

Ardea Resources



Annual General Meeting Presentation – 29th November 2018

www.ardearesources.com.au

Disclaimer

Important notice

This presentation contains general information only and is, or is based upon, information which has been released to ASX or is contained in the Company's prospectus dated 9 November 2016 (including supplementary prospectuses dated 18 November 2016 and 6 January 2017), the Goongarrie Nickel Cobalt Project Pre-Feasibility Study (dated 28 March 2018) and the Goongarrie Expansion Study (24 July 2018) This presentation is not an invitation, offer or recommendation (express or implied) to subscribe for, or apply for the purchase of, or to take any other action in respect of securities of any entity described herein and is not a prospectus, product disclosure statement or disclosure document for the purposes of the Corporations Act 2001 (Cth) and has not been lodged with ASIC. None of Ardea Resources Limited (Ardea or the Company) or its representatives are providing or offering investment advice or services by making this presentation.

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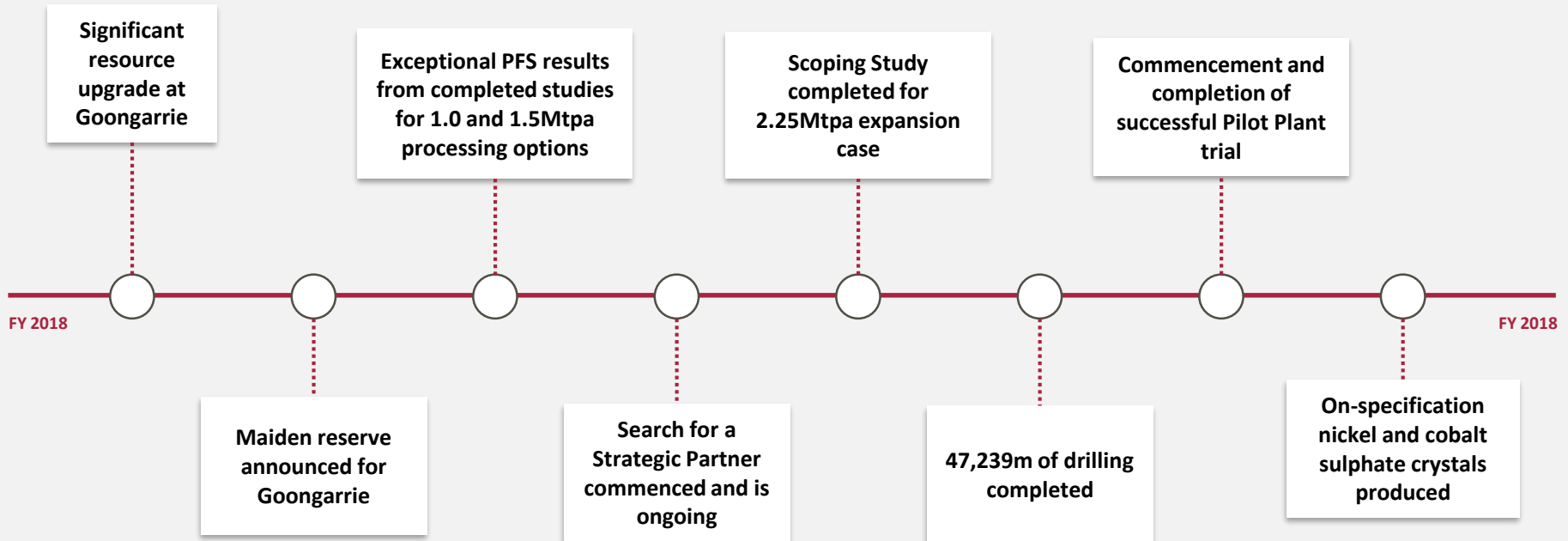
The Goongarrie Project has completed the Pre-Feasibility Study phase and has commenced programs that are part of the Definitive Feasibility Study. Though reasonable care has been taken to ensure that the facts are accurate and/or that the opinions expressed are fair and reasonable, no reliance can be placed for any purpose whatsoever on the information contained in this document or on its completeness. Actual results and developments of projects and the 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 Pre-Feasibility Study and the Expansion Study, which are based on forward looking statements, is that the Goongarrie Project is considered to have positive economic potential.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.

Application for securities under the Company's public offer can only be made under the prospectus, a copy of which is available from the Company. Investors should consider the prospectus in deciding whether to acquire Ardea shares and will need to complete the application form that accompanies the prospectus.



2018 - A Year of Significant Progress



Corporate Snapshot

Capital Structure

Shares on Issue	104,990,413
Share Price (28 Nov 2018)	\$0.675
52 week high / low	\$2.20 / \$0.52
Cash (30 Sept 2018)	\$15.8 million
Market Cap (28 Nov 2018)	\$70.9 million
Unlisted Stock \$0.25 options (IPO)	12.31 million
Staff performance rights	3.24 million

Ian Buchhorn and associates	11.3%
Citicorp Nominees	8.6%
Brian O'Shannassy and associates	8.5%
BNP Paribas Nominees	7.9%
JP Morgan Nominees	4.2%

Katina Law	Executive Chair
Ian Buchhorn	Executive Director
Wayne Bramwell	Non-Executive Director
Sam Middlemas	Chief Financial Officer
Sarah Mitchell	GM Technical Services
Dr Matt Painter	GM Gold

Experienced management team with global experience in corporate fundraising, processing and engineering for laterite nickel-cobalt deposits, laterite geology and geometallurgy, ensures the right mix to make Goongarrie succeed



Ardea Project Portfolio

Nickel-Cobalt Laterites, WA

Goongarrie Nickel Cobalt Project

Other deposits also under assessment:
Black Range, Kalpini, Yerilla, Boyce Creek,
Aubils, Siberia, Highway, Ghost Rocks

Nickel Sulphide Projects, WA

Includes Bedonia, Perrinvale
magmatic nickel sulphide targets

Bulk Tonnage Gold Projects, WA

Mt Zephyr Greenstone Belt, high-grade
anomalies along Celia Lineament,
Bardoc Tectonic Zone,
Taurus gold project

Porphyry & Epithermal Copper-Gold Projects, NSW

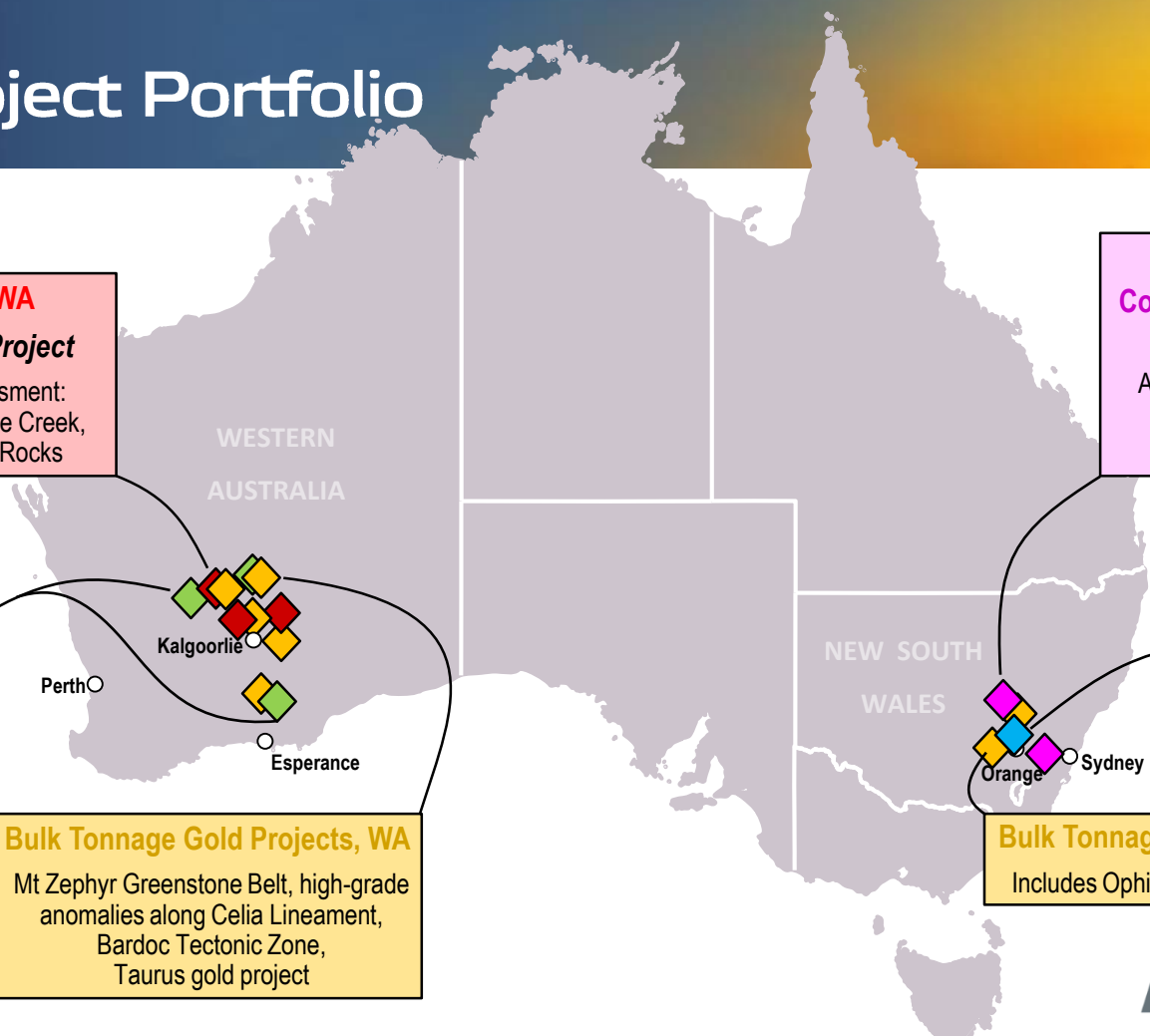
Lachlan Fold Belt, NSW is
Australia's premier address for
porphyry and epithermal
copper-gold projects

Lewis Ponds Zinc-Silver-Gold, NSW

Historic silver-gold-base
metal mine
High-grade resources
Bulk mining option

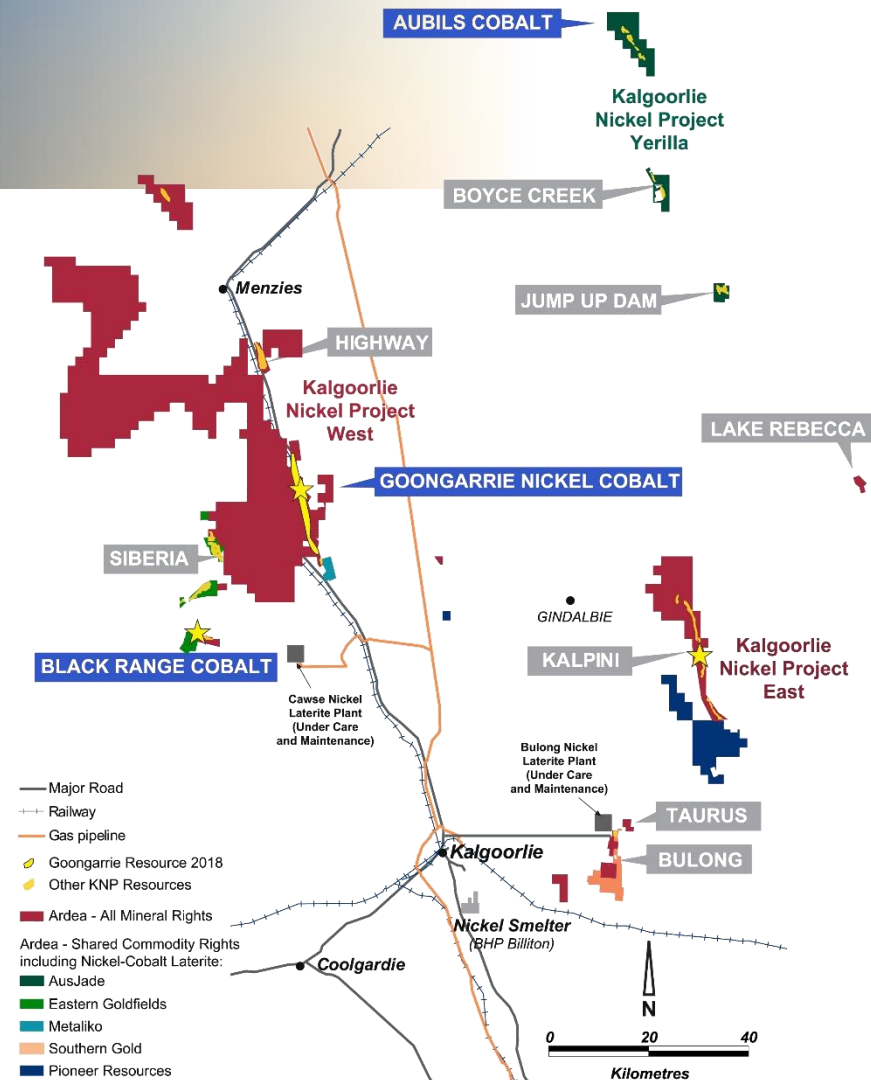
Bulk Tonnage Gold Projects, NSW

Includes Ophir, Australia's first goldfield



Goongarrie Ni Co Project

- ✓ The Goongarrie Nickel Cobalt Project is part of the broader **Kalgoorlie Nickel Project (KNP)**
- ✓ KNP has a **globally significant nickel and cobalt resource***
 - ✓ **5.6 million** tonne contained **Nickel**
 - ✓ **405,000** tonne contained **Cobalt**
- ✓ Potential for **multiple processing hubs** and **multi-decade mine life**
- ✓ Proximity to **world-class infrastructure** and logistics - prime location on the Goldfields Highway
- ✓ **Ethical, low environmental impact** and long life source of nickel-cobalt from a **stable jurisdiction**
- ✓ Goongarrie Nickel Cobalt Project is **highly advanced** with **PFS completed**
- ✓ Successful pilot plant results underpinned by **high-quality nature of the Goongarrie ore**



* See appendix for resource breakdown

Developing Goongarrie into a Successful Long-Term HPAL Operation



- ✓ Ore type is uniform with goethite dominant, high levels of cobalt, scandium credit and low acid consumption
 - ✓ No screen upgrade required, which is a significant point of difference and caused problems for other WA laterite projects
- ✓ Onsite neutralizer recovered during laterite mining
- ✓ Environmentally friendly, water resources adjoin the orebody
- ✓ Comparable capital intensity with successful nickel operations
- ✓ A thorough and detailed understanding of ore types and processing operations from PFS work
- ✓ Access to a large amount of successful vendor information (20 years) to develop Goongarrie

Significant Progress in 2018

Building on the \$50 Million spent by Vale and Heron on 2005-2009 PFS

Geology

- ✓ **Resource upgrade** at Goongarrie
- ✓ **Maiden reserve** announced for Goongarrie
- ✓ **47,239m of drilling** to date by Ardea since listing

Metallurgy

- ✓ **Variability** and **Rheology** test work to date favourable
- ✓ **Pilot Plant** testing successfully produced **nickel and cobalt sulphate crystals**
- ✓ Crystals meet **specifications** of several **battery industry off-takers**
- ✓ **Marketing samples** to be evaluated by off-takers and battery end-users

Project Studies

- ✓ **Pre-Feasibility Study** completed for **1.0 and 1.5Mtpa** processing options
- ✓ **Scoping Study** completed for **2.25Mtpa** expansion case option

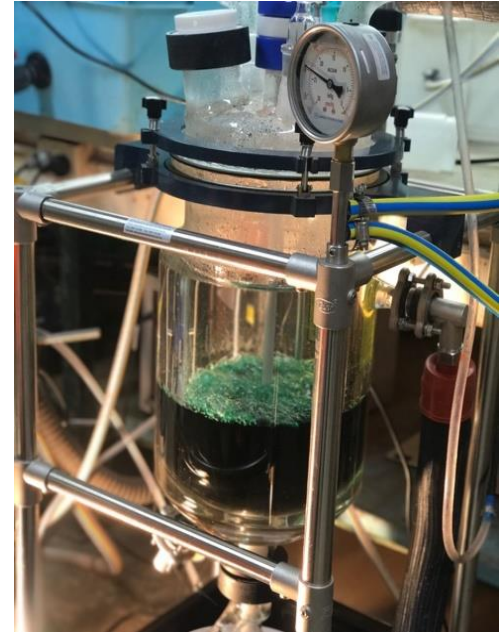


*Nickel sulphate (l) and cobalt sulphate (r)
produced from Goongarrie .*

Continued Growth and Development at Goongarrie

Activities for the next six months

- **Strategic Partner** process
- Goongarrie **Resource Upgrade**
- **High Grade Mine Schedule** based on Resource Upgrade
- **Mineralised Neutraliser** study
- Extensive **Variability Program** planned to extend the geo-metallurgy database to reflect the ore LOM
- **Water** studies
- **Tailings** studies
- **Alternative Product** options
- **EPA Lodgement** and related environmental studies



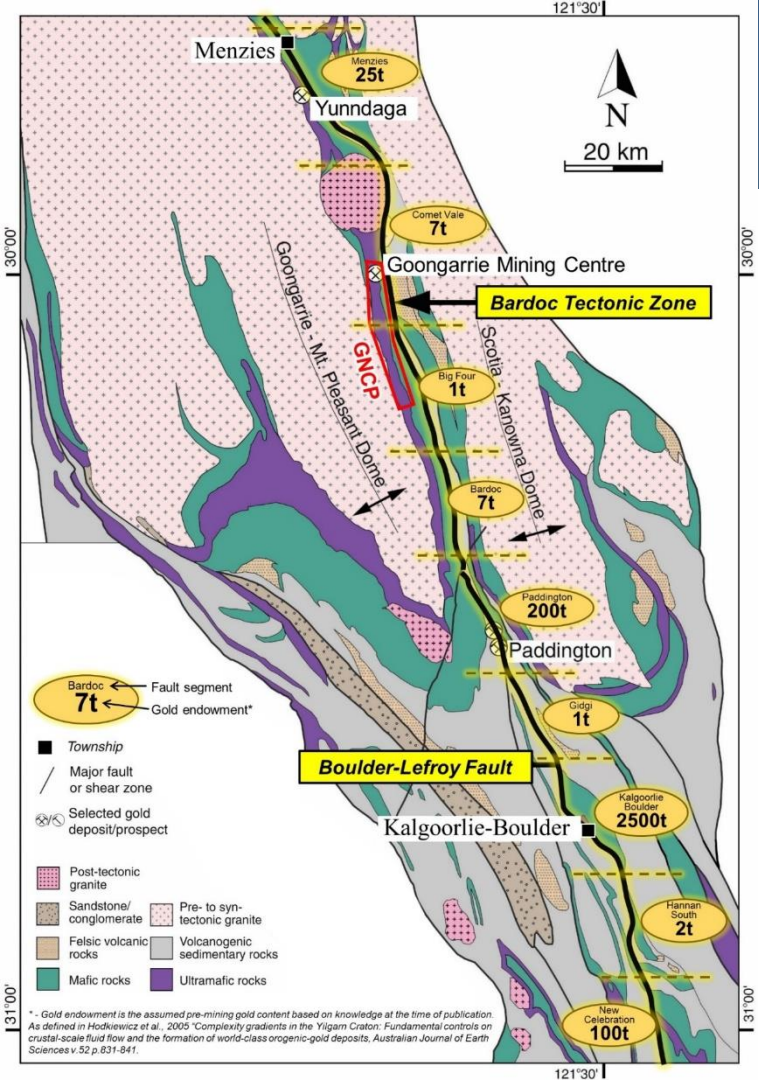
Nickel sulphate crystallisation in progress.

2019 Exploration Program



- ✓ **Drill programs ready to go at Mount Zephyr**
 - Gale (gold) and Dunn's North (gold) awaiting permitting, expected shortly
 - Jones Area A (gold & Ni-Cu sulphides) and Paul's Find (gold) permitted, awaiting sample assay results
- ✓ **Gold targeting program at Bardoc Tectonic Zone (BTZ) at Goongarrie**
 - New high-resolution geophysics datasets expected shortly
 - Preliminary data already highlighting gold targets
 - Drilling expected early 2019
- ✓ **Ranked target assessment of all WA and NSW projects underway**

Poorly exposed, altered, gold-mineralised granite is examined by the Ardea team at Gale gold prospect, Mt Zephyr project



Bardoc Tectonic Zone (BTZ)

- ✓ One of the major structures of the Eastern Goldfields Province
- ✓ 80 km long gold-producing regional shear / fault system
- ✓ Hosts Paddington gold mine, Goongarrie, Menzies, and Comet Vale historic gold mining centres
- ✓ Contiguous with Boulder-Lefroy Fault, host to Kalgoorlie, New Celebration, St Ives mining centres.
- ✓ 2005 academic studies define gold endowment (production + resources) along strike of the BTZ / Boulder-Lefroy fault system
 - Ardea tenure covers Comet Vale and Big Four segments
 - Low historic production in Ardea tenure, adjoining mines in outcrop
 - Almost no outcrop in Ardea tenure – laterite and alluvial cover

Laterite cover has obscured the BTZ's true potential at Goongarrie

Gold endowment along the Bardoc Tectonic Zone and the contiguous Boulder-Lefroy Fault, after Hodkiewicz et al. 2005.

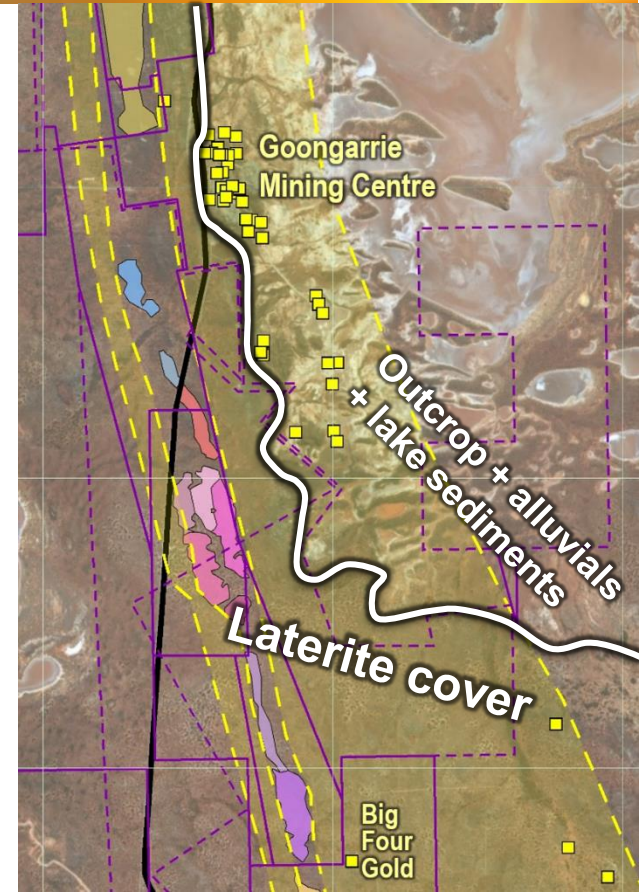
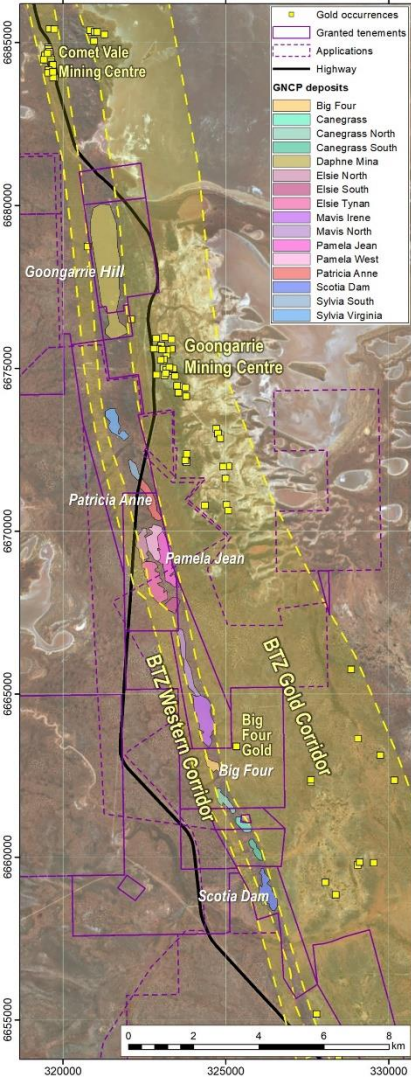


Gold under cover

- ✓ Historic gold mining in outcrops below breakaways near Lake Goongarrie.
- ✓ Magnetics show continuity of features throughout – no change under cover.
- ✓ No reason for gold mineralisation to stop under cover.
- ✓ Gold occurrences in laterite cover from GNCP drilling support this.

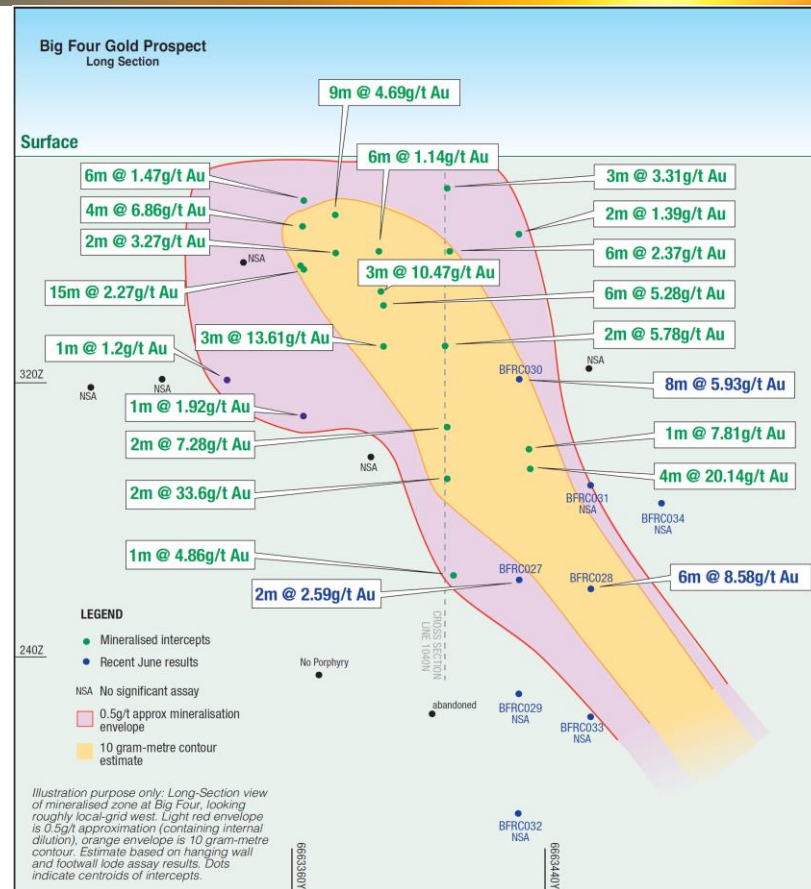
Laterite cover provides Ardea a golden opportunity at Goongarrie

The gold corridors of the BTZ at Goongarrie.



Big Four gold deposit – gold beneath the laterites

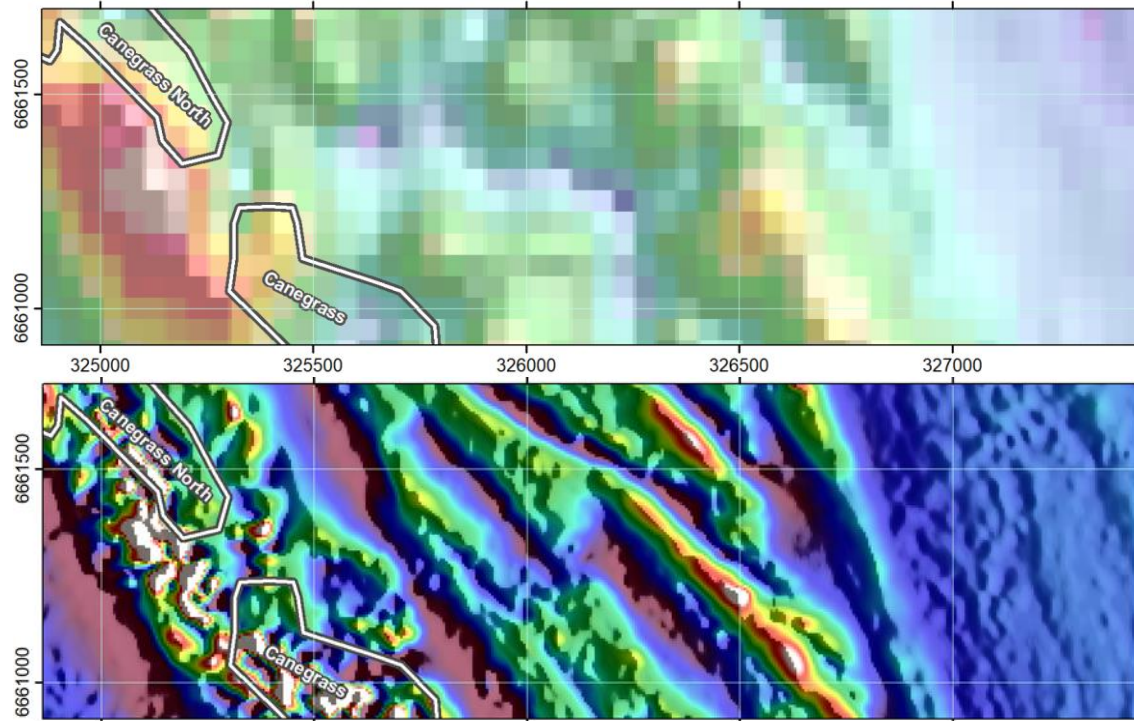
- ✓ Historic early 1900s mine in outcrop window through laterite.
- ✓ Gold hosted in fractures in a porphyry within ultramafic sequence.
- ✓ Currently small but good grades and depth continuity:
 - 3m @ 10.47 g/t Au
 - 6m @ 8.56 g/t Au
 - 4m @ 20.14 g/t Au
 - Open at depth
- ✓ Proof of concept for gold mineralisation under laterite cover.
- ✓ Explored on NW trend, new magnetics show N-S trend under laterite, undrilled
- ✓ Preliminary magnetics shows several “cookie-cutter” repetitions of the Big Four magnetic signature.



Long section of the Big Four gold deposit, around 800 m east of the nearest nickel-cobalt laterite mineralisation at Big Four (Heron Resources, June 2012).

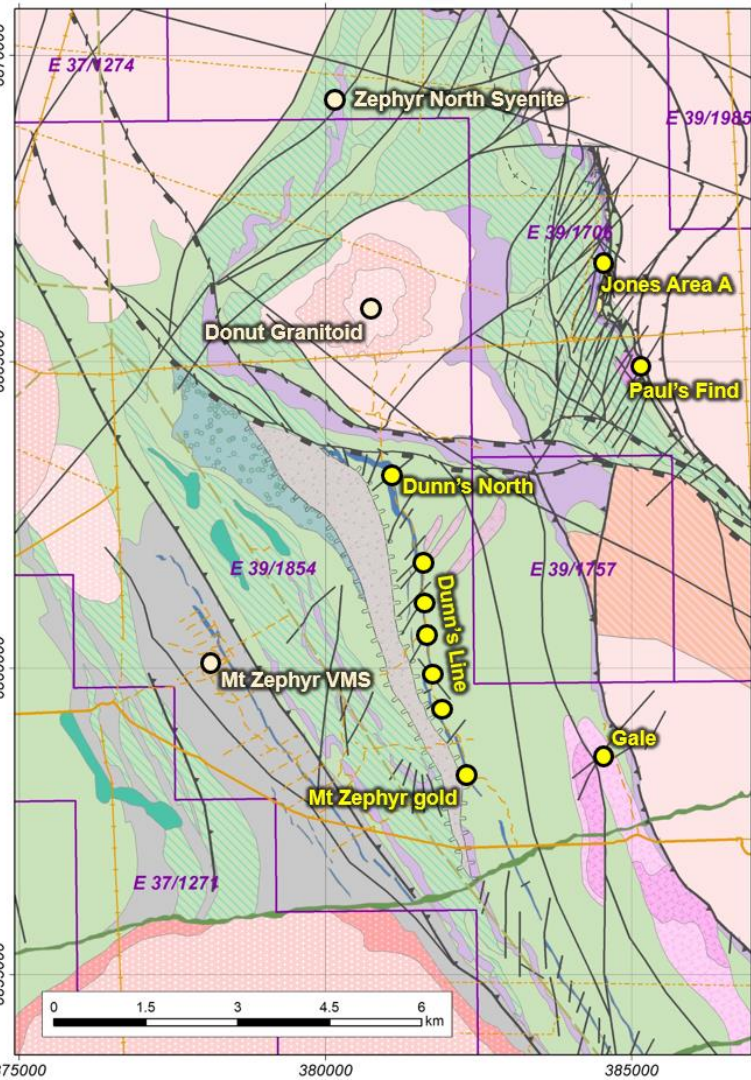
Geophysics and drilling on the BTZ

- ✓ Laterite cover means surface sampling is ineffective
- ✓ Get smart
 - High-resolution geophysics
 - Target definition
 - Drilling mandatory
- ✓ New 25m line spacing aeromagnetic dataset due shortly
- ✓ **Preliminary imagery already showing structural gold targets...**



Comparison of the new preliminary high-resolution aeromagnetic imagery (top) with the previous best dataset over a small portion of the southern part of the GNCP.

Mt Zephyr greenstone belt



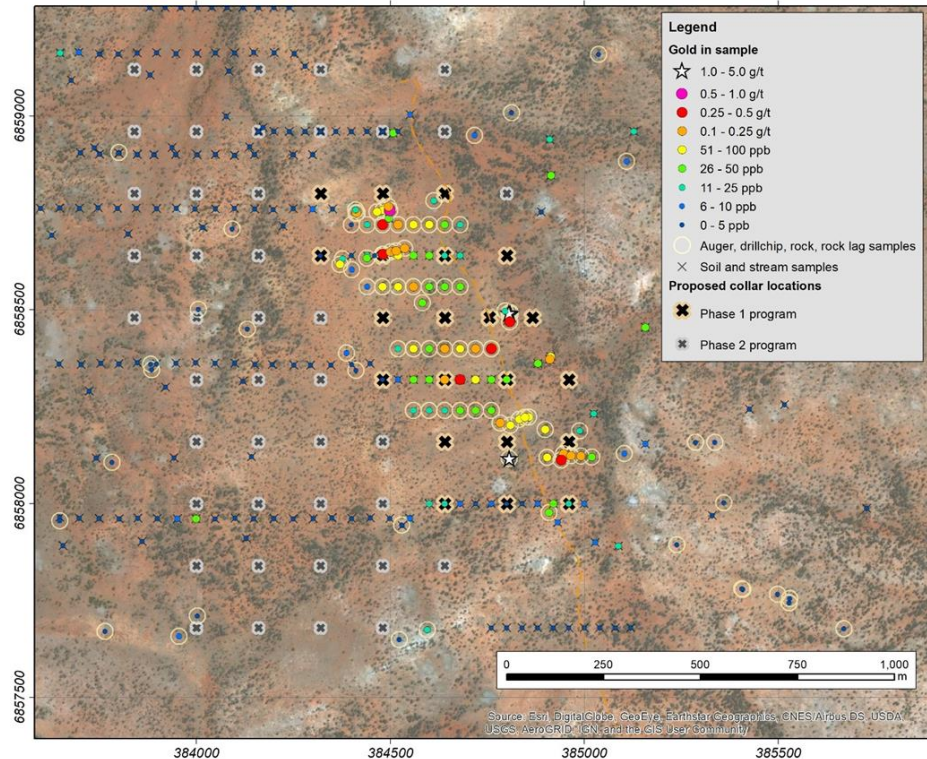
- ✓ Prime exploration opportunity for Ardea, virtually no systematic gold exploration since 1990s.
- ✓ Belt-wide assessment
 - New regional geology defined, basis for targeting.
 - Open file data collation completed.
 - Parallels drawn between Mount Windarra area, Yamarna region, Kalgoorlie area, are highlighting new targets.
- ✓ Multiple gold and base metal targets in the process of being defined, ranked, assessed.
- ✓ Initial field sampling confirming the models

Ardea's active programs (bright yellow) in the Mount Zephyr project area, superimposed on the new proprietary regional geology.



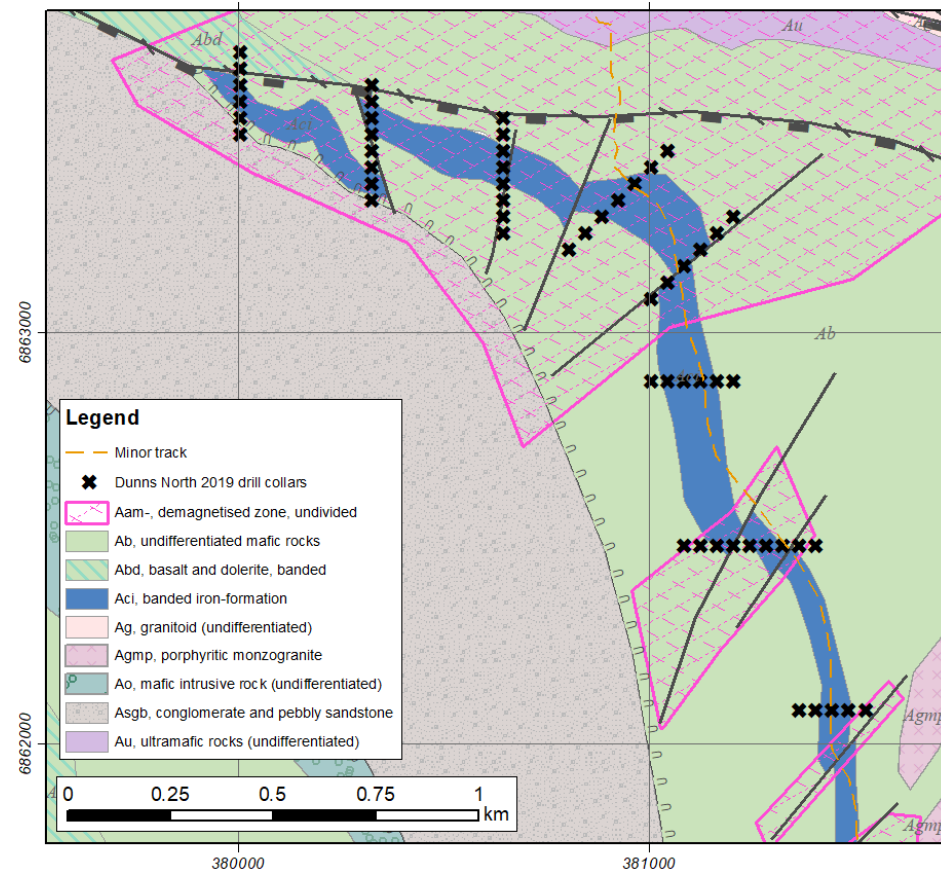
Gale gold drill program, Mt Zephyr

- ✓ **Outcropping gold-mineralised granite:**
 - Exceptional 900 x 300 m outcrop-limited anomaly at gold over 0.1 g/t (up to 1.49 g/t at surface)
 - Sericite, pyrite, hematite alteration.
 - Gold, arsenic, copper and barium anomalism.
 - Parallels with Dacian's Jupiter mine & Gold Field's Wallaby mine.
- ✓ 2-phase RC drill program planned
 - Initial 21 hole program, generally 50 m deep holes, some to 100 m
 - Second phase contingent upon Phase 1 results
- ✓ Drill permitting expected shortly. Early 2019 drilling.



Dunn's North gold drill program, Mt Zephyr

- ✓ Soil-covered area, zero outcrop.
- ✓ Virgin target defined by Ardea.
- ✓ Intense demagnetisation over an area measuring ~3.2 km by 1.4 km:
 - Potentially very large hydrothermal system.
 - Gold mineralised? Let's find out.
- ✓ Drill permitting expected shortly, early 2019 drilling.
- ✓ Inexpensive aircore drilling is planned for first-pass testing
 - Subsequent RC programs if successful



A golden 2019

- ✓ Other Mt Zephyr drill programs ready to go
 - Jones Area A – outcropping Ni-Cu gossans
 - Paul's Find – porphyry is a possible gold source for extensive alluvial gold workings
- ✓ Systematic assessment and ranking of all non-nickel cobalt laterite projects during 2019
 - Taurus, Bedonia, Ghost Rocks (on BTZ) gold projects in WA to be assessed, likely to be drilled.
 - Bedonia, Perrinvale, and Emu Lake nickel(-copper-PGE) sulphide projects in WA to be assessed.
 - Black Bullock, Ophir, Mount Aubrey, Yeoval precious and base metal projects in NSW to be assessed.



Ruins at the historic mining centre at the Taurus gold project east of Kalgoorlie

Strong News Flow - Next 6 Months



Advancing the Goongarrie Nickel Cobalt Project

- Resource update including mineralised neutraliser and scandium
- Updated Mine Schedule
- Strategic Partner update
- EPA referral

WA Exploration

- Commencement of drilling at Mt Zephyr
- Drill results Mt Zephyr
- Commencement of drilling at BTZ
- Drill results BTZ
- Complete sampling and commencement of drilling at Bedonia

NSW Spin Out

- Updated Lewis Ponds Resource

Investment Summary



- ✓ Ardea continues to advance Goongarrie towards development
- ✓ Goongarrie is an advanced Nickel Cobalt Project with a very large resource in an attractive location
- ✓ Strategic Partner process is ongoing with pressure building on battery supply chains
- ✓ Targeted programs continuing at Goongarrie focused on value enhancement and development
- ✓ Ardea has a highly prospective landholding in WA with significant gold and nickel sulphide targets
- ✓ Exploration budget and focus increased for gold and nickel sulphides
- ✓ Drilling due to commence at Mt Zephyr in Q1 2019
- ✓ Spin out of NSW gold and base metal assets to occur in the next 12 months



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APPENDIX – Goongarrie Nickel Cobalt Project Resources

Summary of total mineral resources within the Goongarrie Nickel Cobalt Project area, comprising resources at Goongarrie Hill, Goongarrie South, Big Four, and Scotia Dam (14 March 2018).

Camp	Domains	Cut-off %	Resource category	Size (Mt)	Cobalt (%)	Nickel (%)	Contained metal	
							Co (t)	Ni (t)
Goongarrie Hill	Ni & Co	≥ 0.5% Ni or > 0.08% Co	Inferred	52.5	0.04	0.65	21,600	340,400
			<i>Subtotal</i>	<i>52.5</i>	<i>0.04</i>	<i>0.65</i>	<i>21,600</i>	<i>340,400</i>
Goongarrie South	Ni & Co	≥ 0.5% Ni or > 0.08% Co	Measured	10.3	0.10	0.98	10,200	101,200
			Indicated	56.2	0.07	0.72	37,200	407,000
			Inferred	32.2	0.06	0.69	20,300	221,200
			<i>Subtotal</i>	<i>98.7</i>	<i>0.07</i>	<i>0.74</i>	<i>67,700</i>	<i>729,300</i>
Big Four	Ni & Co	≥ 0.5% Ni or > 0.08% Co	Indicated	45.5	0.06	0.71	28,200	320,700
			Inferred	9.9	0.06	0.63	6,100	61,900
			<i>Subtotal</i>	<i>55.4</i>	<i>0.06</i>	<i>0.69</i>	<i>34,300</i>	<i>382,700</i>
Scotia Dam	Ni & Co	≥ 0.5% Ni or > 0.08% Co	Indicated	3.3	0.09	0.81	3,000	26,900
			Inferred	5.7	0.07	0.76	4,100	43,300
			<i>Subtotal</i>	<i>9.0</i>	<i>0.08</i>	<i>0.78</i>	<i>7,100</i>	<i>70,200</i>
Total	All	≥ 0.5% Ni or > 0.08% Co	Measured	10.3	0.10	0.98	10,200	101,200
			Indicated	105.0	0.07	0.72	68,400	754,600
			Inferred	100.3	0.05	0.67	52,100	666,900
Goongarrie Resource Global			TOTAL	215.6	0.06	0.71	130,700	1,522,700

Note: All nickel and cobalt domains are included, and are encapsulated by an envelope defined by nickel grades equal to or greater than 0.5%. Note that figures are rounded to reflect degree of certainty and may not tally.



APPENDIX – Reserves Defined for Goongarrie Nickel Cobalt Project

Goongarrie Nickel Cobalt Project, Ore Reserves based on 25 year mine life at 1.5 Mtpa.

Deposits	Class	Size (Mt)	Cobalt (%)	Nickel (%)
Goongarrie South	Proven	8.95	0.10%	0.96%
	Probable	17.26	0.09%	0.79%
	Total	26.22	0.10%	0.85%
Big Four	Proven	—	—	—
	Probable	13.92	0.09%	0.77%
	Total	13.92	0.09%	0.77%
TOTAL	Proven	8.95	0.10%	0.96%
	Probable	31.18	0.09%	0.78%
	Total	40.13	0.09%	0.82%

Using a nickel equivalent cut of >0.81 %, which used inputs of A\$18,900/t nickel and A\$120,750/t cobalt. (US\$15,120/t Ni and US\$96,600/t Co, 0.8 exchange rate). Nickel equivalent (Nieq %) = $Ni\ grade + \frac{Co\ grade \times Co\ price}{Ni\ price}$. Prices used are US\$15,120/t for nickel and US\$96,600/t for cobalt. No assumption about recovery is included here. Recoveries are addressed elsewhere throughout the mining schedule and financial model.

APPENDIX – KNP resource breakdown

KNP nickel-cobalt mineral resource (JORC 2012), Ardea Annual Report 2017

Resource Category	Quantity (Mt)	Cobalt (%)	Nickel (%)	Contained cobalt (t)	Contained nickel (t)
Measured	9.6	0.10	1.02	9,700	98,800
Indicated	232.9	0.06	0.75	141,200	1,759,700
Inferred	530.5	0.05	0.68	254,400	3,600,000
KNP Total Resources	773.0	0.05	0.70	405,400	5,458,400

In accordance with the Australian Securities Exchange Limited Listing Rules Appendix 5A:

The information in this report that relates to Mineral Resources for the Highway, Goongarrie Hill, Goongarrie South, Big Four, Aubils and Boyce Creek Prospects is based on information originally compiled in-house and validated by Steve Jones in 2013. Steve Jones is a member of the Australasian Institute of Mining and Metallurgy. Steve Jones is a full time employee of Heron Resources Limited and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity that 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'. Steve Jones consents to the inclusion in this report of the matters based on his information in the form and context that it appears. Note that Mineral Resources that are not Ore Reserves do not have demonstrated viability.

The information in this report that relates to Mineral Resources for the Siberia North, Bulong East, Siberia, Black Range, Taurus and Jump Up Dam Prospects is based on information compiled by Snowden Mining Industry Consultants by members of the Australian Institute of Mining and Metallurgy. Snowden Mining Industry Consultants had sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity. All resources were internally audited by Snowden and signed off by a person of sufficient experience 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'. Steve Jones validated the Snowden Mining Siberia North estimate in 2013. Note that Mineral Resources that are not Ore Reserves do not have demonstrated viability.

Goongarrie - A High Quality Cobalt and Nickel Sulphate Project

Outstanding results delivered from PFS* and Expansion Studies completed in 2018:

- ✓ PFS of 1Mtpa and 1.5Mtpa base case over a 25-year mine life completed
- ✓ Expansion study of 2.25Mtpa with a 25-year mine life completed
- ✓ 95.5% cobalt and 94.5% nickel recovery – life of mine
- ✓ Pre-cobalt credit C1 costs in line with current worldwide operators
- ✓ PAL** 5th generation plant, proven design, successfully operated in other laterite projects globally

* Goongarrie Nickel Cobalt Project, PFS study, 28 March 2018, ** PAL = Pressure Acid Leach
+Goongarrie Expansion Study, 24 July 2018

	1.0Mtpa	1.5Mtpa	2.25Mtpa
Status	PFS	PFS	ES
No. Trains	1	1	1
Pre Tax NPV₈	US\$ 1.13 billion	US\$ 1.52 billion	US\$ 2.4 billion
Pre Tax IRR	29 %	29 %	31%
CAPEX	US\$ 472 million	US\$ 588 million	US\$918 million
C1 cash cost	US\$ 0.42 / lb	US\$ 0.45 / lb	US\$ (0.34) / lb
Payback	5.3 years	5.6 years	5.1 years
Cobalt sulphate	5,500tpa	6,900tpa	10,000tpa
Nickel sulphate	41,500tpa	55,300tpa	81,000tpa

