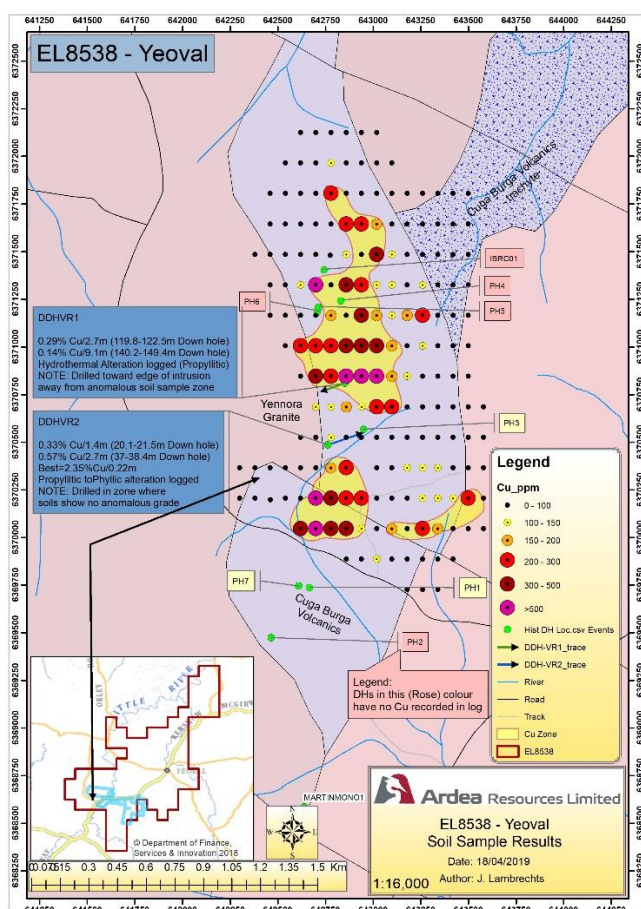


Figure 17: Yeoval, Copper (ppm) in soil auger drilling.

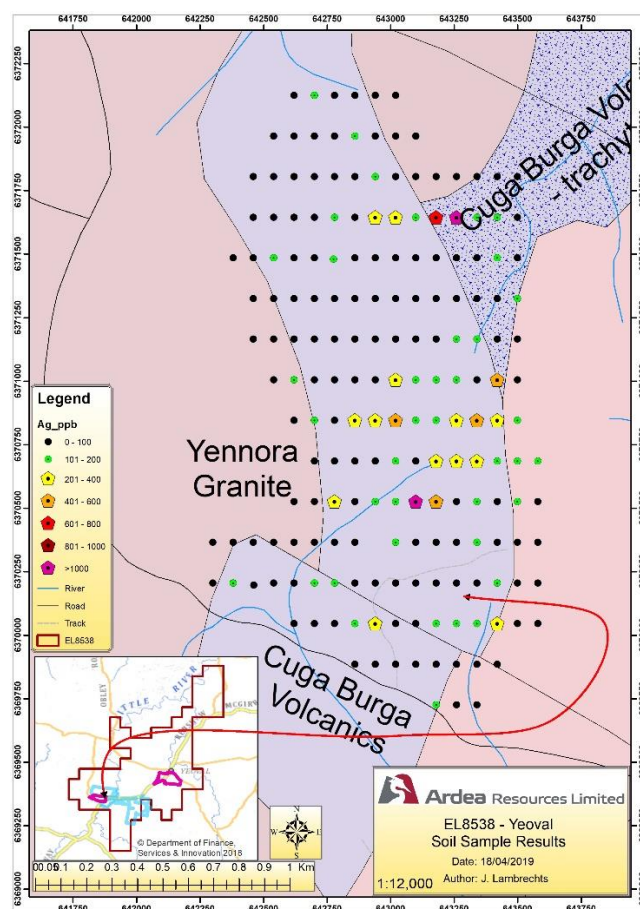


Figure 18: Yeoval, Silver (ppb) in soil auger drilling, silver anomalism is a more distal dispersion halo.



The initial soil auger geochemistry results at Yeoval returned a strong anomaly of up to 1,720ppm Cu, with variously 23ppb Au and 9ppm Mo, associated with strongly chlorite-calcite-pyrite altered basalt within the predominant felsic sequence. The copper often has anomalous silver at its margin up to 1,230ppb, giving the impression of a large zoned alteration system. There is also anomalous Se to 30ppm and Te to 10.7ppm, suggesting a higher level “epithermal” setting.

The copper anomaly has a N-S strike of 1,920m and width of 560-1,120m, so has the potential for a bulk tonnage copper system. The specific target being explored for is a deep potassic alteration system, rather than the predominantly upper level chlorite-calcite dominant propylitic system as seen in Yeoval outcrop and within the multi-element rock and soil auger data (see **Figure 17** and **18**).

There are desultory historic drill holes present within the anomaly, which have copper anomalism but not bulk tonnage intercepts, so do not reflect the observed soil anomaly.

### Wiseman’s Creek gold-copper project – EL8554

Wiseman’s Creek is located 35 km southeast of Bathurst, NSW, around the logging town of Oberon. Epithermal gold mineralisation within the tenure is hosted largely within Late Silurian to Early Devonian-aged sediments, with geology through the centre of the tenure comprising the andesitic Ordovician-aged Rockley Volcanics (equivalent units host the Cadia and Northparkes gold-copper operations).

Further land access negotiations are current for target areas defined by the current GIS compilations.

### Gundagai gold-copper project – EL8061 & 8586

The Gundagai tenements are located 315km southwest of Sydney. Several old gold workings hosted by mineralised porphyry units exist in the Ardea tenure, with historic RC drilling returning up to 20 metres at 1.58g/t gold within a quartz-limonite-pyrolusite stockwork system. The Big Ben mineralised system is open to the south, under alluvial cover. Previous historic soil sampling located a >100ppb Au anomaly associated with and to the east of the Big Ben mineralisation.

Based on the Big Ben mineralisation style and the potential for a large-scale system, Ardea completed soil auger drilling over defined targets.

#### Big Ben East

Preliminary Ardea soil auger results were interpreted, confirming several felsic-hosted gold-copper targets (see **Figure 19** and **20**).

Ground truthing and follow up of targets is planned, focussed on the following sample sites:

- ARGS190059, 060 up to 53ppb Au, 0.7g/t Ag, 0.7ppm Te, 140ppm Cu, 114ppm Pb, 0.08% S
- ARGS190067, 069 up to **78ppb Au**, 0.6g/t Ag, 1.0ppm Te, 184ppm Cu, 0.10% S
- ARGS190114 **94ppb Au**
- ARGS190115-117 up to **767ppm Cu**, 140ppm Zn,
- ARGS190173 61ppb Au

The Big Ben East soil gold anomaly is comparable to the Big Ben anomaly, which has historic economic drill intercepts. Big Ben East accordingly is a walk-up drill target.

Of particular interest, there is very strong pyrolusite (manganese oxide) associated with the outcropping Big Ben mineralisation. Ardea’s auger geochemistry records very high manganese backgrounds uniformly throughout the entire Gundagai sampled area. This may be a significant pathfinder as a halo to gold mineralisation and will be investigated during follow-up surface sampling.

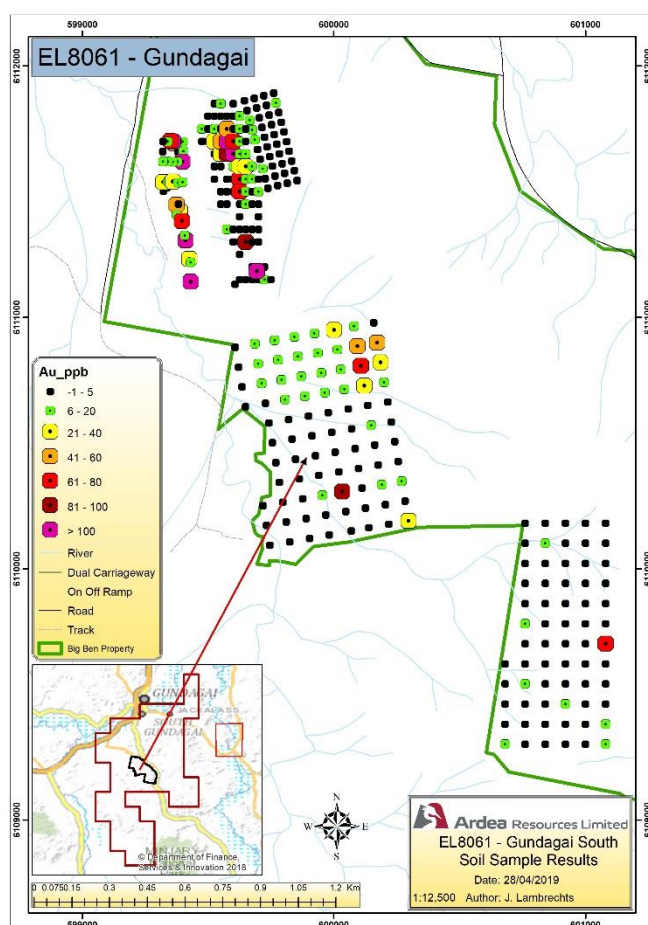


Figure 19: Gundagai, Gold (ppb) in soil auger drilling. Known mineralisation is Big Ben in the northwest of the sampled area.

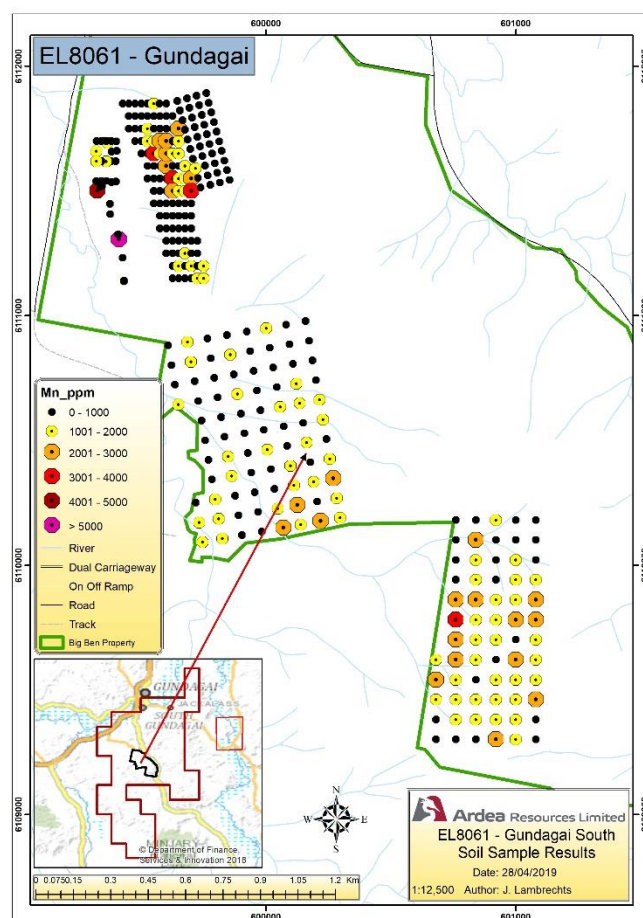


Figure 20: Gundagai, Manganese (ppm) in soil auger drilling, strong association with gold anomalism at Big Ben in the northwest, so the large southeast manganese anomaly is of interest as a dispersion halo.

## 4. Corporate

### Strategy and Leadership

With Andrew Penkethman now appointed as CEO, the priority is the Strategic Partner program for the GNCP, followed by drill appraisal of exploration targets developing across the gold and nickel sulphide targets in WA, and the IPO of the NSW assets.

### Finance

The Company's cash position is **\$10.7M** at Quarter end.

Issued capital at 31 March 2019 was 106,145,424 shares, the increase resulting from the exercise of 1,155,011 IPO options at \$0.25.

## 5. Looking Forward

During the June 2019 Quarter, Ardea will focus upon the following programs.

### Goongarrie Nickel Cobalt Project

Continue work on pre-Definitive Feasibility Study associated programs focussed on studies related to mine scheduling and approvals.

### Strategic Partner Process

KPMG is continuing to advance discussions with interested parties and Ardea will keep the market informed of progress.

### Resource Upgrades

The Company is currently working on resource modelling for the areas covering the Goongarrie South, Big Four and Scotia Dam optimised pits, to allow detailed mine scheduling including ore, neutraliser and waste/tailings back-fill.

### Project Acquisitions

The Company has continued to acquire additional strategic tenure where adjoining the KNP/GNCP and NSW IPO properties.

### GNCP Flowsheet Research and Development

Complete reporting for metallurgical programs notably the neutraliser bench-scale testing and research.

### WA Gold and Nickel Sulphide projects

Work will continue to target gold along the Bardoc Tectonic Zone at Goongarrie and the GNCP, which is likely to be the main focus over the coming months. Refinement of targets and a second program will be designed for Gale, and new work will commence on a series of gold prospects in the Eastern Goldfields. WA Gold, soil auger drilling programs will commence at Ghost Rocks and results will be reported as assays are received and interpreted.

### NSW Gold and Base Metals projects

#### Lewis Ponds (NSW)

The Ardea team working on the NSW projects will continue to advance Lewis Ponds as the key resource asset for a spin-out with in-specie share distribution.

Soil auger programs were completed at Mt Aubrey, Yeoval, Copper Hill East and Gundagai, with identified targets to be followed up. Notably, an epithermal gold Exploration Target is being finalised using historic gold mine drill data from Mt Aubrey.

NSW technical report compilation continues as part of the IPO process.



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

**Ardea Resources:**

Andrew Penkethman

Chief Executive Officer, Ardea Resources Limited

Tel +61 8 6244 5136

**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 July 2014, October 2016, 2016 Heron Resources Annual Report and 6 January 2017;*
- 2. KNP Cobalt Zone Study on 7 August 2017, PFS 28 March 2018 and Expansion Study 24 July 2018;*
- 3. Goongarrie Nickel Cobalt Project, Supplementary Prospectuses 10 February 2017, Ardea Annual Report Nov 2017, ASX announcements 28 June 2017, 4 July 2017, 28 August 2017, 14 March 2018, 24 July 2018, 8 October 2018;*
- 4. Lewis Ponds 2016 Heron Resources Annual Report, Ardea Resources Prospectus November 2016, Ardea Supplementary Prospectuses 10 February 2017, ASX announcements 9 March 2017, 16 March 2017, 26 April 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 are subject to new work programs, notably drilling, metallurgy and JORC Code 2012 resource estimation as applicable.*

*The information in this report that relates to Exploration Results and Resource Estimates for the Goongarrie Nickel Cobalt Project is based on information originally compiled by previous and current full-time employees of Heron Resources Limited and current full-time employees of Ardea Resources Limited. The Exploration Results, Resource Estimates 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 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.*

**ASX CHAPTER 5 COMPLIANCE AND PFS CAUTIONARY STATEMENT**

*The Company has concluded that it has a reasonable basis for providing the forward-looking statements and forecast financial information included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and all material assumptions, including the JORC modifying factors, upon which the forecast financial information is based are disclosed in this announcement. This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules.*

*The actual results could differ materially from a conclusion, forecast or projection in the forward-looking information. Certain material factors were applied in drawing a conclusion or making a forecast or projection as reflected in the forward-looking information.*

*The Goongarrie Nickel Cobalt Project is at the PFS phase and although reasonable care has been taken to ensure that the facts are accurate and/or that the opinions expressed are fair and reasonable, no reliance can be placed for any purpose whatsoever on the information contained in this document or on its completeness. Actual results and developments of projects and the scandium market development may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.*



A key conclusion of the PFS and Expansion Study, which are based on forward looking statements, is that the Goongarrie Nickel Cobalt Project is considered to have positive economic potential.

The Mineral Resource used for the PFS was classified under JORC 2012 Guidelines and announced by the Company on 14 March 2018. The cut-off grades adapted for the PFS and reported in Table 3.1 are the basis of the production target assumed for the PFS.

The Company believes it has a reasonable basis to expect to be able to fund and further develop the Goongarrie Nickel Cobalt Project. However, there is no certainty that the Company can raise funding when required.

#### **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 programs, 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, 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.**

## 10.1

### Interests in mining tenements and petroleum tenements lapsed, relinquished or reduced

Ardea WA Tenements				
Tenure	Location	Nature of Interest	Ardea interest beginning Quarter	Ardea interest end Quarter
G29/24	Goongarrie Nickel Cobalt	Withdrawn	100%	0
E31/1204	Yerilla	Withdrawn	100%	0
E31/1205	Yerilla	Withdrawn	100%	0
E31/1206	Yerilla	Withdrawn	100%	0
E31/1207	Yerilla	Withdrawn	100%	0

Ardea NSW Tenements				
0	0	0	0	0

## 10.2

### Interests in mining tenements and petroleum tenements acquired or increased

Ardea WA Tenements				
Tenure	Location	Nature of Interest (current)	Ardea interest beginning Quarter	Ardea interest end Quarter
G29/25	Goongarrie Nickel Cobalt	Pending	0	100%
P24/5328	Goongarrie Nickel Cobalt	Pending	0	100%
P24/5329	Goongarrie Nickel Cobalt	Pending	0	100%
P25/2613	Bulong	Pending	0	100%
P25/2614	Bulong	Pending	0	100%
P25/2615	Bulong	Pending	0	100%
E31/1208	Boyce Creek	Pending	0	100%

Ardea NSW Tenements				
EL 5780	Mt Aubrey	Pending	0	100%

### Ardea Resources Ltd Tenement Schedule (WA) as at 31 March 2019

#### Goongarrie Nickel Cobalt Project

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
E29/1060	Goongarrie Nickel Cobalt	100%	Pending		M24/0541	Goongarrie Nickel Cobalt	100%	Live	
E29/1061	Goongarrie Nickel Cobalt	100%	Pending		M24/0731	Goongarrie Nickel Cobalt	100%	Live	3.7
E24/0211	Goongarrie Nickel Cobalt	100%	Pending		M24/0732	Goongarrie Nickel Cobalt	100%	Live	3.7
E29/0934	Goongarrie Nickel Cobalt	100%	Live		M24/0744	Goongarrie Nickel Cobalt	100%	Live	7
E29/1028	Goongarrie Nickel Cobalt	100%	Pending		M24/0778	Goongarrie Nickel Cobalt	100%	Live	3
E29/1038	Goongarrie Nickel Cobalt	100%	Live		M29/0167	Goongarrie Nickel Cobalt	100%	Live	
E29/1039	Goongarrie Nickel Cobalt	100%	Pending		M29/0202	Goongarrie Nickel Cobalt	100%	Live	
E30/0500	Goongarrie Nickel Cobalt	100%	Live		M29/0272	Goongarrie Nickel Cobalt	100%	Live	
E30/0501	Goongarrie Nickel Cobalt	100%	Pending		M29/0278	Goongarrie Nickel Cobalt	100%	Live	
E30/0502	Goongarrie Nickel Cobalt	100%	Pending		M29/0423	Goongarrie Nickel Cobalt	100%	Live	
G29/0024	Goongarrie Nickel Cobalt	100%	Pending		M29/0424	Goongarrie Nickel Cobalt	100%	Pending	
L24/0239	Goongarrie Nickel Cobalt	100%	Pending		M29/0426	Goongarrie Nickel Cobalt	100%	Pending	
L29/0134	Goongarrie Nickel Cobalt	100%	Live		P29/2265	Goongarrie Nickel Cobalt	100%	Live	
L29/0135	Goongarrie Nickel Cobalt	100%	Live		P24/5260	Goongarrie Nickel Cobalt	100%	Pending	
L30/0067	Goongarrie Nickel Cobalt	100%	Live		P24/5265	Goongarrie Nickel Cobalt	100%	Live	
L30/0068	Goongarrie Nickel Cobalt	100%	Live		M24/0797	GNCP Expansion Siberia	100% Ni lat	Live	5
M24/0919	GNCP Expansion Scotia South	100% Ni lat	Live	9	M24/0915	GNCP Expansion Siberia	100% Ni lat	Live	5

**Goongarrie Nickel Cobalt Project Expansion Case**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
M24/0959	GNCPP Expansion Goongarrie	100% Ni lat	Live	9	M24/0916	GNCPP Expansion Siberia	100% Ni lat	Live	5
E29/1045	GNCPP Expansion Highway	100%	Pending		P24/5235	GNCPP Expansion	100%	Pending	
E29/1048	GNCPP Expansion Highway	100%	Pending		P24/5236	GNCPP Expansion	100%	Pending	
M29/0214	GNCPP Expansion Highway	100%	Live		P29/2484	GNCPP Expansion	100%	Pending	
E24/0203	GNCPP Expansion Siberia	100% Ni lat	Live	5	P29/2485	GNCPP Expansion	100%	Pending	
E29/0889	GNCPP Expansion Siberia	100% Ni lat	Live	5	M24/0757	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0634	GNCPP Expansion Siberia	100% Ni lat	Live	1,5	M24/0973	GNCPP Expans Black Range	100% Ni lat	Pending	5
M24/0660	GNCPP Expansion Siberia	100% Ni lat	Live	5	P24/4395	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0663	GNCPP Expansion Siberia	100% Ni lat	Live	5	P24/4396	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0664	GNCPP Expansion Siberia	100% Ni lat	Live	5	P24/4400	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0665	GNCPP Expansion Siberia	100% Ni lat	Live	2,5	P24/4401	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0683	GNCPP Expansion Siberia	100% Ni lat	Live	5	P24/4402	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0686	GNCPP Expansion Siberia	100% Ni lat	Live	5	P24/4403	GNCPP Expans Black Range	100% Ni lat	Live	5
M24/0772	GNCPP Expansion Siberia	100% Ni lat	Live	5	P29/2512	GNCPP Expans Ghost Rock	100%	Pending	
E29/0941	GNCPP Expans Ghost Rock	100%	Live		P29/2513	GNCPP Expans Ghost Rock	100%	Pending	
P29/2501	GNCPP Expansion Highway	100%	Pending		P29/2514	GNCPP Expans Ghost Rock	100%	Pending	
P29/2511	GNCPP Expans Ghost Rock	100%	Pending		P29/2515	GNCPP Expans Ghost Rock	100%	Pending	
E29/0981	GNCPP Expans Ghost Rock	100%	Granted						

**Kalpini Hub GNCPP Expansion Case**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
E27/0524	Kalpini	100%	Live		M25/0161	Kalpini Bulong	100%	Live	
E27/0606	Kalpini	100%	Live		M25/0171	Kalpini Bulong	100%	Live	
E27/0607	Kalpini	100%	Live		M25/0187	Kalpini Boulder Block	100%	Live	
E28/1224	Kalpini	100%	Live		M25/0209	Kalpini Bulong	100%	Live	
E28/2807	Kalpini	100%	Pending		P25/2454	Kalpini Bulong	100%	Live	
M27/0395	Kalpini	100%	Live		P25/2455	Kalpini Bulong	100%	Live	
M27/0506	Kalpini	100%	Pending		P25/2456	Kalpini Bulong	100%	Live	
M28/0199	Kalpini	100%	Live		P25/2457	Kalpini Bulong	100%	Live	
M28/0201	Kalpini	100%	Live		P25/2458	Kalpini Bulong	100%	Live	
M28/0205	Kalpini	100%	Live		P25/2459	Kalpini Bulong	100%	Live	
E27/0278	Kalpini Pioneer	100% Ni lat	Live	8	P25/2460	Kalpini Bulong	100%	Live	
E28/1746	Kalpini Pioneer	100% Ni lat	Live	8	P25/2461	Kalpini Bulong	100%	Live	
E28/2483	Kalpini Pioneer	100% Ni lat	Live	8	P25/2482	Kalpini Bulong	100%	Live	
M31/0488	Kalpini Lake Rebecca	100%	Pending		P25/2483	Kalpini Bulong	100%	Live	
P31/2038	Kalpini Lake Rebecca	100%	Live		P25/2484	Kalpini Bulong	100%	Live	
P31/2039	Kalpini Lake Rebecca	100%	Live		P25/2559	Kalpini Bulong	100%	Pending	
P31/2040	Kalpini Lake Rebecca	100%	Live		P25/2560	Kalpini Bulong	100%	Pending	
E25/0576	Kalpini Bulong	100%	Pending		P25/2561	Kalpini Bulong	100%	Pending	
E25/0578	Kalpini Bulong	100%	Pending		P28/1337	Kalpini Bulong	100%	Pending	
M25/0059	Kalpini Bulong	100%	Live		P25/2591	Kalpini Bulong	100%	Pending	
M25/0134	Kalpini Bulong	100%	Live		P26/2609	Kalpini Bulong	100%	Pending	
M25/0145	Kalpini Bulong	100%	Live		P25/2455	Kalpini Bulong	100%	Live	
M25/0151	Kalpini Taurus	100%	Live						

**Yerilla Hub GNCPP Expansion Case**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
E39/1954	Yerilla Aubils	100%	Live	7	M31/0475	Yerilla Jump-up Dam	100%	Live	6
E31/1092	Yerilla Boyce Creek	100%	Live	6	M31/0477	Yerilla Jump-up Dam	100%	Live	6
E31/1169	Yerilla Boyce Creek	100%	Live		M31/0479	Yerilla Jump-up Dam	100%	Live	6
M31/0483	Yerilla Boyce Creek	100%	Live	6					

**Mt Zephyr Nickel-Gold**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
E37/1271	Mt Zephyr	100%	Live		E39/1706	Mt Zephyr	100%	Live	
E37/1272	Mt Zephyr	100%	Live		E39/1757	Mt Zephyr	100%	Live	
E37/1273	Mt Zephyr	100%	Live		E39/1854	Darlot East	100%	Live	
E37/1274	Mt Zephyr	100%	Live		E39/1985	Darlot East	100%	Live	



**Perrinvale Nickel-Gold**

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E29/1006	Perrinvale	100	Pending						

**Bedonia Nickel-Copper-PGM**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
E63/1928	Bedonia Ni-Cu-PGM	100%	Pending		E63/1930	Bedonia Ni-Cu-PGM	100%	Pending	
E63/1929	Bedonia Ni-Cu-PGM	100%	Pending		E63/1856	Jimberlana Ni-Cu-PGM	100%	Live	
E63/1827	Bedonia Ni-Cu-PGM	100%	Live		E63/1857	Jimberlana Ni-Cu-PGM	100%	Live	
E63/1828	Bedonia Ni-Cu-PGM	100%	Live						

**Donnelly River Graphite**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
E70/4804	Donnelly River	100	Pending						

**WA Regional, Mineral Rights**

Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
M15/1101	WA Regional	Pre-empt Ni lat	Live	10	M15/1323	WA Regional	Pre-empt Ni lat	Live	10
M15/1263	WA Regional	Pre-empt Ni lat	Live	10	M15/1338	WA Regional	Pre-empt Ni lat	Live	10
M15/1264	WA Regional	Pre-empt Ni lat	Live	10	E27/0300	WA Regional	100% Ni lat	Live	11

**Ardea Resources Ltd Tenement Schedule (NSW) as at 31 March 2019**

Ardea NSW Tenements									
Tenure	Location	Ardea Interest	Status	Note	Tenure	Location	Ardea Interest	Status	Note
EL5583	Lewis Ponds 15km E Orange	100%	Live	4	EL8555	Calarie 5km N Forbes	100%	Live	
EL8323	Lewis Ponds 10km NE Orange	100%	Live		EL8580	Calarie 10km N Forbes	100%	Live	
EL8556	Copper Hill East NE Orange	100%	Live		ML0739	Calarie 10km N Forbes	100%	Live	
EL8554	Wiseman Ck 27km SE Bathurst	100%	Live		EL8061	Gundagai 5km S Gundagai	100%	Live	
EL8538	Yeoval 22km SW Wellington	100%	Live		EL8586	Gundagai 5km N Gundagai	100%	Live	
EL8532	Mt Aubrey 30km NE Parkes	100%	Live		EL8557	Restdown 62km W of Wyalong	100%	Live	

**Notes:**

1. Britannia Gold Ltd retained precious metal rights.
2. Impress Ventures Ltd has a 10% equity free-carried interest to a decision to mine.
3. Placer Dome Australia Limited assignee (Norton Goldfields) retains certain gold claw-back rights.
4. Finder's fee to David Timm's on EL5583 sale transaction or production commencement (\$2M cap).
5. Eastern Goldfields owns gold-silver rights, Ardea owns all non-Au-Ag, in particular Ni-Co-PGM.
6. Ausjade right to tenement ownership and semi-precious minerals, Ardea owns all non- semi-precious mineral rights, in particular Ni-Co-PGM-Au.
7. Ausjade right to semi-precious minerals (currently in default), Ardea owns all non- semi-precious mineral rights, in particular Ni-Co-PGM-Au, Ardea registered holder.
8. Pioneer-Northern Star owns gold-nickel sulphide rights and responsible for tenement management, Ardea owns 100% Ni-Co laterite rights.
9. Intermin subsidiary Metaliko owns gold rights and responsible for tenement management, Ardea owns 100% Ni-Co laterite rights.
10. Ramelius assignee owns all mineral rights, Ardea pre-emptive right to Ni-Co laterite.
11. Pioneer and assignee owns all mineral rights, Ardea owns Ni-Co laterite.

## Appendix 5B

# Mining exploration entity and oil and gas exploration entity quarterly report

Introduced 01/07/96 Origin Appendix 8 Amended 01/07/97, 01/07/98, 30/09/01, 01/06/10, 17/12/10, 01/05/13, 01/09/16

### Name of entity

Ardea Resources Limited

### ABN

30 614 289 342

### Quarter ended ("current quarter")

31 March 2019

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers		
1.2 Payments for		
(a) exploration & evaluation	(1,070)	(1,979)
(b) feasibility & development	(476)	(6,274)
(c) production	-	-
(d) staff costs	(126)	(503)
(e) administration and corporate costs	(164)	(599)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	87	282
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Research and development refunds (net)	-	409
1.8 Other	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(1,749)</b>	<b>(8,664)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) property, plant and equipment	(4)	(70)
(b) tenements (see item 10)	-	-
(c) investments	-	-
(d) other non-current assets	-	-

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (9 months) \$A'000</b>
2.2	Proceeds from the disposal of:		
	(a) property, plant and equipment	-	-
	(b) tenements (see item 10)	-	-
	(c) investments	-	-
	(d) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(4)</b>	<b>(70)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of shares	289	289
3.2	Proceeds from issue of convertible notes	-	-
3.3	Proceeds from exercise of share options	-	-
3.4	Transaction costs related to issues of shares, convertible notes or options	-	-
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>289</b>	<b>289</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	12,176	19,157
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,749)	(8,664)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(4)	(70)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	289	289
4.5	Effect of movement in exchange rates on cash held	-	-
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>10,712</b>	<b>10,712</b>



5. <b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1     Bank balances	1,212	1,176
5.2     Call deposits	9,500	11,000
5.3     Bank overdrafts	-	-
5.4     Other (provide details)	-	-
<b>5.5     Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>10,712</b>	<b>12,176</b>

**6.     Payments to directors of the entity and their associates**

- 6.1     Aggregate amount of payments to these parties included in item 1.2
- 6.2     Aggregate amount of cash flow from loans to these parties included in item 2.3
- 6.3     Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2

Current quarter \$A'000
194
-

Salaries, Directors fees and consulting fees paid to Directors - \$151,762  
Payment for Kalgoorlie office to a Director related entity for the quarter - \$25,050  
Payment for HR Services to a Director related entity for the quarter - \$17,545

**7.     Payments to related entities of the entity and their associates**

- 7.1     Aggregate amount of payments to these parties included in item 1.2
- 7.2     Aggregate amount of cash flow from loans to these parties included in item 2.3
- 7.3     Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2

Current quarter \$A'000
-
-

8. <b>Financing facilities available</b> <i>Add notes as necessary for an understanding of the position</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
8.1 Loan facilities	-	-
8.2 Credit standby arrangements	-	-
8.3 Other (please specify)	-	-
8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.		

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9. <b>Estimated cash outflows for next quarter</b>	<b>\$A'000</b>
9.1 Exploration and evaluation	(1,319)
9.2 Feasibility and Development	(460)
9.3 Production	-
9.4 Staff costs	(151)
9.5 Administration and corporate costs	(281)
9.6 Other (provide details if material)	-
<b>9.7 Total estimated cash outflows</b>	<b>(2,211)</b>

10. <b>Changes in tenements (items 2.1(b) and 2.2(b) above)</b>	<b>Tenement reference and location</b>	<b>Nature of interest</b>	<b>Interest at beginning of quarter</b>	<b>Interest at end of quarter</b>
10.1 Interests in mining tenements and petroleum tenements lapsed, relinquished or reduced	See Attached Schedule			
10.2 Interests in mining tenements and petroleum tenements acquired or increased	See Attached Schedule			

### **Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.



Sam Middlemas  
Company Secretary

30 April 2019

### **Notes**

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.
2. If this quarterly report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, AASB 6: Exploration for and Evaluation of Mineral Resources and AASB 107: Statement of Cash Flows apply to this report. If this quarterly report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.