Ardea Resources Limited

ASX & Media Release
28 October 2022

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
Mat Longworth
Non-Executive Chair

Andrew Penkethman
Managing Director & CEO

Ian Buchhorn
Executive Director

Executive Management
Sam Middlemas
Company Secretary

Rebecca Moylan
CFO

Alex Mukherji
General Manager Land Access & Compliance

Mike Miller
General Manager Technical Services

Matthew McCarthy
General Manager Exploration

Issued Capital

Fully Paid Ordinary Shares
169,737,772

Performance Rights
4,422,000

Options
4,000,000

ABN 30 614 289 342

For personal use only

QUARTERLY OPERATIONS REPORT

For the Quarter ended 30 September 2022

Ardea Resources Limited (ASX:ARL) (**Ardea** or the **Company**) is pleased to provide the following report on its activities during the September 2022 Quarter.

SEPTEMBER 2022 QUARTER HIGHLIGHTS

- **Kalgoorlie Nickel Project (KNP)**
  - Wood Engineering engaged to conduct a Feasibility Study to consolidate all previous KNP Preliminary Feasibility Studies
  - Work commenced on updating the KNP Goongarrie Hub Ore Reserve
  - Multiple Strategic Partner proposals continue to be received, with several site visits completed in addition to reciprocal meetings at overseas corporate offices
  - During September, Ardea attended the 2022 Australia India Business Exchange Critical Minerals delegation arising out of the recent Australia-India Economic Cooperation and Trade Agreement
  - During October, Ardea attended the Austrade Korea Critical Minerals delegation
  - Continuing discussions with multiple Export Credit Agencies (**ECAs**) and debt/equity advisors
  - Engagement with stakeholders continues with "Team Ardea" active at Critical Minerals and ECA events throughout Australia and overseas
  - Sterilisation drilling for the plant site is complete with 76 holes for 2,043m drilled, results awaited
  - Digbee has been retained to define set of frameworks to assess and disclose ESG metrics
  - Life Cycle Assessment reporting commenced with sustainability consultancy Minviro
  - Two water bores were drilled with low salinity reservoir identified, and a large hydrogeology drill program planned to test targets at Siberia
  - Lake Ecology study commenced

- **Exploration – WA Nickel Sulphide Emu Lake**
  - Ardea completed four diamond drill holes for 2,368.5m during the Quarter, including DHEM surveys on all holes. Every drill hole intersected nickel sulphide mineralisation and demonstrated the potential for both high grade massive nickel sulphides and disseminated nickel sulphides
  - Further work includes planning drill testing and DHEM of the prospective mineralised channels at Binti that are open up and down plunge, and regional technical assessment to generate exploration targets over the 20km strike at Emu Lake

- **Corporate**
  - Ardea remains debt free, with a tight capital structure and had $19M cash-at-bank, at the end of the September 2022 Quarter
  - Strong cash position leaves the Company well-funded throughout FY23 to deliver the Kalgoorlie Nickel Project Preliminary Feasibility Study (**PFS**), continue Nickel Sulphide and Critical Mineral exploration within KNP tenure

For personal use only

OVERVIEW

CORPORATE

Ardea Resources Limited (**Ardea** or the **Company**) is a battery minerals Company focussed on its 100%-owned Kalgoorlie Nickel Project (**KNP**), which hosts the largest nickel-cobalt resource in Australia*. The KNP Goongarrie Hub is being advanced towards production by working with Commonwealth government Critical Minerals agencies, stakeholders, industry leading partners and completing feasibility programs. Development may be through partners who are able to earn a 50% offtake right, or alternatively Ardea may elect to retain 100% ownership as the Company continues to advance this globally significant asset.

Such a strategy provides the Company with the opportunity to achieve the optimal outcome for stakeholders, as end users continue to try to secure meaningful quantities of sustainable and ethical battery mineral supply. By Ardea retaining all off-take rights, the Company maintains maximum optionality to continue to engage with a number of well-regarded potential partners.

Ardea remains debt free, with a tight capital structure and had $19M cash-at-bank, at the end of the September Quarter.

DEVELOPMENT

Kalgoorlie Nickel Project

- **Strategic Partner Process:** A number of leading world-recognised companies and organisations continue to engage with Ardea seeking to secure nickel-cobalt off-take from the KNP. Ardea requires off-take to be conditional upon the off-take partner facilitating a project development funding mechanism. All groups want to secure sustainable and ethical nickel-cobalt mineral supply from a favoured geopolitical jurisdiction for the lithium-ion battery (**LIB**) sector.
- **KNP Development Funding:** Ardea's preferred investment model is to retain off-take and link this to favourable ECA funding terms. The preferred funding option for the KNP Goongarrie Hub development is a mixture of project debt and project equity, with indications of long tenor, favourable ECA debt funding terms being contemplated.
- **KNP Feasibility Study work streams on the Goongarrie Hub:**
  - Goongarrie Hub (**Goongarrie**), base case 3.5Mtpa incorporating the proven hydrometallurgical technology successfully utilised at a number of existing nickel laterite operations world-wide.
  - PFS base case end-product Mixed Hydroxide Precipitate (**MHP**), which is the new Class 1 nickel for LIBs.
  - Hydrometallurgical sample assay results **confirm the 2021 resource models** and metallurgical test work attains **maximum resource utilisation** and **optimisation of the low-carbon flow sheet supporting the mineralised neutraliser concept and lowering CO_2 emissions**†.
  - Engagements with stakeholders continue with "Team Ardea" active at benchmark Critical Minerals and ECA events throughout Australia and overseas.
- Ardea representative Andrew Penkethman attended the Australia India Business Exchange (AIBX) 2022 Business Mission to India organised by Austrade (Figure 13). The Australia-India Economic Cooperation and Trade Agreement (**ECTA**) will promote growth in Australian minerals exports to India by eliminating and reducing customs duties on key products, improving access to a growing and diversified market for the Australian critical minerals sector.

---

* Ardea ASX release 21 March 2022

† Ardea ASX releases 16 May 2022, 26 May 2022, and 14 June 2022

For personal use only

EXPLORATION

WA Nickel Sulphide and Critical Minerals

Exploration for magmatic nickel-copper-PGE sulphide and Critical Minerals continues on compelling targets which are complementary to the development of the KNP.

- **Nickel Sulphide** – the second phase of diamond drilling and geophysical surveys at the Emu Lake project, located within the nickel sulphide-fertile Western Komatiite Belt at Kalpini, has been completed (ASX release 14 October 2022). Nickel sulphide prospectivity will also be assessed over the total Ardea tenement holding in Western Australia.
- In addition to the compelling magmatic nickel sulphide work streams, complementary Critical Mineral exploration opportunities continue to be evaluated.

September 2022 Quarter

Environmental, Social and (Corporate) Governance

Environmental, Social and (Corporate) Governance (**ESG**) considerations are at the forefront of the Ardea operation. All project designs and work practices are based on the Company minimising CO_2 green-house gas emissions when in production. The proposed flow sheet (Figure 6) has been enhanced for CO_2 mitigation in the neutralisation circuit through introducing an Atmospheric Leach (**AL**) circuit to assist in neutralising the High Pressure Acid Leach (**HPAL**) discharge. The AL circuit facilitates upgrade of the site acid plant utilisation and allows Ardea to generate its own site power requirements off-grid, without relying on fossil fuel for power generation.

Ardea has contributed its Critical Mineral technical expertise to groups advocating for net zero carbon by 2050 and lodged a supportive submission to the House of Representatives Standing Committee on the Environment and Energy inquiry into the Climate Change (National Framework for Adaptation and Mitigation) Bill 2020. The KNP mineral resource was also included in the Geological Survey of Western Australia nickel-cobalt investment flyer, as the largest nickel resource in Western Australia (and therefore the largest in Australia), and the Commonwealth Government's 2021 Australian Critical Minerals Prospectus.

Responsible sourcing of materials, through mechanisms such as mandatory reporting of CO_2 footprints for all batteries sold is essential. Traceability is also being implemented with raw materials used in batteries that must be procured according to OECD guidelines for sustainable sourcing. These important considerations are an essential part of the feasibility study work Ardea is undertaking on the KNP.

Ardea enjoys strong support from the communities in which we operate, primarily the City of Kalgoorlie-Boulder and the Shire of Menzies and has a Native Title Agreement in place for development of the Goongarrie Hub. The benign environmental setting being the Great Western Woodlands allows excellent post-mining rehabilitation, reafforestation, and resultant carbon offset. At the Goongarrie Hub, in particular, mining and processing has no land-use conflict with agricultural activity which occurs in multiple peer nickel laterite centres.

Ardea recently co-funded the Shire of Menzies co-ordinated Menzies Discovery Day, a family fun day for locals and visitors alike on 15 October 2022. Internationally accredited Digbee ESG has been retained to develop a right-sized, future-looking and industry approved set of frameworks to assess and disclose ESG metrics. Sustainability consultancy Minviro has been retained to provide a cradle-to-gate Life Cycle Assessment (**LCA**) of the KNP. An ISO 14040/14044 compliant report will be produced addressing Scope 1, 2 and 3 emissions and environmental impacts.

For personal use only

Figure 1: Members of Team Ardea Kalgoorlie-Boulder at Goongarrie, hosting a site visit.

Nickel Sector Commentary

Equity markets have remained volatile during the Quarter, primarily due to ongoing inflation worries, the conflict in Ukraine, energy security and cost concerns and the continuing impacts of COVID-19 lock-downs in China. Despite these challenges, the outlook for nickel remains compelling and the investment fundamentals continue to strengthen. Key factors enhancing the outlook for nickel include the US Government's introduction of the Inflation Reduction Act (**IRA**), supply chain security issues and the importance of sourcing long-term, reliable sources of sustainable and ethical nickel supply. These fundamentals underpin the global significance of the KNP and its international recognition, given the strategic scale of the resource, industry leading low carbon flow sheet and location in the premium resources operating jurisdiction in the World.

The nickel price finished the September Quarter at US$22,290 per tonne on the London Metal Exchange (**LME**) cash settlement rate and showed a declining trend over the Quarter in line with general weakness in metal prices. However, the demand for nickel continues to grow at record rates from traditional uses such as stainless steel and in particular from the rapidly growing LIB sector as supply chains for the Electric Vehicle (**EV**) sector, where nickel is an essential component of high-performance chemistry batteries (Figure 2). Many of the potential partners that Ardea has engaged with, are in the LIB sector and are accelerating their development plans for nickel dominant cathode chemistries using NCM 811 technology. In recent Strategic Partner discussions, a growing number of companies are moving towards more nickel-rich battery chemistries where nickel is expected to comprise over 90% of the cathode-active material.

Most of the companies with whom Ardea engages have commented on the IRA as a driver to accelerate their sourcing of battery mineral supply from nations, such as Australia and Canada, who have free trade agreements with the United States.

By 2040, the expected nickel demand just from the LIB sector is expected to match the total nickel market consumption achieved in 2020 of approximately 2.4 million tonnes. On this basis, current World battery grade nickel production levels cannot keep pace with demand, even if every currently identified nickel laterite and sulphide deposit that can deliver sustainable and ethical mineral supply enters production. These factors reiterate that without the development of significant new nickel resources as exemplified by the KNP, the EV revolution will be impeded, and COP26 Glasgow climate commitments will summarily fail.

With Ardea's KNP hosting one of the largest nickel-cobalt resources in the developed World, 830Mt at 0.71% Ni and 0.046% Co (**5.9Mt contained nickel metal, 380kt contained cobalt metal** – ASX release 16 June 2021), Ardea is in

the prime position to provide essential supplies of sustainably sourced nickel and cobalt, along with other Critical Minerals (notably scandium and the rare earth elements (REEs) neodymium and praseodymium).

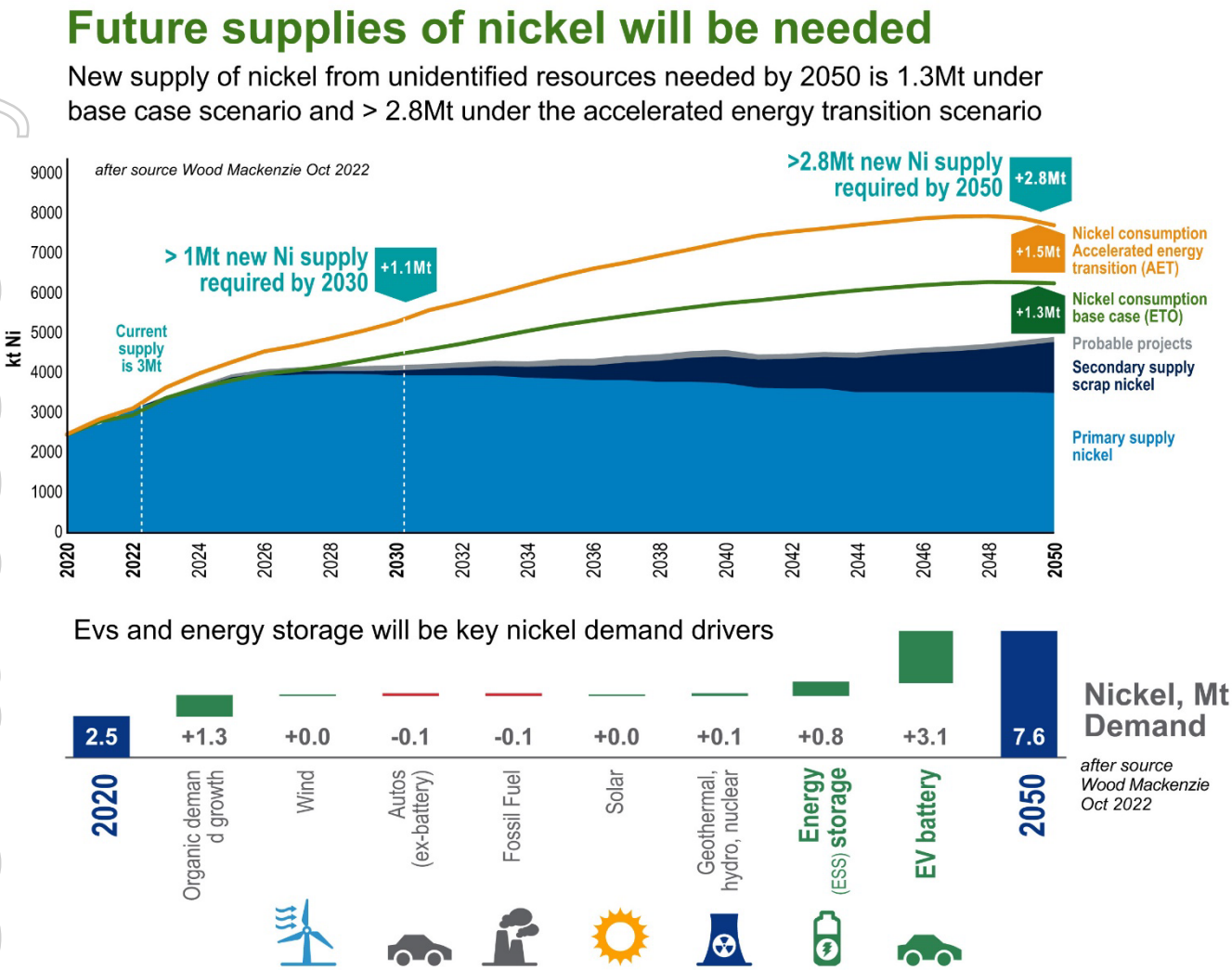


Figure 2: Existing and forecast nickel consumption, overlays graph of existing and probable primary nickel supply - highlighting the critical need for new nickel supply from 2022 onwards. Bottom graph shows that the growth in nickel demand to 2050 will be driven by EVs and Energy Storage. Graphs after Wood Mackenzie October 2022.

For personal use only

1. KALGOORLIE NICKEL PROJECT - GOONGARRIE HUB

The Goongarrie Hub is located 70km northwest of the mining centre City of Kalgoorlie-Boulder and is the premium ore feed within the broader KNP (Figure 3). Resources from the Goongarrie South to Scotia Dam deposits are planned to be the base load feed for two HPAL autoclaves with one AL circuit located at Goongarrie South. The resources at Goongarrie are dominantly the premium goethite style and extend continuously over 25km of strike and at Highway, 30km north, over a strike length of 6km (Figure 3). All Goongarrie Hub mineral resources are located on granted mining leases with Native Title Agreement in place and tenure 100%-controlled by Ardea.

The project also has ready access to high-quality infrastructure with the Goldfields Highway, rail line and power infrastructure passing through the project area (Figure 3). There are two port options, these being Esperance and Kwinana, that are well serviced by the KNP road and rail network.

Significantly, the KNP is located on the rail connection to the developing battery hub at the Port of Kwinana industrial area immediately south of Perth, as well as east to Port Augusta and developing low-carbon energy hubs on the eastern Australia seaboard.

Ardea is actively engaged with Commonwealth and State agencies and statutory authorities, notably the Department of Foreign Affairs and Trade (**DFAT**), Critical Minerals Office (**CMO**), Major Projects Facilitation Agency (**MPFA**), Australian Trade and Investment Commission (**Austrade**) and Export Finance Australia (**EFA**) who are coordinating the push for a downstream battery industry within Australia through "*Team Australia*" and the State of Western Australia through "*Team WA*". All the LIB feedstocks, including nickel and cobalt, are available in Australia and WA at the scales required for world-significant green energy centres of excellence.

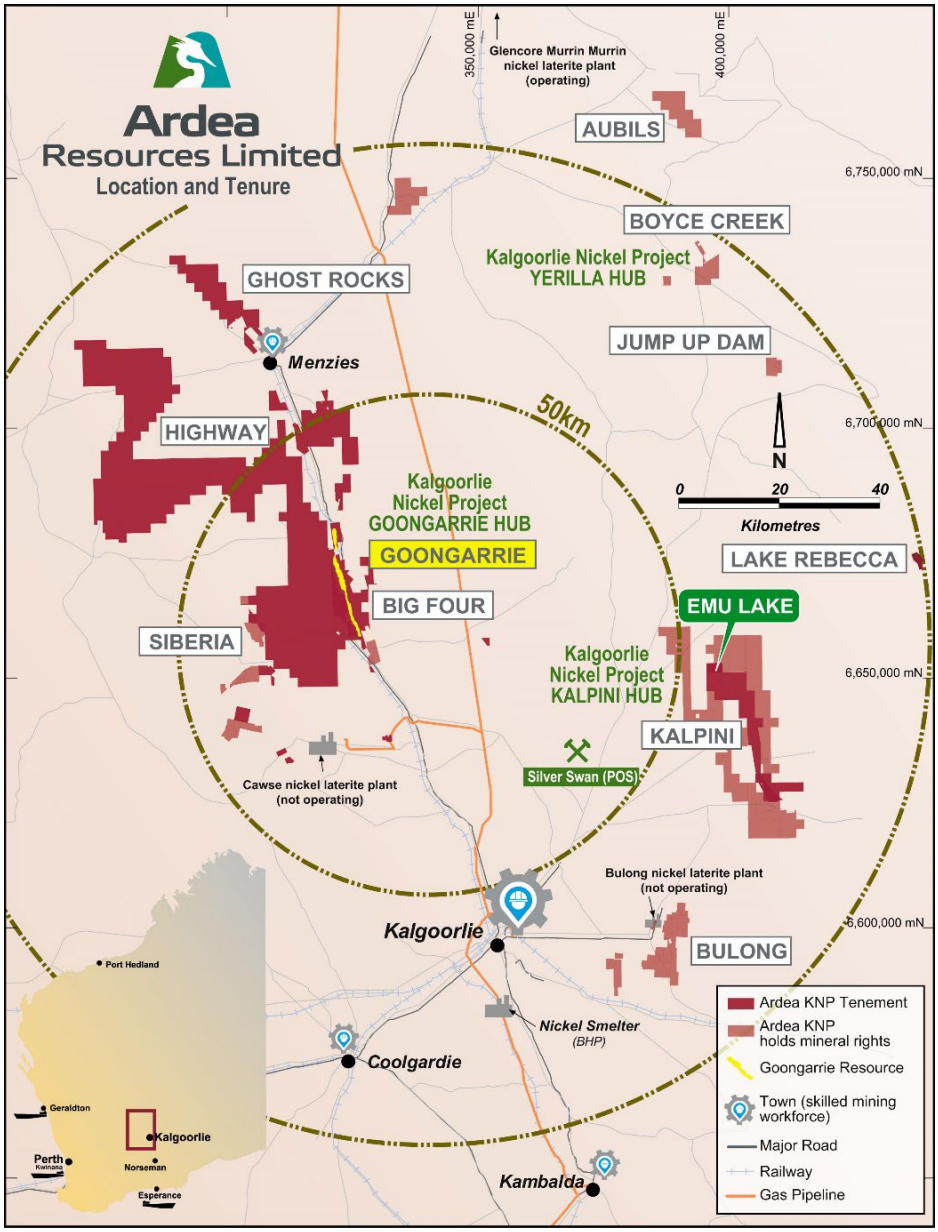


Figure 3: KNP location and infrastructure plan. Projection GDA94 MGA94 Zone 51.

For personal use only

For personal use only

Project Funding

Following the KNP being awarded Major Project Status (ASX release 21 March 2022), engagement with State and Commonwealth agencies has continued to grow, particularly with the CMO, EFA and Austrade.

Ardea is also continuing discussions with multiple Export Credit Agencies and advisors in jurisdictions aligned geopolitically with Australia and in which potential project partners are based.

The preferred funding option for the KNP Goongarrie Hub development is a mixture of project debt and project equity, with indications of long tenor, favourable ECA debt funding terms being contemplated.

With the rapid expansion of the LIB sector and the push for sustainable and ethical battery mineral supply chain security, sourced from tier one operating jurisdictions such as Western Australia, there has never been a better time for Ardea to be advancing the KNP towards development.

To expedite a more favourable KNP funding package, an industry-leading mining consultancy, Orelogy, has been retained to produce an Ore Reserve for the KNP Goongarrie Hub, using the currently defined mineral resource of 561Mt at 0.68% Ni and 0.044% Co. The first step has commenced, being an update to the 2018 PFS financial model (by consultancy Ockham Group based in UK). This PFS level update, as part of the ongoing feasibility study is important, as the project scale has increased significantly from the 2018, 1.5Mtpa PFS and 2.25Mtpa Expansion Study to the current 3.5Mtpa. Flow sheet enhancements such as the inclusion of the second HPAL autoclave and the AL circuit also need to be quantified, to be able to optimally communicate the Company value proposition.

Figure 4: Aerial image of Ardea's Goongarrie Hub at Goongarrie South looking south towards Kalgoorlie-Boulder showing road and rail infrastructure within the granted mining leases upon which the resources are located.

Note the semi-arid woodlands environment, ideal for project development, safe tailings management and revegetation post mining.

All pits for the critical Payback period at project start-up are located in the flat terrain east of the Goldfields Highway and railway in an area of dominant goethite grind ore, in places extending to depths exceeding 100m. This is the jewel in the KNP crown and the impetus for LIB OEMs being so keen to engage with Ardea to secure sustainable nickel-cobalt offtake.

Feasibility Programs

Ardea's priority is the development of the KNP Goongarrie Hub as a globally significant Critical Minerals operation focussed on nickel-cobalt. The project finance model seeks to optimise Ardea's project equity and long-term offtake rights.

The project scale has been settled at a 3.5Mtpa operation comprising 2 x 1.5Mtpa HPAL autoclaves combined with a 0.5Mtpa AL circuit. The flow sheet solely uses hydrometallurgical technology successfully deployed at existing nickel laterite operations over six decades. The main neutralising agent required in ore processing is derived in-pit as Mineralised Neutraliser (**MN**), immediately underlying the nickel-cobalt laterite ore.

Ore preparation focusses on a low-risk comminution "Grind HPAL" circuit treating premium high-grade Goethite ore to facilitate an early project pay-back. With time, an increasing contribution from screened siliceous ore processed in the beneficiation "Bene HPAL" circuit facilitates an optimised resource utilisation and extended mine-life.

The AL circuit ore is sourced from high-magnesium Serpentine ore below the target Goethite ore and is gained within pit optimisations pursuant to the Goethite mining and from MN Fines. Power generated from using additional sulphur in the acid plant as required for the AL circuit, is the key to the low-carbon footprint (Figure 5).

Initial proposed sale product is a MHP for the lithium-ion battery sector. Project financing will proceed around an MHP flow sheet. The longer-term objective is to further refine the MHP on-site to Precursor Cathode-Active Material (**PCAM**), and ultimately also recover scandium and Rare Earth Elements from the tailings stream.

Ardea's 2018 Expansion Study (ASX release 24 July 2018) was a single autoclave processing 2.25Mtpa as the preferred Goongarrie Hub throughput. This is now superseded by the 3.5Mtpa base case, which aims to significantly increase initial stage nickel-cobalt production from within the KNP resource endowment of 830Mt at 0.7% Ni and 0.05% Co (5.9Mt contained nickel metal, 380kt contained cobalt metal – ASX release 16 June 2021).

Ardea is working with industry-leading consultants and service providers to complete a feasibility study (PFS level +/- 25%) which will underline the 3.5Mtpa base case. This PFS will consolidate previous studies and be completed in the March Quarter 2023, immediately after which a Definitive Feasibility Study (**DFS**) predicated on partner product requirements will be commissioned.

An Ardea Owners Team is being progressively assembled by the Ardea Board to manage the various study requirements and coordinate the service providers.

The current priorities are defining the plant site general arrangement, completing bench-scale metallurgy, updating JORC Code (2012) compliant Ore Reserves, lodging process water licences, EPA approvals submission and completing financial metrics that reflect the 3.5Mtpa base case.

During the Quarter, an aircore sterilisation drill program for the Goongarrie Hub Processing Plant was completed at Goongarrie South with 76 vertical holes for 2,043m drilled. The northern half of the program intersected ultramafic in the west and mafic in the east with moderate amounts of oxidised and transported cover. Very shallow transitional/fresh ultramafic was recorded from 0-6m depth in the four most southern E-W lines and is the preferred location for permanent processing infrastructure.

An aircore drill program of eight holes for 466 metres was completed at Ghost Rocks to evaluate a process water target associated with the Lady Irene Shear Zone (also a test of nickel sulphide and gold models). Most holes intersected puggy saprolitic clays with altered schistose ultramafic bedrock, with assays pending. No water reservoir lithologies were identified.

For personal use only

For personal use only

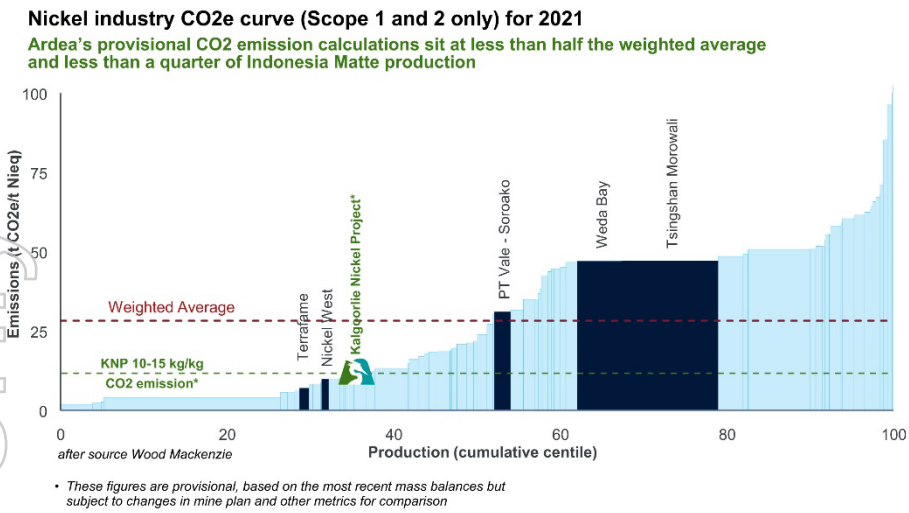


Figure 5: Indicative CO_2 emissions intensity for the nickel industry, including initial estimates from the KNP Goongarrie Hub, with in progress PFS work streams continuing to drive emissions lower, without any allowance for offsets.
After WoodMac Nickel Industry analysis and Ardea internal analysis

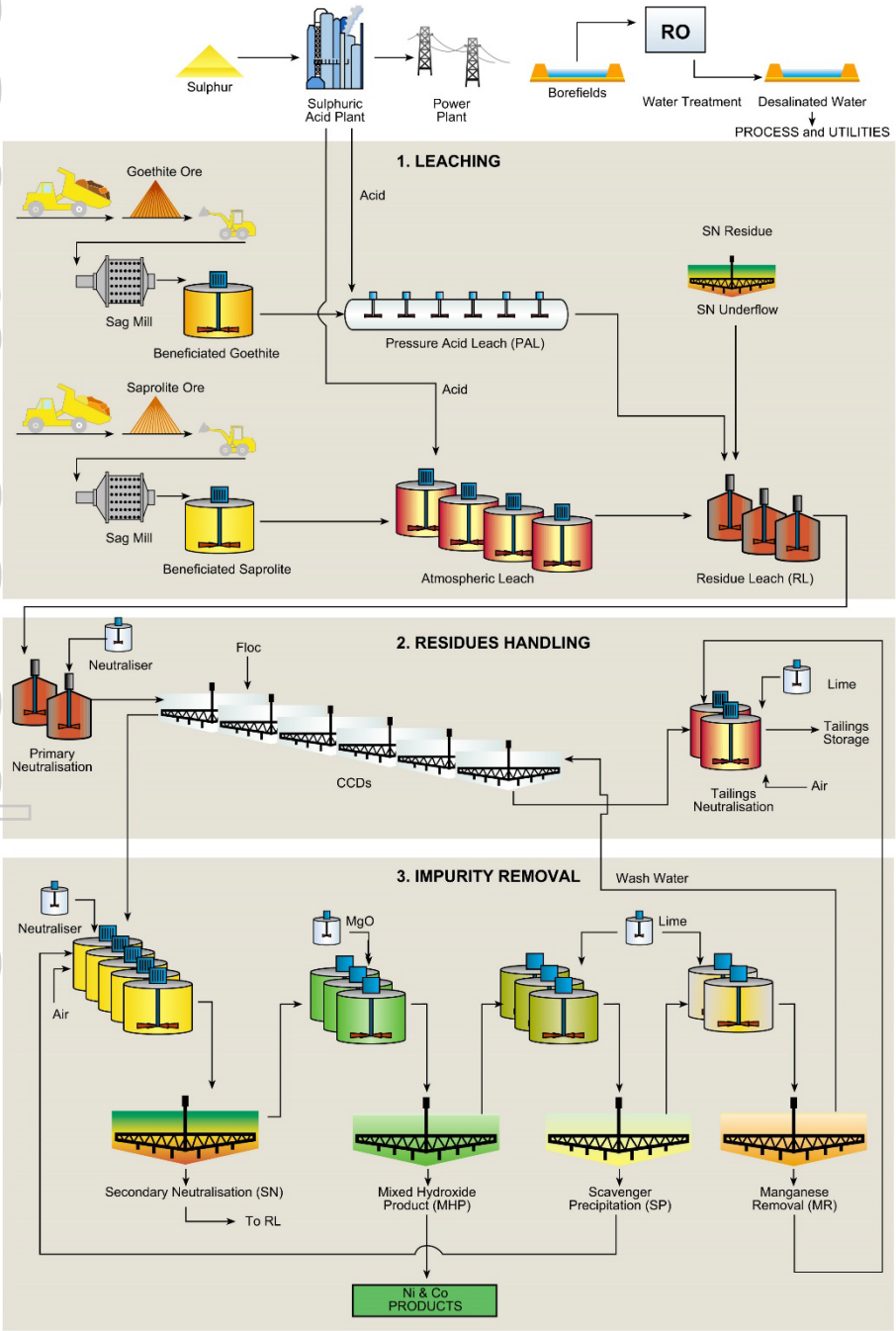


Figure 6: Goongarrie Hub process flow sheet.

For personal use only

Resource Modelling

The KNP continues to be evaluated for high-grade, >1% nickel plant feed options. This covers by-product metallurgical studies including scandium and REE, and that all mineral resource estimation uses uniform methodologies. A review of the full KNP high-grade nickel Mineral Resource Estimate (**MRE**) is continuing, with Siberia North in the western Goongarrie Hub currently being assessed for an updated MRE.

The combined Mineral Resources at the Goongarrie and Highway deposits for a starter processing plant development at the KNP Goongarrie Hub are reported below (Table 1), with an initial focus on the high-grade resource based on a 0.8% Ni cut-off.

The full Goongarrie Hub now has a single Material Types algorithm based solely on XRD-generated mineralogy. This modelling is the basis for pit optimisations, metallurgical flow sheet and engineering designs. Specifically, the Material Type classification aims to maximise feed to the HPAL and AL circuits.

Most importantly, Material Types are now segregated in the comminution circuit as Grind or Bene, and in leaching as HPAL feed, AL feed and Neutraliser. The Material Types algorithm is such that it can predict material down to mine road surface sheeting. The system has been developed by Ardea's in-house Principal Resource Geologist and is illustrative of the elite nickel laterite expertise the Company has developed since its 2017 ASX listing.

Drill core for the in progress metallurgical test work has been selected on the basis of the modelled Material Types. The Vale Inco 2005-2009 and Ardea 2017-2018 piloting very much focussed on Grind HPAL plant feed, so the current PFS programs are skewed towards AL and MN feed.

In terms of beneficiation, the KNP model used to select the test material was based on an assumed grade of scats (siliceous material rejected in screening) of 0.35% Ni. The financial model at that time used a nickel price of US$19,500 per tonne.

At the current nickel price exceeding US$22,000 per tonne, grades as low as 0.35% Ni have significant value exceeding variable processing costs which has the potential to move plant feed away from Bene in favour of Grind. Additionally, HPAL with 94% nickel recovery is favoured over AL with lower recoveries. To accommodate such considerations, the KNP 2018 PFS financial model has been upgraded.

Table 1 - Highway and Goongarrie (ASX release 16 June 2021) nickel and cobalt Mineral Resources using a 0.8% Ni cut-off grade

Deposit	Resource Category	Tonnes (Mt)	Ni %	Co %	Contained Metal Ni (kt)	Contained Metal Co (kt)
Goongarrie Hub (GH, GS, BF & SD)	Measured	11.0	1.13	0.106	125	11.6
	Indicated	41.5	0.97	0.070	404	29.0
	Inferred	7.1	0.95	0.051	67	3.6
	Subtotal	59.6	1.00	0.074	595	44.3
Highway	Indicated	15.1	1.01	0.053	152	8.0
	Inferred	3.7	0.98	0.053	36	2.0
	Subtotal	18.8	1.00	0.053	188	10.0
Combined Deposits	Measured	11.0	1.13	0.106	125	11.6
	Indicated	56.5	0.98	0.066	556	37.1
	Inferred	10.8	0.95	0.051	103	5.6
	Grand Total	**78.3**	**1.00**	**0.069**	**784**	**54.3**

Ardea's updated 2021 Goongarrie and Highway resource estimates were incorporated with historic KNP resource estimates compiled by various parties between 2004 and 2009 and signed off to meet JORC-2012 guidelines by Heron Resources in 2013 (refer Table 2 below).

The KNP Goongarrie Hub MRE, based on a 0.5% Ni cut-off grade, is 561Mt with 3.8Mt of contained nickel and 248kt of contained cobalt and will be able to supply premium goethite plant feed to a HPAL process plant located at Goongarrie for multiple decades.

Table 2 – Highway and Goongarrie (ASX release 16 June 2021) KNP nickel and cobalt Mineral Resources based on a 0.5% Ni cut-off grade

Camp	Prospect	Resource Category	Size (Mt)	Ni (%)	Co (%)	Contained Metal Ni (kt)	Contained Metal Co (kt)	Estimation Details Method	Estimation Details Source	Estimation Details Year
Goongarrie	Goongarrie South	Measured	18	0.94	0.085	171	15	LUC	Ardea	2021
		Indicated	82	0.71	0.049	584	40	LUC	Ardea	2021
		Inferred	10	0.64	0.033	61	3	LUC	Ardea	2021
	Highway	Indicated	71	0.69	0.038	487	27	LUC	Ardea	2021
		Inferred	21	0.67	0.040	141	8	LUC	Ardea	2021
	Ghost Rocks	Inferred	47	0.66	0.042	312	20	OK	Snowden	2004
	Goongarrie Hill	Indicated	40	0.65	0.037	259	15	LUC	Ardea	2021
		Inferred	29	0.60	0.025	176	7	LUC	Ardea	2021
	Big Four	Indicated	49	0.71	0.047	346	23	LUC	Ardea	2021
		Inferred	14	0.68	0.043	96	6	LUC	Ardea	2021
	Scotia	Indicated	12	0.71	0.065	82	7	LUC	Ardea	2021
		Inferred	5	0.72	0.043	37	2	LUC	Ardea	2021
	Goongarrie Subtotal	Measured	18	0.94	0.085	171	15			
		Indicated	253	0.69	0.044	1,758	112			
		Inferred	127	0.65	0.037	823	47			
		Combined	***398***	***0.69***	***0.044***	***2,753***	***175***			
Siberia	Siberia South	Inferred	81	0.65	0.033	523	27	OK	Snowden	2004
	Siberia North	Indicated	10	0.64	0.051	64	5	OK	Snowden	2009
		Inferred	53	0.66	0.043	352	23	OK	Snowden	2009
	Black Range	Indicated	9	0.67	0.090	62	8	OK	HGMC	2017
		Inferred	10	0.69	0.100	68	10	OK	HGMC	2017
	Siberia Subtotal	Indicated	19	0.65	0.070	126	13			
		Inferred	144	0.66	0.041	943	59			
		Combined	***163***	***0.66***	***0.045***	***1,070***	***73***			
KNP Goongarrie Hub	**TOTAL**	Measured	18	0.94	0.085	171	15			
		Indicated	272	0.69	0.046	1,885	126			
		Inferred	270	0.65	0.039	1,767	107			
		Combined	***561***	***0.68***	***0.044***	***3,822***	***248***			
Bulong	Taurus	Inferred	14	0.84	0.051	119	7	OK	Snowden	2007
	Bulong East	Indicated	16	1.06	0.055	169	9	OK	Snowden	2004
	Bulong East	Inferred	24	0.79	0.053	190	13	OK	Snowden	2004
	Bulong Subtotal	Indicated	16	1.06	0.055	169	9			
		Inferred	38	0.81	0.052	309	20			
		Combined	***54***	***0.88***	***0.053***	***477***	***29***			
Hampton	Kalpini	Inferred	75	0.73	0.044	550	33	OK	Snowden	2004
	Hampton Subtotal	Inferred	75	0.73	0.044	550	33			
KNP Kalpini Hub	**TOTAL**	Indicated	16	1.06	0.055	169	9			
		Inferred	114	0.76	0.047	859	53			
		Combined	***130***	***0.79***	***0.048***	***1,028***	***62***			
Yerilla	Jump Up Dam	Measured	4	0.94	0.048	36	2	OK	Snowden	2008
		Indicated	42	0.78	0.043	324	18	OK	Snowden	2008
		Inferred	18	0.63	0.034	116	6	OK	Snowden	2008
	Boyce Creek	Indicated	27	0.77	0.058	206	16	OK	Snowden	2009
	Aubils	Inferred	49	0.70	0.066	346	33	OK	Heron	2008
KNP Yerilla Hub	**TOTAL**	Measured	4	0.94	0.048	36	2			
		Indicated	68	0.78	0.049	531	33			
		Inferred	68	0.68	0.057	462	39			
		Combined	***140***	***0.73***	***0.053***	***1,028***	***74***			
KNP TOTAL		Measured	22	0.94	0.079	207	17			
		Indicated	357	0.72	0.047	2,584	168			
		Inferred	452	0.68	0.044	3,088	199			
	GRAND TOTAL	***Combined***	***830***	***0.71***	***0.046***	***5,879***	***384***			

Legend: LUC – Local Uniform Conditioning; OK – Ordinary Kriging.

For personal use only

For personal use only

Processing Research and Development - Scandium and Rare Earth Elements

The Ardea FY2023 Research & Development (**R&D**) is primarily based upon metallurgical experiments aimed at optimising the product range and hence revenue streams from the KNP and its Goongarrie Hub.

Key experiments relate to sustainability enhancements for the KNP HPAL and AL flow sheets, notably predicated upon the use of in-pit Mineralised Neutraliser. In terms of potential product revenue streams, opportunities involving the Critical Minerals cobalt, scandium, the Platinum Group Elements (**PGE**) - Ru, Rh, Os (due to excessive assay cost, using 500ppb Pt-Pd as a pathfinder in pulp re-assay) and the REE neodymium, praseodymium and cerium, used in EVs and wind-turbines.

The securing of feed for the AL and MN circuits is critical, since this was the mechanism to increase acid demand and thus sulphur burning to ensure site non-fossil fuel energy self-sufficiency. Designing the AL/MN programs is the key program in FY2023 R&D.

Highly sought Critical Minerals within the KNP lateritic enrichment regolith profile include:

- NCM content in LIB including precursor cathode-active material;
- EV electric motor REE permanent NdFeB magnet metals, most notably Nd-Pr. The KNP also has common Ce, and potential for Dy and La;
- Scandium for scandium-aluminium lightweight, high-strength fabrication in general and EV chassis in particular;
- Vanadium for community-scale and larger SSBs;
- Critical Minerals targets at potentially extractable grades identified during KNP R&D include:
  - Ba, Cr, Ga, In, Mg, Mo, Te, Ti, Sn, W, Y, Zr; and
  - PGEs - Ru, Rh, Os .

All these Critical Minerals can be assessed because the HPAL process requires complete dissolution of goethite-hosted nickel-cobalt mineralisation, thereby rendering all contained metals into solution and thus amenable to recovery. This does not require each of these metals to individually be in stand-alone economic concentrations. Recovery of these metals relies on nickel and cobalt hydrometallurgical recovery, potentially providing significant credits and upside to the project economics. In-progress metallurgical test work will help determine the viability of recovering co-product Critical Minerals from the HPAL Pregnant Liquor Solution (**PLS**).

Critical Minerals research and development is predicated on the 60 element Ardea multi-element assay suite used in all sampling programs. The R&D focus for the Company continues to be searching the KNP technical data base to select archived Ardea drilling sample pulps for re-assay for Critical Minerals (notably REE co-products and identifying fertile nickel sulphide multi-element ratios indicative of PGEs). This R&D is a joint CSIRO-Ardea program.

Subject to current bench-scale metallurgical test work on Highway core material, REEs and Rare Metals (**RM**) identified in pulp re-assay at Kalpini will be targeted to provide potential by-product credits as does cobalt already, and also potentially scandium.

FBICRC

The FBICRC is an independent centre where industry, government and researchers can come together to create the tools, technologies, and skills to grow the role of battery storage in Australia's electricity grids and make Australia a larger downstream player in global battery value chains.

Ardea continues to sponsor and work with the FBICRC team on the following work streams:

1. Cathode Precursor Project.
2. Innovative Nickel-Cobalt Extraction.
3. Electrochemical testing of Australian battery materials in standard cell formats.
4. Provenance and Trusted Supply Chains.
5. Certification and Environmental life Cycle Assessment.

For personal use only

Each one of these work streams is aimed at ensuring quality product specifications and ESG compliance for the LIB sector and sustainable and ethical supply from the best-regarded operating jurisdiction in the World, WA.

The consortium of FBICRC participants includes some of the largest nickel and chemicals producers in the World who are working with companies such as Ardea to produce from locally sourced materials the batteries used in EVs.

Ardea has assembled suitable bulk drill sample material from current Goongarrie Hub drilling plus product from the 2018 PFS Goongarrie pilot run as test material for the FBICRC pilot plant.

Ardea personnel continue to attend key industry events with FBICRC personnel and interact on industry developments and shared opportunities for enhancement.

Bench-scale Metallurgy

Bench scale metallurgical test work is continuing at the ALS metallurgical laboratory in Perth. As well as conventional HPAL, the metallurgical test work program is investigating atmospheric leaching of high-magnesium serpentine plant feed as well as the mineralised neutraliser, which will be performed in parallel to HPAL of the iron-rich goethitic feed. From a process perspective, atmospheric leaching will be beneficial for stabilising the overall circuit, especially with regards to sulphuric acid plant production and its role in maintaining the off-grid, carbon-free, site energy balance. Other ALS test work includes:

- Leach feed cut size increased to nominal minus 212 microns (was previously 75 microns), to allow additional leach feed tonnes albeit at slightly lower leach feed grade.
- Gravity separation of ore preparation oversize for potential recovery of target heavy mineral by-products.
- Atmospheric leaching of high nickel grade serpentine saprolite mineralisation.
- Acid neutralisation using in-pit resources.

Downstream test work will define the design criteria and integrate the new features into the overall flow sheet. The test work may if required, generate MHP sample for review by prospective customers and for evaluation of MHP refining options.

Phase one results have been received and Ardea is awaiting the delivery of a final report. Recent neutralisation results from a composite sample over the Highway resource have returned favourable nickel upgrade in the fine fraction to complement the sought-after acid neutralisation capacity of the coarse fraction.

The Goongarrie South and Goongarrie Hill metallurgical hole selection was primarily based on obtaining representative in situ material for testing the Atmospheric Leach hydrometallurgical flow sheet. However, given the premium goethite material type that dominates at Goongarrie, limited AL feed is expected. However, at Highway and to a lesser extent Goongarrie Hill, some high-magnesium nontronite-serpentine clay mineralisation was sought for testing on the basis of its role in sulphuric acid demand and hence the KNP low-carbon flow sheet.

Initial metallurgical results are indicating lower carbon content than originally modelled and assuming this trend continues, the carbon emissions from the Goongarrie Hub will continue to drop, as the PFS is progressed. The new values are approximately 10 kg CO_2/kg Ni, before cobalt credits, whereas original modelling indicated values of approximately 15 kg CO_2/kg Ni.

Metallurgical Bulk Samples

Where parties, undertaking technical due diligence on the KNP, have required bulk samples for their independent test work, this has been facilitated through Ardea's extensive drill sample laboratory coarse residue archive (several tonnes of material archived at the West Kalgoorlie yard and at the Malaga storage unit). These are key R&D assets, with results used to help validate existing data. During the Quarter, a dedicated drill hole was completed, to provide additional sample material for a potential Strategic Partner that is undertaking independent metallurgical test work, as part of their due diligence process.

For personal use only

Hydrogeology

At Goongarrie, all nickel-cobalt-scandium mineral resources (ASX release 15 February 2021) are located on granted mining leases. As such, Ardea has first rights to any ground water underlying these areas. Past work by Ardea has defined multiple potential water sources, with water for project development, expected to be sourced from dedicated bores and conventional open pit dewatering ahead of mining.

Additional water sourcing activities continued during the September Quarter at Siberia North, assessing fractured rock aquifers, with two water bores (ASNPB0001 and ASNPB0002) completed. Water test pumping of these bores had promising results, particularly in ASNPB0001 in which the cap-rock aquifer has a low permeability and intersected a significant reservoir which prevented further drawdown. The reservoir has a low salinity (TDS <12,000mg/L) and is therefore well-connected to recharge. Low salinity type water is a good option for feeding a Reverse Osmosis plant for the construction camp and ongoing production.

The Ardea team are actively working with consultants Rockwater, reviewing regional target sites for water sources, to then drill production bores (hard rock targets i.e. bedrock structures) and complete passive seismic surveys (Tertiary paleochannel targets). A larger drill program is proposed for Siberia North (22 holes) and Siberia South (15 holes) assessing cap-rock aquifers beneath drainage lines, and then to convert exploration drill holes to production bores. Also proposed are a number of passive seismic surveys over potential paleochannel tributaries. Subject to successful test results, Ardea will develop a groundwater model to support a 5C licence application.

Both typical Eastern Goldfields saline water and potable water will be required for project development. Ardea's US-based nano-filtration R&D test work has already demonstrated the potential for this technology to be used for softening the HPAL water feed and for recycling barren process water to reduce both the project's water consumption and its water evaporation pond footprint.

Infrastructure and Logistics

As part of its ongoing stakeholder engagement, Ardea has accelerated communications with several key stakeholders, including:

1. The City of Kalgoorlie-Boulder – to provide both organisations with an update on key project development considerations, such as infrastructure and worker accommodation. Regular communication continues.
2. The Shire of Menzies – to provide both organisations with an update on key project development considerations, such as infrastructure and worker accommodation. Regular communication continues.
3. Southern Ports, Esperance – to provide both organisations with an update on key project development considerations, such as the transport of goods and services between Esperance and Goongarrie.
4. Goldfields Industrial Water Group – to study means of working co-operatively with local Community and industry for efficient collection, use and recycling of water resources in the Kalgoorlie region.
5. Rail infrastructure and logistical suppliers in the Kalgoorlie region.

Environment and Rehabilitation

All project development within the KNP is aimed at ensuring systematic and rapid rehabilitation, concurrent with operations. The KNP is located within the Great Western Woodlands, the largest and healthiest temperate to semi-arid (Mediterranean climate) woodland on Earth. The woodlands cover almost 16,000,000 hectares from the Nullarbor Plain in the east to the Wheatbelt in the west; from Esperance in the south through to the inland mulga country north of Kalgoorlie including the KNP as a comparative very small component (Figures 3 and 4).

Comprehensive KNP flora and fauna surveys by Vale Inco in 2009 and Ardea in 2017 have confirmed environmental sustainability within the "temperate dry laterite" ecosystem.

Mine rehabilitation methodology is facilitated through four decades of WA open pit gold mine operations, and the KNP footprint is minimised using mining voids for tailings and mullock disposal. Mining voids will be progressively rehabilitated during operations and returned to their pre mining state, by dressing the back filled open pit voids with topsoil (Figure 7) and then revegetating.

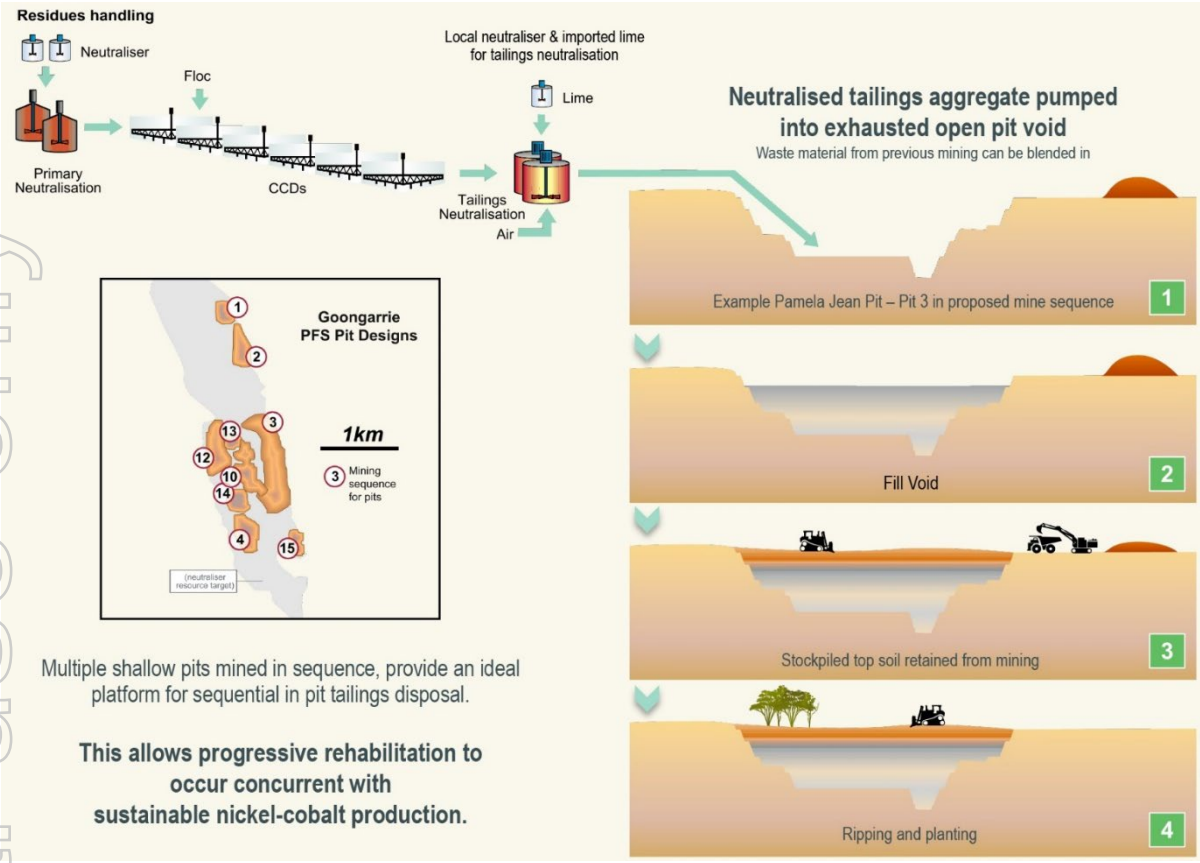


Figure 7: Planned Goongarrie Hub in-pit tails disposal and rehabilitation strategy.

In terms of ESG compliance for hydrometallurgical metal processing, the KNP's benign and manageable environmental footprint contrasts strongly with "wet tropical laterite" projects. The tropical laterites require submarine tailings disposal or valley tailings storage with consequent substantial environmental risk. Tailings disposal in these environments tends to be further complicated by high rainfall and the fact that most tropical laterite deposits are in seismically active regions. Additionally, wet tropical laterite production areas commonly involve non-restorable rain forest habitat destruction, which is unacceptable to OECD battery metal end-users.

It is doubtful whether wet tropical laterite hydrometallurgical battery metal sources can comply with the ESG standards required by the EV sector, particularly where submarine tailings disposal is used. Similarly, with more than 3,000mm of annual rainfall, it is an immense challenge for long-term tailings stabilisation.

The KNP semi-arid climate is likely just as important as its high nickel grade and excellent ore rheology for its robust environmental and economic viability.

For personal use only

2. WA NICKEL SULPHIDE

Ardea's extensive and strategic land holding in the Eastern Goldfields of WA comprises 168 tenements, covering over 4,270km^2 and in addition to the globally significant nickel-cobalt-scandium KNP resource, is highly prospective for nickel sulphide, PGEs and Critical Minerals (Figure 8).

Ardea Nickel Sulphide Strategy

The Company priority continues to be the development of the KNP, commencing with the Goongarrie Hub nickel laterite deposits. However, Ardea's tenure in the heart of the Eastern Goldfields of Western Australia is also highly prospective for komatiite-hosted nickel sulphides which are mined extensively throughout the region. This same tenure also has potential for hosting layered mafic complex magmatic nickel sulphide mineralisation.

Ardea's nickel sulphide strategy complements the development of the KNP. The KNP nickel sulphide targets are an asset in a region of multiple nickel sulphide concentrators, with most constrained by insufficient sulphide feed availability. Nickel sulphide also has potential value for a nickel laterite operation, in that it is a potential addition to any goethite autoclave feed for exothermic heating (optimise steam use), Eh reduction to control hexavalent chromium and adding nickel and sulphur units to the autoclave reaction vessel, and typically improving overall nickel recoveries.

An additional bonus is that metal concentrations considered deleterious to conventional nickel sulphide flotation concentrator processing (and that have historically curtailed development of several Eastern Goldfields deposits) do not affect the HPAL process, opening the possibility of mineral extraction from nickel sulphide deposits that may otherwise be overlooked.

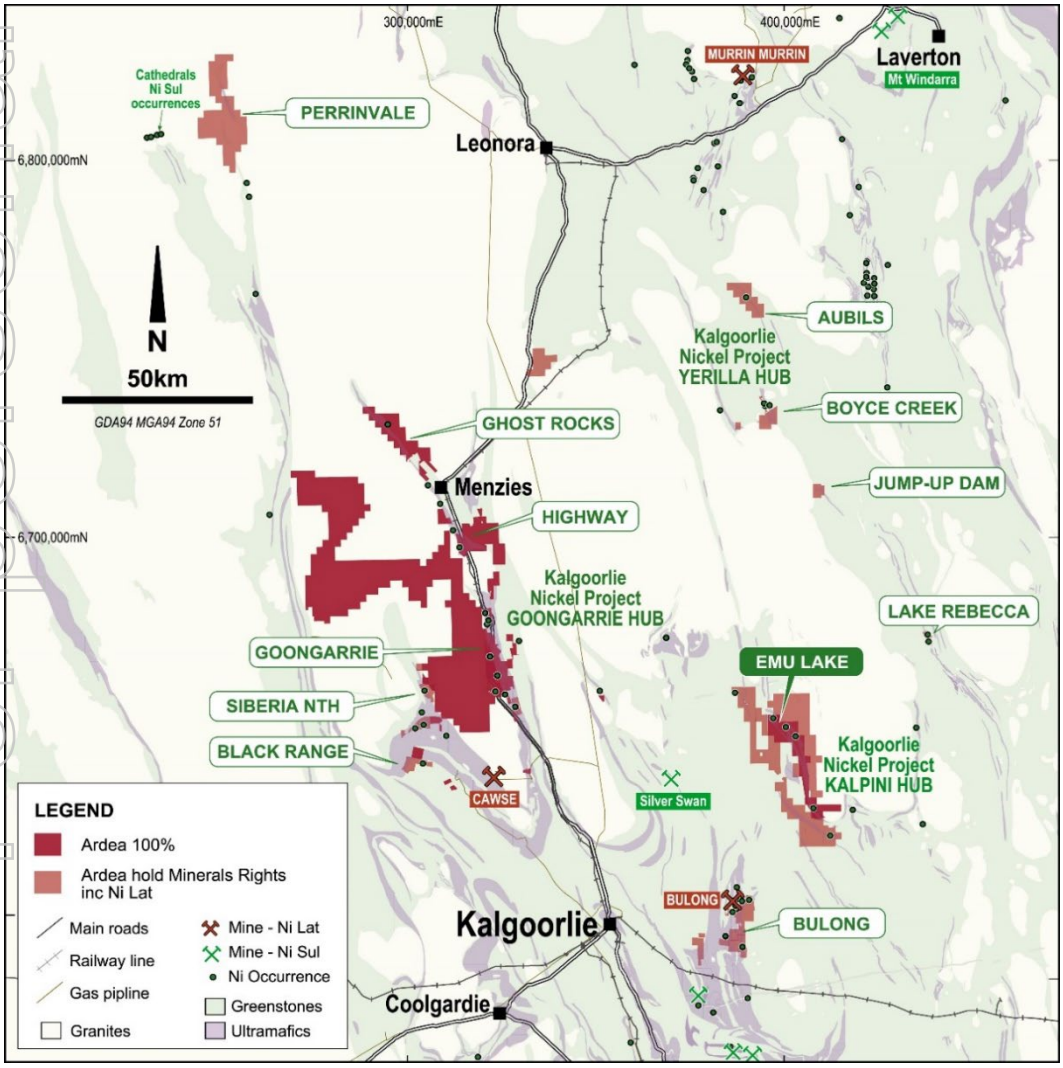


Figure 8: Ardea tenement plan highlighting the location of the Kalpini Project, Emu Lake Nickel Sulphide Camp and nickel mines and deposits in the region. Projection MGA 94 Zone 51.

For personal use only

For personal use only

Emu Lake Nickel Sulphide Prospect

Ardea's Kalpini Project is located 70km north-east of the City of Kalgoorlie-Boulder and covers 121km^2 on contiguous granted tenure 100%-owned by Ardea (Figure 8 and 9). The Type 1 massive nickel-copper-PGE sulphides recently discovered at the Binti prospect at Emu Lake occur in the Kurnalpi terrane which is significant given there are only a few other Type 1 nickel sulphide deposits in this terrane (e.g. Mount Windarra). Ardea hold approximately 20km strike of the prospective ultramafic sequence (mostly on granted mining leases) that is largely unexplored for primary magmatic nickel sulphide mineralisation.

Regionally there are two distinct Kalpini ultramafic units each with 20-25km strike within Ardea tenure (Figure 10):

- The **Kalpini Eastern Komatiite Belt** hosts the Wellington East and Acra North nickel laterite deposits containing 75Mt at 0.73% nickel and 0.04% cobalt, for 549.7kt nickel and 32.6kt cobalt (Ardea ASX release 16 June 2021). The ultramafics are typical of the Walter Williams Formation style consisting of a thick 200-600m sheet with olivine orthocumulate upper and lower contacts with middle olivine meso to adcumulate which weathers to nickel laterite (Dunitic Sheet Flows-Layered Lava Lakes).
- The **Kalpini Western Komatiite Belt** hosts the Emu Lake Nickel Sulphide mineralisation. There are at least three fertile nickel sulphide ultramafic flows at Emu Lake. The volcanics are characterised by a bi-modal co-magmatic suite, with each cycle having a footwall dacite volcanic overlain by ultramafic volcanic flows. The ultramafic component of the flows is typically 10-40m thick, with dacite being the main footwall component. Massive, matrix, blebby and disseminated nickel sulphide identified to date occurs in the Western Ultramafic (WU) and Central Ultramafic (CU) flows. The Western Komatiite Belt overlies a thick felsic volcanic sequence (Black Flag Group equivalent) and is presumably a younger flow sequence.

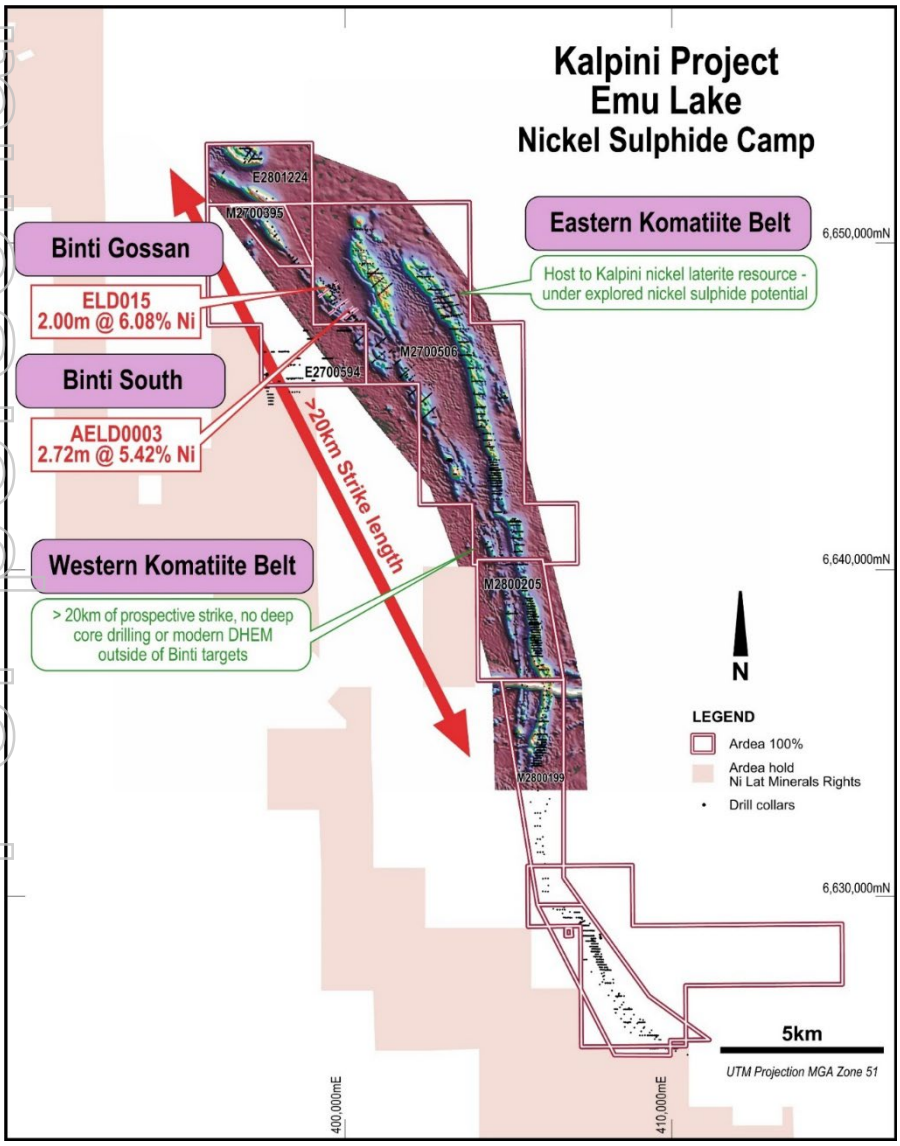


Figure 9: Aeromagnetics for the Kalpini Project showing strongly magnetic Komatiite Belts with historic shallow drill coverage focussed predominantly on nickel laterite mineralisation on the Eastern Komatiite Belt. Projection MGA 94 Zone 51.

For personal use only

Historic nickel sulphide drill exploration within the Kalpini Western Komatiite Belt has focussed on the Eastern Ultramafic (EU) and Central Ultramafic, with key historic drill-hole being ELD015 with 2m at 6.08% Ni (ASX release 7 February 2022). Drill testing of the Western Ultramafic was restricted to minimal "scissor" sections with easterly drill direction. These holes invariably intersected the WU in the depleted saprolite weathered zone.

During the Quarter, Ardea completed four diamond drill holes for 2,368.5m and completed DHEM surveys on all holes. The drill holes were largely following up targets at the Binti prospect where Type 1 massive nickel sulphide mineralisation was discovered by Ardea on an intact basal contact of the steeply east dipping overturned Western Ultramafic flow (i.e. AELD0003: 2.72m at 5.42% Ni and 0.85% Cu from 391.04m). An additional diamond hole was drilled testing a regional target 6km to the southeast of Binti.

A summary of significant results from the diamond drill holes completed during the September Quarter are shown below, including results from the DHEM surveys. All drill holes, excluding AELD0010, were drilled at the Binti prospect (Figure 10).

- AELD0007: targeted a 100m x 60m off-hole DHEM plate (10,000 siemens) modelled near the basal contact of the Western Ultramafic. The drill hole intersected 0.19m of massive sulphide from 491.94m (5% Ni with portable XRF) and 19.4m of weak-moderate disseminated sulphides from 500m. Results from the DHEM survey have now identified the peak of the target conductor to be just off-hole to the south (124m x 30m; 6,000 siemens). This drill hole is also partly funded (50% of drilling costs) by the Geological Survey of Western Australia's Exploration Incentive Scheme.
- AELD0008: targeted a 280m area with minimal previous drilling, between drillholes AELD0002/AELD0003 (Binti South) and AELD0006 (Binti Central) shown in Figure 10. The drill hole intersected 0.55m of matrix sulphides from 511.86m and 3.6m of blebby nickel sulphides from 512.41m. Blebby sulphides were also intersected from 486-500m in the dacite footwall unit. This drill hole was also planned as a platform hole for DHEM surveys and has detected a new off-hole conductor (82m x 50m; 5,000 siemens) mostly below and north of the hole (Figure 10).
- AELD0009: targeted a 30m x 30m off-hole DHEM plate above and south of AELD0004 (Figure 10). The drill hole intersected 8m of blebby and stringer nickel sulphides from 446m with the lithological sequence consistent with previous interpretation. The DHEM survey detected two plates (4,130 siemens each), with northern plate consistent with the modelled basal ultramafic contact and the southern plate associated with remobilised stringer nickel sulphides 15m above the Western Ultramafic contact.
- AELD0010: targeted a regional magnetic anomaly 6km southeast of the Binti prospect where previous drilling identified broad zones with >100ppb Pd and >200ppm Cu (up to 1,070ppm Cu) in ultramafics (i.e. KPDD0001). The drill hole intersected very thick ultramafic stratigraphy (578m in total, open at end of hole) with some high-MgO ultramafics (i.e. meso-adcumulates) intersected. Importantly, weak to moderately disseminated nickel sulphides were intersected from 132-136m and also very fine 'cloud' disseminated sulphides from 633-660m, indicating the ultramafics in this new search area are also fertile (Figure 11). Review of the DHEM has not identified any priority targets, however, there are multiple surface MLEM anomalies north and south of AELD0010 proximal to interpreted ultramafic units that require priority follow-up.

Initial interpretation is the massive sulphide mineralisation at the Binti prospect may be defined by tight folding around primary lava pathways, with mineralisation on or close to primary basal contact positions. These lava pathway positions are currently interpreted as moderate to steeply south plunging (Figure 10), but more structural and geophysical data is being collected and assessed to confirm this. The mineralised channel positions are open both up and down plunge (Figure 10). Previous nickel sulphide intersections at the Binti Gossan occur in the Central Ultramafic whereas thicker intersections at Binti South occur in the Western Ultramafic which is absent at the Binti Gossan prospect.

While the width of these potential lava channels may appear limited (i.e. 100m), they can have significant continuation down plunge. An example is the high-grade Silver Swan mine located 35km to the west, that has a shallow strike length of <100m but a down plunge extent of over 1,000m.

Assay results received

Assay results have now been received for the drill holes from the first program in 2022 at the Binti prospect, with significant intersections shown below in Table 3.

Table 3: Significant intersections from recent assay results received for drilling at the Binti prospect

Hole ID	Prospect	Sulphide Type	From (m)	To (m)	Width (m)	Ni (%)	Cu (%)	Co (%)	Total PGEs (g/t)
AELD0004	Binti South	Minor stringer	449.20	449.80	0.60	0.60	0.04	0.019	0.08
AELD0004	Binti South	Disseminated	453.00	455.00	2.00	0.40	0.01	0.013	0.10
AELD0005	Binti Central	Disseminated, stringer	346.00	348.00	2.00	0.50	0.01	0.014	0.23
AELD0005	Binti Central	Disseminated, stringer	350.00	358.00	8.00	0.41	0.01	0.009	0.11
Including		Minor stringer	353.20	354.00	0.80	0.92	0.05	0.014	0.23
AELD0006	Binti Central	Massive, disseminated	409.74	410.60	0.86	2.09	0.09	0.053	0.37
Including		Massive	409.74	410.04	0.30	5.00	0.07	0.118	0.44
AELD0006	Binti Central	Massive	519.39	519.69	0.30	3.35	0.14	0.108	0.66
ELD023	Binti Central	Massive	292.79	293.07	0.28	5.35	0.40	0.065	NA
ELD023	Binti Central	Disseminated, stringer	423.56	434.00	10.44	0.52	0.02	0.015	0.13
Including		Stringer	423.56	423.86	0.30	2.39	0.13	0.067	0.57

Two thin intersections of massive nickel sulphide were intersected in AELD0006 at Binti Central, the first 0.3m at 5.00% Ni from 409.74m in the Central Ultramafic and the second 0.3m at 3.35% Ni from 519.39m in the Western Ultramafic. Historic drill hole ELD023 was extended to 520m depth with recent drilling and intersected thin massive sulphides in the Central Ultramafic (0.28m at 5.35% Ni from 292.79m) and in the Western Ultramafic (0.3m at 2.39% Ni from 423.56m).

Two thicker intersections of disseminated-blebby nickel sulphides were intersected at Binti Central in ELD023 (10.44m at 0.52% Ni from 423.56m) and in AELD0005 (8m at 0.41% Ni from 350m). Disseminated-blebby sulphides occur at all three prospects, with the more notable intersections at Binti Central (as above) and Binti Gossan (i.e. ELD027: 16.95m at 0.70%Ni, 0.13%Cu, 0.015% Co from 480.89m).

For personal use only

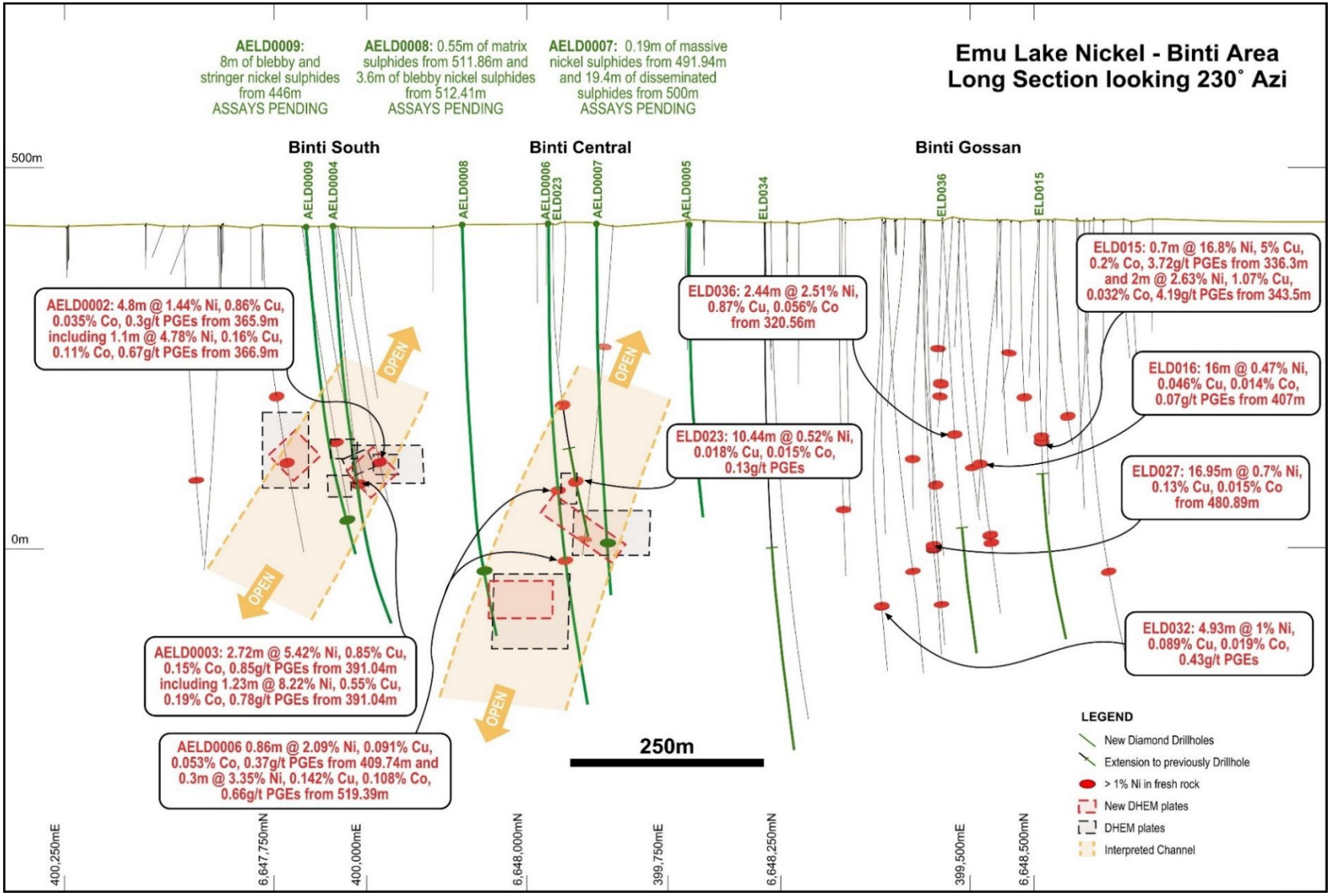


Figure 10: Long section of the Binti prospect showing significant nickel sulphide intersections (>5 Ni%m) from historic and recent drilling (green) and interpreted mineralised channels. Projection GDA94 Zone 51.

For personal use only

For personal use only

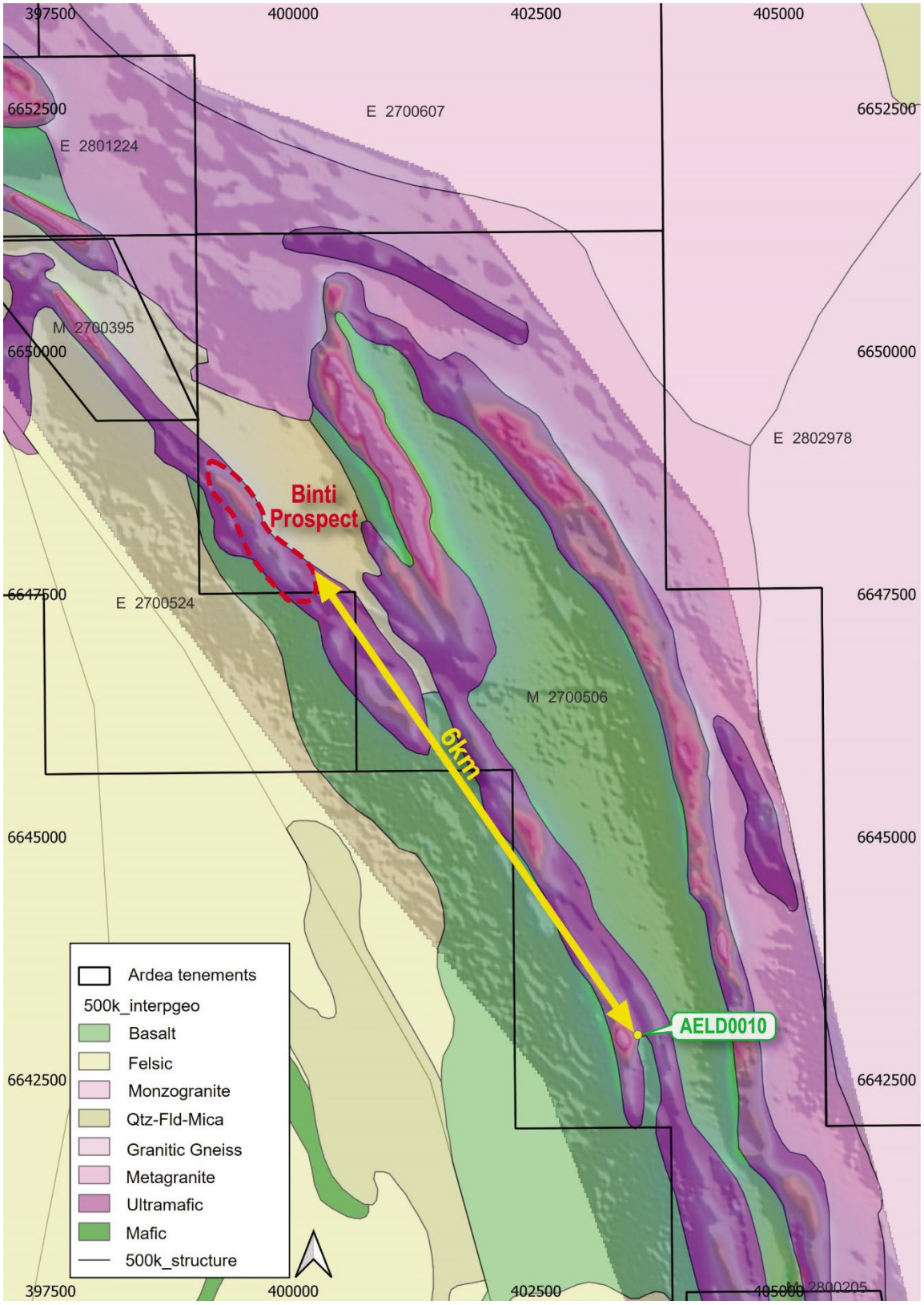


Figure 11: Location of recent drill hole AELD0010 that intersected nickel sulphide fertile ultramafics 6km southeast of the Binti Area. Projection GDA94 Zone 51.

Bulong Project

During the March Quarter, six RC holes were drilled for 798m, with three holes drilled on each line to test a layered mafic complex (**LMC**) target defined by anomalous PGE soil geochemistry, limited subcrop and magnetic geophysical data (Figure 12). The concept was to test for PGE-nickel-copper-cobalt mineralisation associated with a norite (orthopyroxene gabbro) and pyroxenite contact in a similar setting to the Nova or Julimar LMC. Assay results from the RC drill program were returned during the September Quarter with encouraging PGE anomalism at depth on the contact between the norite and pyroxenite units, with up to 278ppb platinum and 270ppb palladium. A follow-up drill program of 1,100 metres of RC drilling is planned to test the northern hinge and southern anomaly areas and includes a deeper 300m vertical hole in the West to test the down-dip portion of the lopolith ("basin") for increasing PGE anomalism and potential magmatic PGE mineralisation.

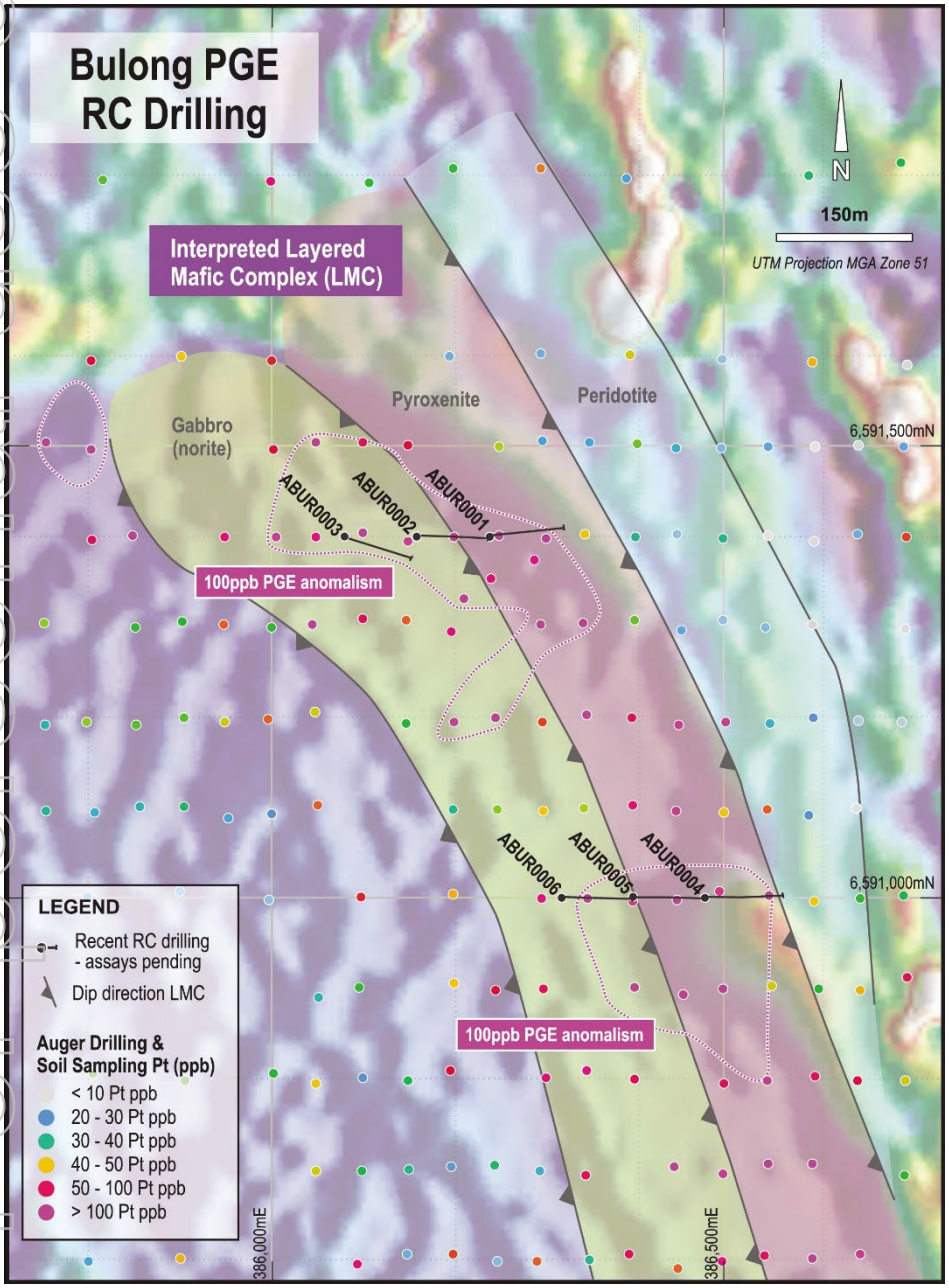


Figure 12: Bulong PGE Prospect – Aeromagnetic image, with GSWA geology boundaries, Platinum auger geochemical anomalism, >105ppb Platinum contours and recently completed drill hole traces shown. Projection MGA 94 Zone 51.

For personal use only

3. CORPORATE

Strategy

Ardea's priority is the KNP nickel-cobalt-scandium laterite project development, commencing with Goongarrie, to produce sustainably and ethically sourced battery minerals for the LIB supply chain to further advance the transition to a low carbon future.

The starter KNP development project is the Goongarrie Hub to capitalise on the premium goethite ore type and infrastructure-rich location. Complementary exploration opportunities in nickel sulphide and Critical Minerals (notably REE) will also be pursued, such as the recent nickel sulphide discovery at Emu Lake and REEs at Kalpini.

Finance

The Company's cash position was $19M at Quarter end with no debt. All current programs are well funded.

Issued capital at 30 September 2022 was 169,737,772 shares, with 4,542,000 Performance Rights and 4,000,000 options.

Summary of Expenditures for the Quarter

During the Quarter, the Company incurred a total net expenditure from operating activities of $2,269k. This was made up of $1,969k expended on exploration and evaluation activities including feasibility studies, $100k on staff costs and $347k on administrative and corporate costs, with the balance on minor items. Funds received during the Quarter included interest of $17k and $130k loan repayment from Kalgoorlie Gold Mining Limited.

Included in these costs were payments made to Directors of the entity and their associates. These payments were Directors Salaries and Superannuation payments and Consulting fees of $203k and rental for the Company's West Kalgoorlie operations office of $7.5k for the Quarter. All payments were made on an arm's length basis.

Further details on Quarterly expenditures are included in the Appendix 5B – Quarterly Cashflow Report attached to this Quarterly Report.

For personal use only

For personal use only

Investor Relations and Stakeholder Engagement

Ardea representatives Andrew Penkethman and Alex Mukherji attended the Noosa Mining Investor Conference from 20 to 22 July 2022 where the Company had a booth and presentation slot and received a strong reception at its inaugural in-person attendance.

The Company also attended and presented at the annual Diggers and Dealers Mining Forum in the City of Kalgoorlie-Boulder from 1 to 3 August 2022. There was a record attendance at the event, with this an excellent opportunity for the Ardea team to catch up with a wide range of stake holders from well-known locals to new potential investors.

On 20 and 21 September, several Ardea personnel attended the Goldfields – Esperance Major Projects Conference. The two-day event was attended by industry and local service providers with the key items of discussion during the conference being effective stakeholder engagement, Aboriginal Business, Future Innovation in the Mining Industry, Transport and associated infrastructure and supporting local businesses.

Ardea representative Andrew Penkethman attended the Australia India Business Exchange 2022 Business Mission to India organised by Austrade, as a member of the Critical Minerals delegation (Figure 13). The Australia-India Economic Cooperation and Trade Agreement (**ECTA**) will promote growth in Australian minerals exports to India by eliminating and reducing customs duties on key products, improving access to a growing and diversified market for the Australian critical minerals sector.

Figure 13: Andrew Penkethman and other Critical Minerals attendees at AIBX events in September 2022.

4. LOOKING FORWARD

During the December 2022 Quarter, Ardea will focus upon the following programs.

Kalgoorlie Nickel Project

Ardea will continue to work with all stakeholders, including industry groups and the Federal and State Governments to make sure that project development is predicated on sustainable and ethical standards.

KNP PFS

The current priorities are interpreting results from sterilisation drilling for the plant site general arrangement, updating the Goongarrie Hub JORC Code (2012) compliant Ore Reserve, defining geotechnical considerations for optimised open pit shells, lodging process water licences, EPA approvals submission and completing financial metrics that reflect the 3.5Mtpa base case.

On the technical front, incorporate the learnings from the in-progress bench scale metallurgical test work focussed on mineralised neutraliser and Critical Minerals to further refine the PFS. Continue to advance feasibility study work streams utilising both in-house personnel, supporting consultants and expand the Ardea Owners Team.

Strategic Partner Process

- Maintain communication with groups who have executed confidentiality agreements and who are active in the Virtual Data Room (**VDR**), and work with new incoming parties who have contacted Ardea and want to accelerate their engagement.
- Consider the merits of Ardea and advisors selecting a preferred project partner to work with Team Ardea on completing a DFS, making a Final Investment Decision, securing project funding and developing the Goongarrie Hub. The current decision is whether the Strategic Partner secures off-take, or whether Ardea continues to retain all off-take and further advancing the project as a 100%-owned asset. In all Strategic Partner discussions, securing off-take is the primary driver, with these rights only available if there is a project equity investment and critically, securing project finance.
- Attend Australian Trade and Investment Commission – Australian Critical Minerals Delegations to Korea in October, and Europe and the United Kingdom in November.

Resource Upgrades

- Complete the Siberia North resource update.
- Commence MRE work at Kalpini, Bulong, Lake Rebecca, Yerilla and other satellite nickel-cobalt deposits.
- Incorporate pulp re-assays with all resource updates.

These satellite deposits can be considered as additional plant feed for the Goongarrie Hub, or in the case of Kalpini, Bulong, Lake Rebecca and Yerilla, as a separate stand-alone production hub to further increase nickel-cobalt production rates from the KNP. Of interest, these satellite laterites are also the current focus of KNP nickel sulphide exploration.

Flow Sheet Research and Development

Continue evaluating additional by-product credit potential from the HPAL/AL pregnant liquor solution to supplement the nickel-cobalt-scandium resource. With bench-scale test work underway, this process is being accelerated.

The R&D continues to minimise the project development footprint and carbon emissions, while adhering to Western Australia's world-class safety, health, environmental and operating standards.

Stakeholder Engagement

- Community consultation, in particular with our First Nations groups, the City of Kalgoorlie Boulder, Shire of Menzies, Southern Ports Esperance and all other stakeholders.
- Continue engagement with groups such as the CSIRO, FBICRC, Australian Commonwealth Government, WA State Government, Austrade, DFAT, CMO and MPFA.

For personal use only

During the December 2022 Quarter, Ardea is attending the:

- Menzies Discovery Day, 15 October.
- FBICRC Second Participant Forum for 2022, Melbourne, 25 October 2022.

WA Nickel Sulphide, Critical Minerals

Emu Lake

- Plan further exploration at the Binti prospect based on results from the recent drilling, DHEM (3 untested plates) and updated 3D geological modelling, to test prospective mineralised channels that are open both up and down plunge.
- Regional technical assessment using detailed geochemical ratios, geophysical data, geological and structural interpretation to generate a pipeline of nickel sulphide exploration targets over the underexplored Emu Lake project.
- Recommence on-ground exploration in Q1 2023.

Bulong

Planned follow-up PGE and magmatic nickel sulphide exploration.

Other KNP Projects

Review of geological settings favourable for nickel sulphide mineralisation and Critical Minerals throughout Ardea's strategic tenement holding will continue. Other project areas will also continue to be cost effectively reviewed using Ardea's extensive database, sample drill pulps available for re-assay at the West Kalgoorlie office and detailed geophysical datasets.

Investor Relations

During the December 2022 Quarter, Ardea has a booth and presentation slot or is attending meetings at:

- Australian Nickel Conference, Perth, 5-6 October.
- 121 Global Online Tech Metals, 26-28 October 2022.
- "What's Down the Track" Convention Centre, Kalgoorlie, 17 November 2022.

This announcement is authorised for release by the Board of Ardea Resources Limited.

For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:

Andrew Penkethman
Managing Director and Chief Executive Officer
Tel +61 8 6244 5136

For personal use only

For personal use only

About Ardea Resources

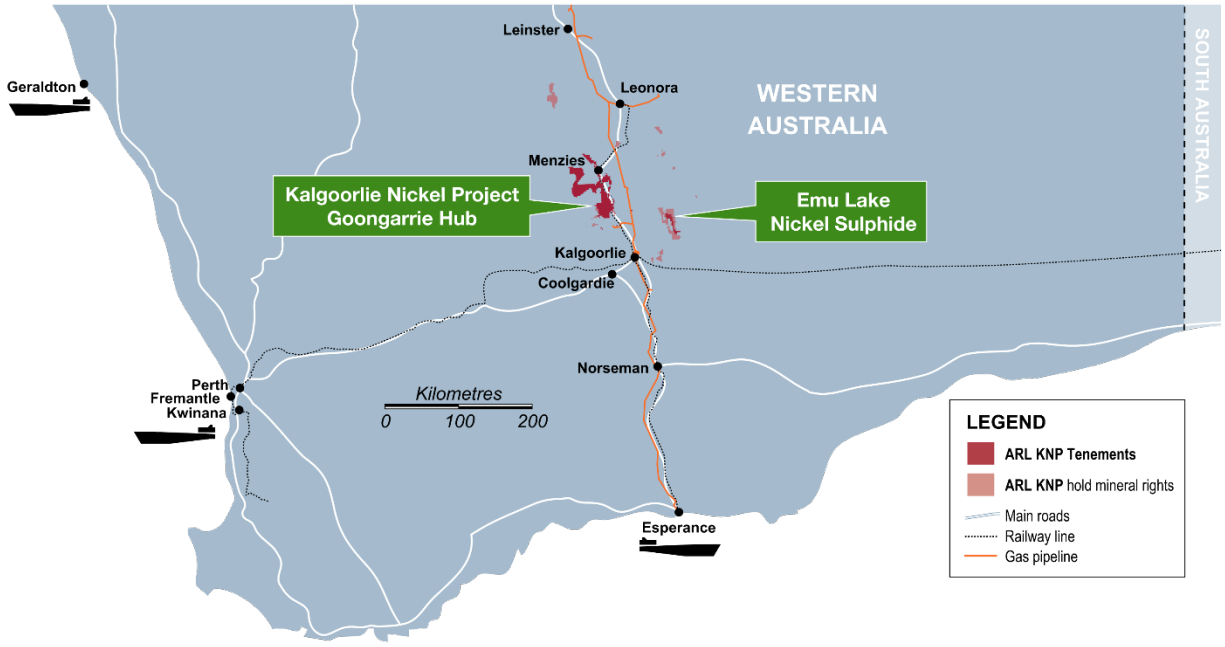
Ardea Resources (ASX:ARL) is an ASX-listed nickel resources company, with a large portfolio of 100%-controlled West Australian-based projects, focussed on:

- Development of the Kalgoorlie Nickel Project (**KNP**) and its sub-set the Goongarrie Hub, a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in the developed World at **830Mt at 0.71% nickel and 0.046% cobalt for 5.9Mt of contained nickel and 380kt of contained cobalt** (Ardea ASX releases 15 February, 16 June 2021), located in a jurisdiction with exemplary Environmental Social and Governance (**ESG**) credentials, notably environment.
- Advanced-stage exploration at compelling nickel sulphide targets, such as Emu Lake, and Critical Minerals targets including scandium and Rare Earth Elements throughout the KNP Eastern Goldfields world-class nickel-gold province, with all exploration targets complementing the KNP nickel development strategy.

Ardea's KNP development with its 5.9 million tonnes of contained nickel is the foundation of the Company, with the nickel sulphide exploration, such as Emu Lake, as an evolving contribution to Ardea's building of a green, forward-facing integrated nickel company.

Put simply, in the Lithium Ion Battery (**LIB**) sector, the Electric Vehicle and Energy Storage System battery customers demand an ESG-compliant, sustainable, and ethical supply chain for nickel and other inputs. In the wet tropics, with their signature HPAL submarine tailings disposal and rain forest habitat destruction, an acceptable ESG regime is problematic. In contrast, the world-class semi-arid, temperate KNP Great Western Woodlands with its benign environmental setting is likely the single greatest asset of the KNP.

The KNP is located in a well-established mining jurisdiction with absolute geopolitical acceptance and none of the land-use and societal conflicts that commonly characterise nickel laterite proposals elsewhere. All KNP Goongarrie Hub production tenure is on granted Mining Leases with Native Title Agreement in place.



Ardea

Follow Ardea on social media

Australian Federal Government - Major Project Status

KNP KALGOORLIE NICKEL PROJECT
Battery Minerals to the World

For personal use only

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. *KNP Cobalt Zone Study on 7 August 2017, PFS 28 March 2018 and Expansion Study 24 July 2018.*
2. *GNCP High Grade Resource - 60 million tonne at 1.0% Nickel Sustainable Long-life Battery Metal Resource Confirmed, 15 February 2021.*
3. *Highway Nickel Deposit - Mineral Resource Estimate, 16 June 2021.*
4. *Annual Report 2021 – 24 September 2021.*
5. *Goongarrie Hub Feasibility Study Update, 15 November 2021.*
6. *Emu Lake Nickel Sulphide Discovery confirmed with 2.72m at 5.42% Ni, 14 January 2022.*
7. *Goongarrie Hub Feasibility Study Update, 25 January 2022.*
8. *Emu Lake Nickel Sulphide Camp Follow-Up Program, 7 February 2022.*
9. *Confirmation of High-Grade Nickel-Cobalt from Highway Metallurgical Drilling, 11 February 2022.*
10. *Emu Lake Nickel Sulphide Follow-up Drilling Commenced, 7 March 2022.*
11. *Goongarrie Hub Water Extraction Licences Granted, 11 March 2022.*
12. *High-grade Nickel-Cobalt Confirmed at Kalpini with Scandium and Rare Earth Elements, 14 March 2022.*
13. *Kalgoorlie Nickel Project Awarded Major Project Status, 18 March 2022.*
14. *Kalgoorlie Nickel Project Recognition on All Tiers of Australian Government, 21 March 2022.*
15. *Confirmation of High-Grade Nickel-Cobalt from Goongarrie South Metallurgical Drilling, 16 May 2022.*
16. *Confirmation of High-Grade Nickel-Cobalt from Goongarrie Hill Metallurgical Drilling, 26 May 2022.*
17. *Kalgoorlie Nickel Project Feasibility Study Update, 14 June 2022.*
18. *Kalgoorlie Nickel Project Strategy Update, 9 September 2022.*
19. *Australian Nickel Conference, 6 October 2022.*
20. *Appendix 4G and 2022 Corporate Governance Statement, 27 September 2022.*
21. *Annual Report 2022, 27 September 2022.*
22. *Goldfields Esperance Major Projects Conference, 21 September 2022.*

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 Resource Estimates for the KNP 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. Mr Buchhorn owns Ardea shares.

The exploration and industry benchmarking summaries are based on information reviewed or compiled by Mr Andrew Penkethman, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Mr Penkethman 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'. Mr Penkethman 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. Mr Penkethman owns Ardea shares.

For personal use only

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.

Appendix 5B

Mining exploration entity or oil and gas exploration entity quarterly cash flow report

For personal use only

Name of entity

Ardea Resources Limited

ABN	Quarter ended ("current quarter")
30 614 289 342	30 September 2022

Consolidated statement of cash flows		Current quarter $A'000	Year to date (3 months) $A'000
1.	**Cash flows from operating activities**		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	(888)	(888)
	(b) Feasibility Studies	(1,081)	(1,081)
	(c) production	-	-
	(d) staff costs	(100)	(100)
	(e) administration and corporate costs	(347)	(347)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	17	17
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Government grants and tax incentives	-	-
1.8	Other (provide details if material) – Kalgoorlie Gold costs to be repaid on IPO	-	-
	Kalgoorlie Gold costs repaid, R&D refund	130	130
1.9	**Net cash from / (used in) operating activities**	**(2,269)**	**(2,269)**
2.	**Cash flows from investing activities**		
2.1	Payments to acquire or for:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) exploration & evaluation	-	-
	(e) investments	-	-
	(f) other non-current assets	-	-

For personal use only

Consolidated statement of cash flows		Current quarter $A'000	Year to date (3 months) $A'000
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) investments	-	-
	(e) 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)	-	-
2.6	**Net cash from / (used in) investing activities**	**-**	**-**

3.	**Cash flows from financing activities**		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	-
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	-
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)	-	-
3.10	**Net cash from / (used in) financing activities**	**-**	**-**

4.	**Net increase / (decrease) in cash and cash equivalents for the period**	(2,269)	(2,269)
4.1	Cash and cash equivalents at beginning of period	22,018	22,018
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(2,269)	(2,269)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	-	-
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	-

Consolidated statement of cash flows		Current quarter $A'000	Year to date (3 months) $A'000
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	**Cash and cash equivalents at end of period**	**19,749**	**19,749**

5.	**Reconciliation of cash and cash equivalents** 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	6,247	2,018
5.2	Call deposits	13,502	20,000
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	**Cash and cash equivalents at end of quarter (should equal item 4.6 above)**	**19,749**	**22,018**

6.	**Payments to related parties of the entity and their associates**	Current quarter $A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	211
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.

Salaries, Directors fees and Consulting fees paid to Directors - $189,686

Payments for Kalgoorlie Office to a Director related entity for the quarter - $15,105

For personal use only

For personal use only

7.	**Financing facilities** *Note: the term "facility' includes all forms of financing arrangements available to the entity.* *Add notes as necessary for an understanding of the sources of finance available to the entity.*	**Total facility amount at quarter end $A'000**	**Amount drawn at quarter end $A'000**
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	**Total financing facilities**	-	-
7.5	**Unused financing facilities available at quarter end**		-
7.6	Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		

8.	**Estimated cash available for future operating activities**	**$A'000**
8.1	Net cash from / (used in) operating activities (item 1.9)	(2,269)
8.2	(Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	-
8.3	Total relevant outgoings (item 8.1 + item 8.2)	(2,269)
8.4	Cash and cash equivalents at quarter end (item 4.6)	19,749
8.5	Unused finance facilities available at quarter end (item 7.5)	-
8.6	Total available funding (item 8.4 + item 8.5)	19,749
8.7	**Estimated quarters of funding available (item 8.6 divided by item 8.3)**	8.70

Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.

8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:

8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer: N/A

8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer: N/A

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer: N/A

Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.

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.

Date: 28th October 2022

Authorised by: Ardea Board of Directors

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow 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 cash flow 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.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [*name of board committee – eg Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.

For personal use only

For personal use only

Ardea Resources Limited Tenement Schedule (WA) as at 30 September 2022

Goongarrie Hub

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E24/196	Goongarrie	100	Live		**M24/731**	Goongarrie	100	Live	3
E24/209	Goongarrie	100	Live		**M24/732**	Goongarrie	100	Live	3
E24/211	Goongarrie	100	Pending		**M24/744**	Goongarrie	100	Live	
E29/934	Goongarrie	100	Live		**M24/778**	Goongarrie	100	Live	3
E29/1028	Goongarrie	100	Live		**M29/167**	Goongarrie	100	Live	
E29/1038	Goongarrie	100	Live		**M29/202**	Goongarrie	100	Live	
E29/1039	Goongarrie	100	Pending		**M29/272**	Goongarrie	100	Live	
E29/1045	Goongarrie	100	Live		**M29/278**	Goongarrie	100	Live	
E29/1048	Goongarrie	100	Live		**M29/423**	Goongarrie	100	Live	
E30/500	Goongarrie	100	Live		**M29/424**	Goongarrie	100	Live	
E30/501	Goongarrie	100	Live		**M29/426**	Goongarrie	100	Live	
E30/502	Goongarrie	100	Live		**P24/5260**	Goongarrie	100	Live	
G29/25	Goongarrie	100	Pending		**P24/5328**	Goongarrie	100	Live	
L24/239	Goongarrie	100	Live		**P24/5329**	Goongarrie	100	Live	
L29/134	Goongarrie	100	Live		**P24/5265**	Goongarrie-Carr Boyd	100	Live	
L29/135	Goongarrie	100	Live		**P24/5169**	Goongarrie-Windanya	100	Live	
L30/67	Goongarrie	100	Live		**P24/5480**	Goongarrie-Windanya	100	Live	
L30/68	Goongarrie	100	Live		**M24/919**	Goongarrie-Scotia	100 Ni rights	Live	6
L16/141	Goongarrie	100	Live		**M24/959**	Goongarrie-Scotia	100 Ni rights	Live	6
L30/85	Goongarrie	100	Live		**M24/541**	Goongarrie	100	Live	
P29/2646	Highway North	100	Live		**P29/2650**	Highway North	100	Live	
P29/2647	Highway North	100	Live		**P29/2651**	Highway North	100	Live	
P29/2648	Highway North	100	Live		**E29/1125**	Goongarrie East	100	Live	16
P29/2649	Highway North	100	Live		**E29/1082**	Goongarrie	100	Live	
P24/5528	Goongarrie	100	Pending		**E29/1089**	Goongarrie	100	Live	
P29/2559	Highway North	100	Live		**P29/2561**	Highway North	100	Live	
P29/2560	Highway North	100	Live		**P29/2562**	Highway North	100	Live	
P29/2501	Highway - Moriarty	100	Live		**E29/941**	Ghost Rocks	100	Live	
P29/2511	Ghost Rocks	100	Live		**E29/981**	Ghost Rocks	100	Live	
P29/2512	Ghost Rocks	100	Live		**M29/214**	Highway	100	Live	
P29/2513	Ghost Rocks	100	Live		**P29/2538**	Ghost Rocks	100	Live	
P29/2514	Ghost Rocks	100	Live		**P29/2539**	Ghost Rocks	100	Live	
P29/2515	Ghost Rocks	100	Live		**E29/1083**	Goongarrie	100	Live	
L16/143	Goongarrie – Credo West	100	Pending		**L16/147**	Goongarrie – Credo West	100	Pending	
L16/144	Goongarrie – Credo West	100	Pending		**L16/148**	Goongarrie – Credo West	100	Pending	
L16/145	Goongarrie – Credo West	100	Pending		**L16/149**	Goongarrie – Credo West	100	Pending	
L16/146	Goongarrie – Credo West	100	Pending		**L30/95**	Goongarrie – Credo West	100	Pending	

Goongarrie Hub Expansion

Siberia

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E24/203	Siberia	100 non Au-Ag righ	Live	4	**P24/5235**	Siberia	100	Live	
E29/889	Siberia	100 non Au-Ag righ	Live	4	**P24/5236**	Siberia	100	Live	
M24/634	Siberia	100 non Au-Ag rights	Live	1,4	**P29/2484**	Siberia	100	Live	
M24/660	Siberia	100 non Au-Ag rights	Live	4	**P29/2485**	Siberia	100	Live	
M24/663	Siberia	100 non Au-Ag rights	Live	4	**P24/5416**	Siberia	100	Live	
M24/664	Siberia	100 non Au-Ag rights	Live	4	**P24/5417**	Siberia	100	Live	
M24/665	Siberia	90 non Au-Ag rights	Live	2,4	**P24/5418**	Siberia	100	Live	

M24/683	Siberia	100 non Au-Ag rights	Live	4	**P24/5566**	Siberia	100	Pending	
M24/686	Siberia	100 non Au-Ag rights	Live	4	**P24/5567**	Siberia	100	Pending	
M24/772	Siberia	100 non Au-Ag rights	Live	4	**L24/248**	Siberia	100	Pending	
M24/797	Siberia	100 non Au-Ag rights	Live	4	**L24/249**	Siberia	100	Pending	
M24/915	Siberia	100 non Au-Ag rights	Live	4	**L24/250**	Siberia	100	Live	
M24/916	Siberia	100 non Au-Ag rights	Live	4	**L24/251**	Siberia	100	Pending	
M24/1002	Siberia	100 non Au-Ag rights	Pending	4	**P24/5599**	Siberia	100	Pending	

Goongarrie Hub Expansion

Black Range

Tenure	Location	Ardea Interest (%)	Status	Note
M24/757	Black Range	100 non Au-Ag rights	Live	4
M24/973	Black Range	100 non Au-Ag rights	Pending	4
P24/4395	Black Range	100 non Au-Ag rights	Live	4
P24/4396	Black Range	100 non Au-Ag rights	Live	4
P24/4400	Black Range	100 non Au-Ag rights	Live	4
P24/4401	Black Range	100 non Au-Ag rights	Live	4
P24/4402	Black Range	100 non Au-Ag rights	Live	4
P24/4403	Black Range	100 non Au-Ag rights	Live	4
P24/5593	Black Range	100% non Au rights	Pending	14
P24/5594	Black Range	100% non Au rights	Pending	14
P24/5595	Black Range	100% non Au rights	Pending	14
P24/5596	Black Range	100% non Au rights	Pending	14

Kalpini Hub

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E27/524	Kalpini	100 non Au rights	Live	9	**P25/2454**	Kalpini-Bulong	100 non Au rights	Live	14
E27/606	Kalpini	100 non Au rights	Live	14	**P25/2455**	Kalpini-Bulong	100 non Au rights	Live	14
E27/607	Kalpini	100 non Au rights	Live	14	**P25/2456**	Kalpini-Bulong	100 non Au rights	Live	14
E28/1224	Kalpini	100	Live		**P25/2457**	Kalpini-Bulong	100 non Au rights	Live	14
E28/2978	Kalpini	100 non Au rights	Live	14	**P25/2458**	Kalpini-Bulong	100 non Au rights	Live	14
M27/395	Kalpini	100	Live		**P25/2459**	Kalpini-Bulong	100 non Au rights	Live	14
M27/506	Kalpini	100	Live		**P25/2460**	Kalpini-Bulong	100 non Au rights	Live	14
M27/512	Kalpini	100	Pending		**P25/2461**	Kalpini-Bulong	100 non Au rights	Live	14
M28/199	Kalpini	100	Live		**P25/2482**	Kalpini-Bulong	100 non Au rights	Live	14
M28/201	Kalpini	100	Live		**P25/2483**	Kalpini-Bulong	100 non Au rights	Live	14
M28/205	Kalpini	100	Live		**P25/2484**	Kalpini-Bulong	100 non Au rights	Live	14
E27/278	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2559**	Kalpini-Bulong	100 non Au rights	Live	14
E27/438	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2560**	Kalpini-Bulong	100 non Au rights	Live	14
E27/520	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2561**	Kalpini-Bulong	100 non Au rights	Live	14
E27/579	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2609**	Kalpini-Bulong	100 non Au rights	Live	14
E28/1746	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2613**	Kalpini-Bulong	100 non Au rights	Live	14
E28/2483	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2614**	Kalpini-Bulong	100 non Au rights	Live	14
E25/578	Kalpini-Bulong	100 non Au rights	Live	14	**P25/2615**	Kalpini-Bulong	100 non Au rights	Live	14
M25/59	Kalpini-Bulong	100 non Au rights	Live	14	**P25/2650**	Kalpini-Bulong	100 non Au rights	Live	14
M25/134	Kalpini-Bulong	100 non Au rights	Live	14	**P25/2305**	Kalpini-Bulong	100 non Au rights	Live	13, 14
M25/145	Kalpini-Bulong	100 non Au rights	Live	14	**M31/488**	Kalpini-Lake Rebecca	100 non Au rights	Pending	14
M25/151	Kalpini-Bulong	100 non Au rights	Live	14	**P31/2038**	Kalpini-Lake Rebecca	100 non Au rights	Live	14
M25/161	Kalpini-Bulong	100 non Au rights	Live	14	**P31/2039**	Kalpini-Lake Rebecca	100 non Au rights	Live	14
M25/171	Kalpini-Bulong	100 non Au rights	Live	14	**P31/2040**	Kalpini-Lake Rebecca	100 non Au rights	Live	14
M25/187	Kalpini-Bulong	100 non Au rights	Live	14	**E27/647**	Kalpini	100 non Au rights	Live	14
M25/209	Kalpini-Bulong	100 non Au rights	Live	14	**P25/2306**	Kalpini-Bulong	100 non Au rights	Live	13, 14
E27/646	Kalpini	100 non Au rights	Live	14	**M25/19**	Kalpini-Bulong	100 non Au rights	Live	13, 14
E28/3139	Kalpini	100	Pending		**P25/2307**	Kalpini-Bulong	100 non Au rights	Live	13, 14
P25/2295	Kalpini	100 non Au rights	Live	14	**P25/2308**	Kalpini-Bulong	100 non Au rights	Live	13, 14
P25/2296	Kalpini-Bulong	100 non Au rights	Live	13, 14	**P25/2408**	Kalpini-Bulong	100 non Au rights	Live	13, 14
P25/2297	Kalpini-Bulong	100 non Au rights	Live	13, 14	**P25/2409**	Kalpini-Bulong	100 non Au rights	Live	13, 14

For personal use only

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
P25/2304	Kalpini-Bulong	100 non Au rights	Live	13, 14	**L27/102**	Kalpini	100	Pending	
E27/692	Kalpini-Bulong	100 non Au rights	Live	14	**L31/88**	Kalpini	100	Pending	

WA Regional

Tenure	Location	Ardea Interest (%)	Status	Note
M15/1101	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1263	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1264	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1323	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1338	WA Regional	Pre-emp Ni-Co Lat	Live	7
M27/510	WA Regional	100 Ni Lat Ore	Live	8
M27/272	Kanowna East	Non-Au Rights	Live	10

Yerilla Hub

Tenure	Location	Ardea Interest (%)	Status	Note
E39/1954	Yerilla-Aubils	100 non Au rights	Live	14
M39/1147	Yerilla-Aubils	100 non Au rights	Pending	14
E31/1092	Yerilla-Boyce Creek	100 non Au rights	Live	14
E31/1169	Yerilla-Boyce Creek	100 non Au rights	Live	14
E31/1208	Yerilla-Boyce Creek	100 non Au rights	Live	14
E31/1213	Yerilla-Boyce Creek	100 non Au rights	Live	14
M31/483	Yerilla-Boyce Creek	100 non Au rights	Live	14
M31/493	Yerilla-Boyce Creek	100 non Au rights	Pending	14
M31/475	Yerilla-Jump Up Dam	100 non Au rights	Live	14
M31/477	Yerilla-Jump Up Dam	100 non Au rights	Live	14
M31/479	Yerilla-Jump Up Dam	100 non Au rights	Live	14

Kookynie Gold-Perrinvale Nickel-Gold

Tenure	Location	Ardea Interest (%)	Status	Note
E40/350	Kookynie	0	Live	11
E40/357	Kookynie	0	Live	11

Tenure	Location	Ardea Interest (%)	Status	Note
E29/1006	Perrinvale	100 non Au rights	Live	14
E29/1078	Perrinvale	100 non Au rights	Live	14

Mt Zephyr Gold-Nickel

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E37/1271	Mt Zephyr	100	Live	12	**E39/1706**	Mt Zephyr	100	Live	12
E37/1272	Darlot East	100	Live	12	**E39/1854**	Mt Zephyr	100	Live	12
E37/1273	Darlot East	100	Live	12	**E39/1985**	Mt Zephyr	100	Live	12
E37/1274	Mt Zephyr	100	Live	12					

Bedonia Nickel-PGE-Gold

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E63/1828	Bedonia	100	Live		**E63/1857**	Bedonia	100	Live	
E63/1856	Bedonia	100	Live		**E63/1928**	Bedonia	100	Live	

For personal use only

Notes:	
1.	Britannia Gold Ltd retains precious metal rights.
2.	Impress Ventures Ltd has a 10% equity free-carried interest to a decision to mine.
3.	Norton Gold Fields Limited retains certain Au claw-back rights and royalty receivable.
4.	Ora Banda Mining Ltd holds Au-Ag rights while Ardea retains all non Au-Ag rights.
5.	Acra JV – Northern Star Resources Ltd earn-in with Essential Metals Limited. Former holds gold rights while latter retains nickel sulphide rights. Ardea retains rights to Ni laterite ore.
6.	Black Mountain Gold Limited all rights with exception of Ardea retaining Ni rights.
7.	Ramelius Resources Limited assignee (Maximus Resources Ltd) all rights, Ardea pre-emptive right to Ni-Co laterite.
8.	Paddington Gold Pty Ltd all mineral rights (except nickel sulphide) while Ardea retains rights to nickel laterite ore.
9.	By Sale Agreement between Northern Star (Carosue Dam) Pty Ltd and Kalnorth Gold Mines Ltd, Northern Star (Carosue Dam) Pty Ltd now owns Au rights while Ardea retains non-Au rights.
10.	Northern Star (Kanowna) Limited holds Au rights. Ardea retains non-Au rights.
11.	The Option to purchase the tenements was transferred to Metalicity Limited on 21 November 2020. Ardea retains non Au rights.
12.	The Mt Zephyr/Darlot East tenements were farmed out to Red 5 Limited on 18 November 2020 whereby Red 5 Limited may earn 80% equity interest. Ardea is free carried to Decision to Mine.
13.	Purchase of tenements by Binding Terms Sheet and Alluvial Rights Agreements dated 4 June 2021 between the Seller Steven Lionel Kean and Ardea Resources Limited.
14.	By way of the Demerger Implementation Deed executed between Ardea Resources Limited, Kalgoorlie Gold Mining Limited, Yerilla Nickel Pty Ltd, Kalgoorlie Nickel Pty Ltd and Ardea Exploration Pty Ltd dated 9 September 2021, certain tenements are to be transferred to newly listed Kalgoorlie Gold Mining Limited. For certain other tenements, Ardea Resources Limited or its subsidiaries will continue to hold and retain non-gold rights while Kalgoorlie Gold Mining Limited retain gold rights only.

Interests in Mining Tenements and Petroleum Tenements Acquired or Increased during the September Quarter 2022

Tenure	Location	Nature of Interest	Ardea Interest beginning Quarter (%)	Ardea Interest end Quarter (%)
P24/5593	Black Range	Application	0	50
P24/5594	Black Range	Application	0	50
P24/5595	Black Range	Application	0	50
P24/5596	Black Range	Application	0	50
P24/5599	Siberia	Application	0	100
M24/1002	Siberia	Application	0	100
L27/102	Kalpini	Application	0	100
L31/88	Kalpini	Application	0	100
L16/143	Goongarrie - Credo West	Application	0	100
L16/144	Goongarrie - Credo West	Application	0	100
L16/145	Goongarrie - Credo West	Application	0	100
L16/146	Goongarrie - Credo West	Application	0	100
L16/147	Goongarrie - Credo West	Application	0	100
L16/148	Goongarrie - Credo West	Application	0	100
L16/149	Goongarrie - Credo West	Application	0	100
L30/95	Goongarrie - Credo West	Application	0	100

For personal use only