

Kalgoorlie Nickel Project Goongarrie Hub A multi decade nickel-cobalt operation

Andrew Penkethman
Managing Director & CEO

Update on
Transformational
Strategic Partnership
May 2024







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 Ardea Resources Limited (Ardea or the Company) prospectus dated 9 November 2016 (including supplementary prospectuses dated 18 November 2016 and 6 January 2017), High-grade nickel-cobalt mineralization extended at Goongarrie (8 October, 2018), Goongarrie Pilot Plant trial produces battery grade crystals (31 October 2018), Emu Lake Discovery (3 December 2021, 14 January 2022, 7 February 2022), Goongarrie Hub Feasibility Study Update (25 January 2022), High-grade Nickel-Cobalt Confirmed at Kalpini with Scandium and Rare Earth Elements (14 March 2022), Kalgoorlie Nickel Project Recognition on All Tiers of Australian Government (21 March 2022), Confirmation of High-Grade Nickel-Cobalt from Goongarrie South Metallurgical Drilling (16 May 2022), Kalgoorlie Nickel Project: Metallurgical Update – Mineralised Neutraliser (16 November 2022), Ardea Completes KNP ESG Accreditation from Independent Leading Global Platform (24 November 2022), Nickel sulphide anomalism from aircore drilling at Kalpini Project (2 May 2023), Mineralised Neutraliser Global Patent Lodged (15 June 2023), Kalgoorlie Nickel Project Mineral Resource Estimate Exceeds 6 Million Tonne Contained Nickel (30 June 2023), KNP Goongarrie Hub Ore Reserve and Feasibility Study Defines +40 Year Operation with Strong Financial Metrics (5 July 2023), Ardea Kalgoorlie Nickel Project Goongarrie Hub Tenement Consolidation (17 July 2023), Ardea Quarterly Activities Report June 2023 (27 July 2023), Ardea and Japanese Consortium Update on MOU (29 September 2023), Nickel Sulphide Prospectivity Confirmed and Lithium-Caesium-Rubidium bearing intrusives in Highway EIS drillhole (15 December 2023), Ardea and Japanese Consortium: Update on Progress on KNP - Goongarrie Hub (29 February 2024), Ardea and Japanese Consortium: Update on Progress on KNP - Goongarrie Hub (29 February 2024), Ardea and Japanese Consortium: Update on Progress o

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This presentation contains forward-looking statements regarding the Company's resources, intentions and future business. These statements reflect current information, expectations, intentions and strategies regarding the future, and are subject to certain risks and uncertainties. Should one or more of these risks or uncertainties materialise, or should any of the underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this presentation. Investors are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made. Other than where required by law, the Company is under no obligation to revise any forward looking statement to reflect events or circumstances after the date of this presentation or to reflect the occurrence of unanticipated events.

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, which is 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.





Experienced Board, Supportive Shareholders & Tight Capital Structure



Mat Longworth
Non-Executive Chair

Experienced across exploration, project evaluation/development including KNP and corporate management



Andrew Penkethman
Managing Director & CEO

Experienced geologist with strong corporate focus including strategic partner processes and ASX, TSX and AIM listings



lan Buchhorn
Executive Director

Mineral economist and geologist, with significant Eastern Goldfields of WA, exploration, evaluation, development and operations experience



Maree Arnason
Non-Executive Director

Highly experienced director and executive with over 35 years' experience in the natural resources, energy and manufacturing sectors



Sam Middlemas
Company Secretary

Chartered Accountant experienced in providing Company Secretary services



Listed on ASX (ARL)

Shares on Issue Performance Rights Options Share Price (1 May 2024) 52 week high / low 199,562,915 3,436,400 3,000,000 \$0.685 \$0.95 / \$0.295

Cash (31 Mar 2024) Market Capitalisation Debt Board and Management

Top 40 Shareholders

\$17 million \$137 million Nil ~10% equity

~60% equity



The Right People – With The Right Expertise



Rebecca Moylan
Chief Financial Officer

Experienced CFO with expertise in financial and corporate management, accounting, project financing and contract negotiation



Matthew Read
Project Director

Experienced in project and commercial leadership roles including leading Project Owner teams, contracts, policies, procedures, systems, development, commissioning and operations



Mike Miller

General Manager – Technical Services

Proven track record in design, development and operation of hydro-metallurgical operations with a focus on nickel-cobalt production



Alex Mukherji General Manager –

Land Access

Experienced geologist specialising in geological and environmental compliance, reporting, Native Title and stakeholder engagement, land access and commercial



Matthew McCarthy

General Manager – Geology & Exploration

Experienced geologist with a successful track record across several commodities including nickel exploration, study management and development









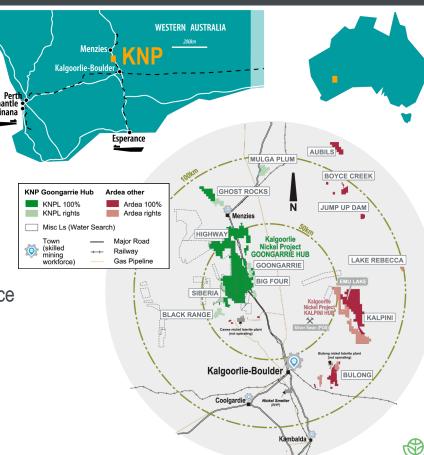
Kalgoorlie Nickel Project – Globally Significant Nickel & Cobalt Resource

• KNP – Goongarrie Hub, 70km northwest of the City of Kalgoorlie-Boulder is in the **best operating jurisdiction** in the world with collaboration agreement with best possible Strategic Partners, SMM and MC

Major Project Status, and support at Local, State and Federal levels. Ready access to skilled personnel, and key infrastructure, including road, rail, power and gas. Two well serviced port options (Esperance and Kwinana)

 The Kalgoorlie Nickel Project (KNP) global Mineral Resource Estimate¹ (MRE) is 854Mt at 0.71% Ni and 0.045% Co for
 6.1Mt contained nickel and 386kt contained cobalt

 The KNP Goongarrie Hub MRE¹ is 584Mt at 0.69% Ni and 0.043% Co for 4Mt of nickel and 250kt of cobalt



Successful Conclusion of Strategic Partner Process – Major Milestone

- Strategic Partners selected for the globally significant KNP Goongarrie Hub located in the tier 1 mining jurisdiction of WA¹
- Ardea has executed a binding Cooperation Agreement to form a 50:50 incorporated JV with Sumitomo Metal Mining (SMM) and Mitsubishi Corporation (MC) (Consortium) which represents a significant Critical Minerals Collaboration
- The Consortium will fund 100% of the DFS costs up to the agreed budget of approximately A\$98.5 million and assist KNPL in optimising debt financing to earn an ultimate 50% interest in the JV, with Ardea retaining the other 50%²
- In addition, Ardea, SMM and KNPL have agreed on funding support arrangements allowing DFS activities to continue in Q2 2024



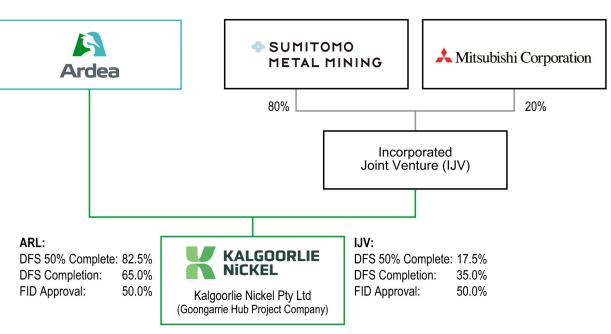


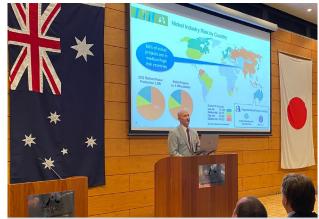
^{1.} See 29 April 2024 ARL SMM and MC to form a JV to develop KNP Goongarrie Hub ASX Announcement

The Transaction is subject to conditions precedent including FIRB approval and the execution of a binding Shareholders' Agreement, and expected completion is prior to the end of Q3 2024

Significant Critical Minerals Collaboration

Investment Scheme





"Ardea has aligned the Company with the best possible strategic partners, Sumitomo Metal Mining and Mitsubishi Corporation, to assist in realising the full potential of the Kalgoorlie Nickel Project – Goongarrie Hub"





What does Ardea Bring to the Joint Venture?







Globally Significant Asset

- Goongarrie Hub MRE 584Mt @ 0.69% Ni & 0.043% Co for 4Mt contained Ni & 250Kt contained Co
- Ore Reserve of 194Mt @ 0.7% Ni & 0.05% Co for 1.36Mt of contained Ni & 99Kt contained Co¹

Wealth of data and knowledge

- Comprehensive drillhole and sample database, detailed geometallurgical material types, metallurgical data from past studies and Mineralised Neutraliser IP
- Experienced and respected Corporate and Technical team to collaborate with Consortium on the DFS²

Strong Stakeholder Support

- With Major Project Status and Nickel added to Australia's Critical Minerals list Ardea is expected to have enhanced access to financing under Australia's \$4 billion Critical Minerals Facility which offers low interest loans, and related grant programmes
- Excellent working relationships with Local, State & Federal Governments
- Strong local presence in City of Kalgoorlie-Boulder
- Tight Share Register with top 40 holding approximately 60% and Board / Management 10%



DFS 50% Complete: 82.5% DFS Completion: 65.0% FID Approval: 50.0%



Kalgoorlie Nickel Pty Ltd (Goongarrie Hub Project Company)

IJV:

DFS 50% Complete: 17.5% DFS Completion: 35.0% FID Approval: 50.0%





What does the Consortium Bring to the Joint Venture?



SUMITOMO METAL MINING



Sumitomo Metal Mining (SMM) and Mitsubishi Corporation (MC) – the Consortium

Will form an Incorporated Joint Venture (80% SMM, 20% MC) to ultimately acquire 50% interest in KNPL¹

SMM and MC will provide 100% Funding for the KNP Goongarrie Hub DFS budget of A\$98.5M

- SMM and MC to jointly acquire a 17.5% interest in KNPL upon funding 50% of the DFS budget, an additional 17.5% interest upon completion of the DFS
- SMM will advance A\$12M to KNPL to advance DFS early work programs ahead of completion of transaction expected by end of Q3 2024
- An additional 15% interest, to 50%, on Final Investment Decision (FID), Ardea retain 50% into production

SMM and MC will collaborate with Ardea and KNPL on the DFS

- The value of the technical and corporate contributions which SMM and MC will make to the DFS, and subsequent Front-End Engineering and Pre-Commitment Activities leading to FID, will be significant
- SMM is a pre-eminent Japanese nickel-cobalt laterite development and production company, operating the Coral Bay and Taganito HPAL nickel operations in the Philippines and the Niihama Nickel Refinery and Harima Refinery in Japan
- MC is one of Japan's largest and premier general trading and investment companies with decades of experience in investing in the Australian resources sector
- The Consortium will lead securing project development debt leading to the FID

ARL:

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Kalgoorlie Nickel Pty Ltd (Goongarrie Hub Project Company)

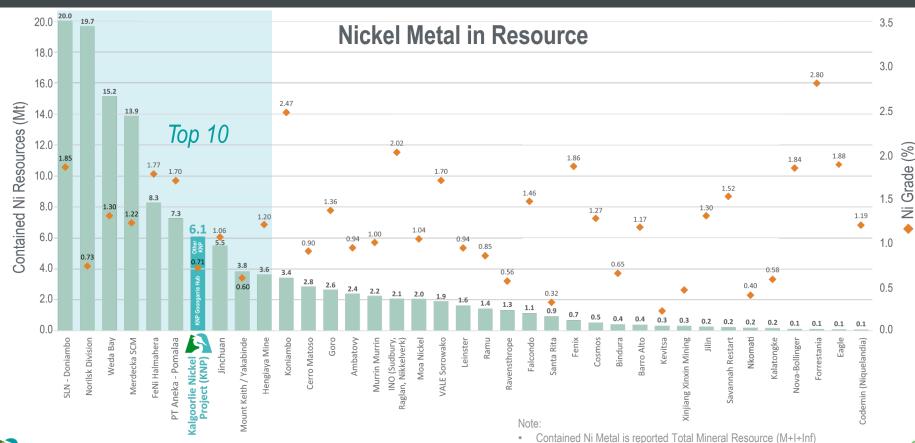
IJV:

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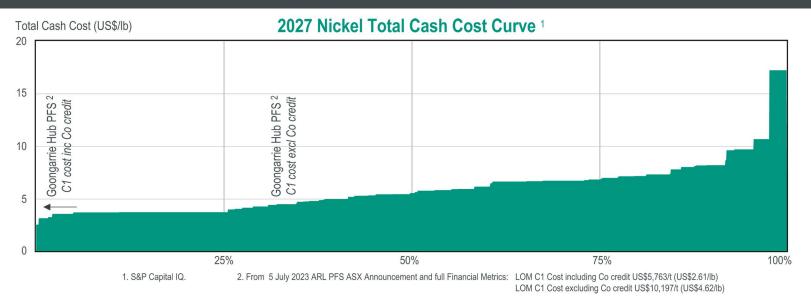
Kalgoorlie Nickel Project Resource in Top 10 Globally





See References for Global Nickel Resource chart in Appendices

Kalgoorlie Nickel Project – Robust Goongarrie Hub PFS Delivers



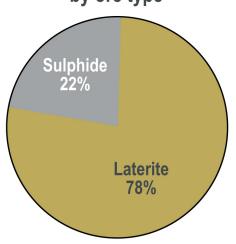
- Goongarrie Hub Ore Reserve² 194.1Mt at 0.70% Ni and 0.05% Co for 1.36Mt of nickel and 99,000t of cobalt to sustain production of approximately 30,000t of nickel and 2,000t of cobalt per year for > 40 years
- Strong financial metrics with average annual EBITDA of A\$800M, and Post-tax NPV₇ of A\$4,980M (IRR 23%)²
- Low cost C1 Opex after Cobalt credit of US\$5,763/t Ni in MHP LOM²





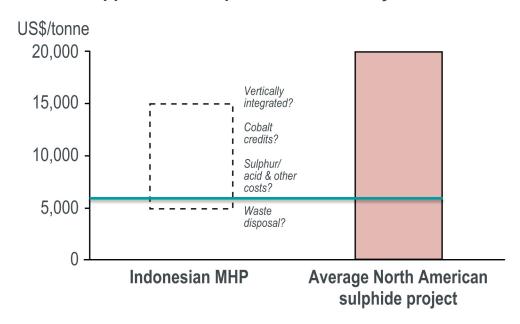
KNP Goongarrie Hub – Low Cost Nickel Laterite Production

Share of 2023 nickel production by ore type



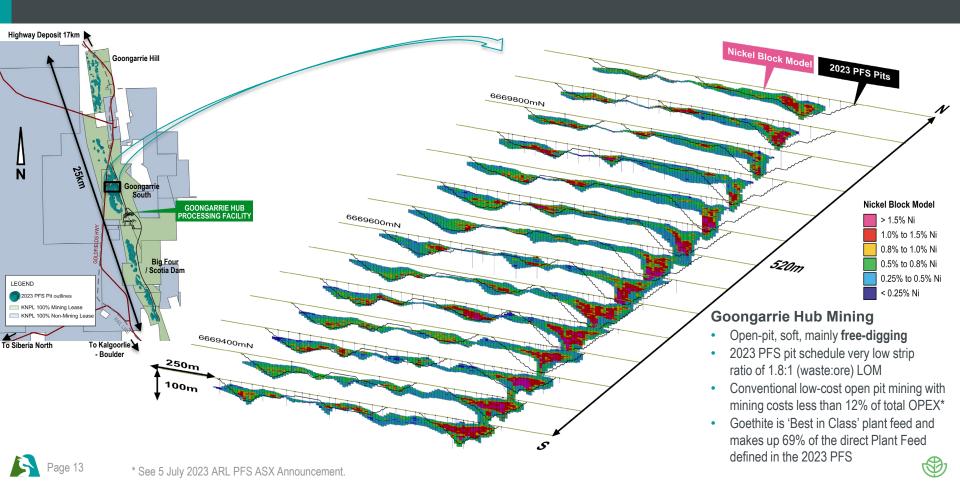
Courtesy of Benchmark Mineral Intelligence © 2024 Data: Benchmark Nickel Forecast

Approximate Ni production costs by route



KNP Goongarrie Hub Low C1 Opex after Cobalt credit of **US\$5,763/t Ni** in MHP LOM¹ compares well with Indonesian Opex and lower than most sulphide producers

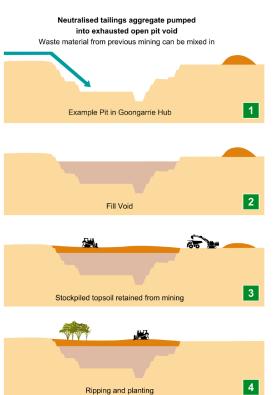
Premium Goethite Nickel and Cobalt Ore

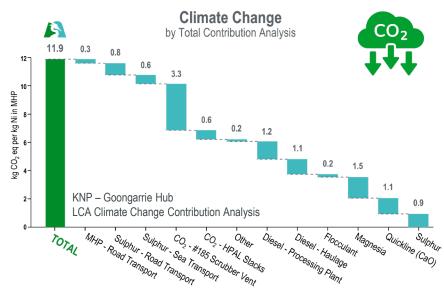


ESG Credentials Strengthened During PFS

In-pit tailings disposal¹ minimises environmental footprint and enables mine site rehabilitation, concurrent with steady-state mine operation.







Life Cycle Assessment (LCA) is expected to be 11.9 kg CO₂ eq. per kg nickel in MHP based on Ardea's Scope 1, 2 and upstream Scope 3 emissions¹. This compares favourably to the global average of ~13.0 kg CO₂ eq. per kg nickel produced.



PFS Key Financial Metrics

PFS defines > 40-year operation with strong financial metrics¹:

- Pre-tax NPV₇ of A\$7,625M (IRR 30%)
- Post-tax NPV₇ of **A\$4,980M** (IRR 23%)
- Average Annual EBITDA of A\$800M
- Project pay back within 3.1 years
- Low cost after Cobalt credit of US\$5,763/t Ni in MHP LOM
- See 5 July 2023 ARL PFS ASX Announcement.
- Post tax.
- From start of operation.

Financials		
Nickel Revenue	A\$ M	44,429
Cobalt Revenue	A\$ M	7,880
Revenue - combined	A\$ M	52,309
EBITDA LOM	A\$ M	34,217
EBITDA Annual (average)	A\$ M	800
EBITDA margin	%	65%
Net Cash Flow (Pre-tax)	A\$ M	31,100
Valuation		
Net Present Value (NPV ₇) ²	A\$ M	4,980
Internal Rate of Return (IRR) ²	%	23%
Total Capital Payback ³	years	3.1
Assumptions		
Exchange rate	AUD:USD	0.67
Nickel Price	US\$/t	25,000
Cobalt Price	US\$/t	60,000



KNP Goongarrie Hub DFS Early Works¹

- Finalised the DFS Program and Budget for work packages assessment for awarding of key bids
- Hydrogeology aircore drilling program commenced to quantify long-term water supply (aiming for 40 year life-of-mine)
- Reports on expanded baseline environmental surveys near completion
- DFS metallurgical test work programs to use existing 2021 drill core plus sourcing additional samples from the DFS infill drilling
- Detailed mine plan updated to further refine the in-pit tailings disposal strategy and support a potential increase in processing capacity from 3.5Mtpa to 4Mtpa
- Drill Hole Spacing Analysis study determined a 40mx40m spacing to define Measured Mineral Resource material as part of the DFS
- Significant infill drilling program planned within first 5-year mine design
- Regular news flow expected from multiple DFS workstreams













DFS Key Budget Items

The Consortium (SMM and MC) will fund 100% of the KNP Goongarrie Hub DFS costs, up to the agreed budget of A\$98.5 million

DFS Cost Centre	Costs (A\$)
Drilling	13.4M
Metallurgical Test Work	2.3M
Mine Design (incl dewatering & geotechnical)	15.0M
Process Plant Design	28.3M
Buildings and Camp Design	5.3M
Approvals	4.9M
Staff, Corporate and Other	26.2M
Other Expert Consultants	1.5M
Tenement Costs	1.6M
DFS Total Budget	98.5M

Upcoming DFS to commence detailed mine plan to support potential increase in processing capacity to 4Mtpa from 3.5Mtpa 2023 PFS



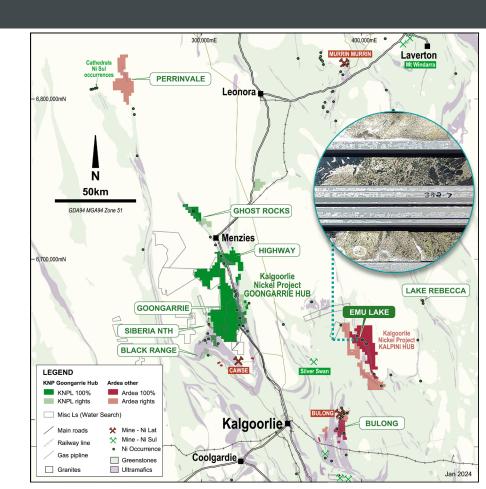
Ardea Exploration Pipeline Upside

Ardea controls >4,400km² of tenure in the Eastern

Goldfields of WA with unrivalled Battery and Critical

Mineral exploration potential

- Kalpini Project Massive nickel-copper-PGE sulphides discovered at Emu Lake (AELD0003: 2.72m at 5.42% Ni & 0.85% Cu from 391.04m) within largely untested 20km of strike¹
- Scandium and Rare Earth Elements (REE) identified at Ardea's KNP Kalpini² tenure
- Ardea retain 100% ownership of non-Goongarrie Hub KNP projects providing an internal pipeline for future growth



Key Investment Considerations – For a Must Have Nickel-Cobalt Stock



Ardea, Sumitomo Metal Mining and Mitsubishi Corporation to form a Joint Venture to develop the Kalgoorlie Nickel Project (KNP) – Goongarrie Hub; DFS early works have commenced



KNP is a strategic asset which includes the Goongarrie Hub, (part of joint venture with the Consortium), and remaining KNP Hubs (being owned 100% by Ardea). The global KNP Ni-Co resource is the largest in Australia and in top 10 globally, making it of a scale that is incredibly rare and important in the World's journey to Net Zero



Goongarrie Hub PFS starter project with > 40 year mine life producing ~30ktpa nickel and 2ktpa cobalt, with strong earnings, project payback in 3.1 years and low C1 cost will provide resilience throughout the price cycle²



Located in the premier resources operating jurisdiction in the World, compliant under US Inflation Reduction Act and Foreign Ownership criteria and EU Critical Raw Materials Act



Ardea controls >4,400km² of tenure in the Eastern Goldfields of WA with unrivalled Battery and Critical Mineral exploration potential



The **Ardea Team** have relevant experience, local knowledge and are working with **well-regarded partners** to advance the globally significant KNP Goongarrie Hub project, to deliver quality outcomes to benefit all stakeholders



See 29 April 2024 ARL SMM and MC to form a JV to develop KNP Goongarrie Hub ASX Announcement

See 5 July 2023 ARL PFS ASX Announcement and full Financial Metrics. See Appendices in this presentation



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Kalgoorlie Nickel Project Goongarrie Hub A multi decade nickel-cobalt operation

Appendices:
Full tables and
supporting references







Competent Persons

Information in this presentation has been summarised from ARL ASX MRE Announcement 30 July 2023, ARL ASX PFS Announcement 5 July 2023 and ARL ASX MOU Announcements 5 July 2023, 29 September 2023, 21 December 2023 and 31 January 2024.

Resource Estimation, Exploration Results, and Industry Benchmarking

The Resource Estimation, Exploration Results and Industry Benchmarking summaries are based on information reviewed or compiled by Mr Ian Buchhorn, and Mr Andrew Penkethman. Mr Buchhorn is a Member of the Australasian Institute of Mining and Metallurgy and Mr Penkethman is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australasian Institute of Geoscientists. Both Mr Buchhorn and Mr Penkethman are full-time employees of Ardea Resources Limited and have sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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 Buchhorn and Mr Penkethman have reviewed this press release and consent to the inclusion in this report of the information in the form and context in which it appears. Mr Buchhorn and Mr Penkethman own Ardea shares.

Ardea wishes to clarify that its current Kalgoorlie Nickel Project (KNP) Mineral Resource Estimate (MRE) following JORC Code (2012) quidelines is:

					Contained	Contained
KNP	Resource Category	Size (Mt)	Ni (%)	Co (%)	Ni (kt)	Co (kt)
	Measured	22	0.94	0.079	207	17
Kalgoorlie Nickel Project Total	Indicated	361	0.73	0.047	2,622	169
	Inferred	471	0.70	0.043	3,272	200
KNP	Grand Total	854	0.71	0.045	6,101	386

Note: 0.5% nickel cutoff grade used to report resources. Minor discrepancies may occur due to rounding of appropriate significant figures.

The Mineral Resource Estimate information shown in this ASX release has been previously released on the ASX platform by Ardea in ASX release 30 June 2023, in accordance with Listing Rule 5.8.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement noted above and that all material assumptions and technical parameters underpinning the Mineral Resource Estimate in the previous market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcement.

Ore Reserves

Information in this presentation that relates to Ore Reserves at the Kalgoorlie Nickel Project Goongarrie Hub is based on and fairly represents information and supporting documentation compiled by Mr Jake Fitzsimons, a Competent Person who is a full-time employee of Orelogy Mine Consulting, a company engaged by Ardea. Mr Fitzsimons is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Fitzsimons has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being 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 (2012 JORC Code). Mr Fitzsimons does not hold securities in Ardea and consents to the inclusion in this announcement of all technical statements based on his information in the form and context in which they appear.

Ardea wishes to clarify that its current Kalgoorlie Nickel Project (KNP) Goongarrie Hub Ore Reserve following JORC Code (2012) guidelines, based on the contents of the 5 July 2023 ASX annuncement is:

					Contained	Contained
Goongarrie Hub	Ore Reserve Category	Size (Mt)	Ni (%)	Co (%)	Ni (kt)	Co (kt)
One Beauty	Proven	16.7	0.96	0.09	160	15
Ore Reserve	Probable	177.4	0.68	0.05	1,204	84
	Grand Total	194.1	0.70	0.05	1,365	99

Note: Minor discrepancies may occur due to rounding of appropriate significant figures.

Full details on the Ore Reserve are available in the 5 July Ardea ASX announcement, see Section 5 and Appendix 1.

The Ore Reserve information shown in this ASX release has been previously released on the ASX platform by Ardea in ASX release 5 July 2023, in accordance with Listing Rule 5.9.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement noted above and that all material assumptions and technical parameters underpinning the Ore Reserve in the previous market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcement.

KNP Global MRE

The Competent Persons (CP) for the Mineral Resources, are Mr Ian Buchhorn and Mr Andrew Penkethman, both are full-time employees of Ardea and consider the resource classification applied to the KNP resource models to reflect appropriate confidence in the input exploration data, geological interpretation and resource grade and tonnage estimates.

Various ASX market releases for the Mineral Resources described have been competed by Ardea, notably:

- 30 June 2023 'Kalgoorlie Nickel Project Mineral Resource Estimate Exceeds 6 Million Tonne Contained Nickel'.
- 16 June 2021 'Highway Nickel Deposit -Mineral Resource Estimate 92 million tonnes at 0.69% nickel and 0.038% cobalt'.
- 15 February 2021 'GNCP High Grade Resource -60 million tonnes at 1.0% nickel Sustainable Long-life Battery Metal Resource Confirmed'.

KNP Global nickel and cobalt Mineral Resources based on a 0.5% Ni cut-off grade

					Contained	Contained
KNP Hub	Resource Category	Size (Tonnes)	Ni (%)	Co (%)	Ni (kt)	Co (kt)
Goongarrie Hub	Measured	18,200,000	0.94	0.085	171	15
	Indicated	276,500,000	0.70	0.046	1,923	127
	Inferred	289,300,000	0.67	0.037	1,951	108
	Sub Total	584,000,000	0.69	0.043	4,044	250
Kalpini Hub	Indicated	15,900,000	1.06	0.055	169	9
	Inferred	113,600,000	0.76	0.047	859	53
	Sub Total	129,500,000	0.79	0.048	1,028	62
Yerilla Hub	Measured	3,800,000	0.94	0.048	36	2
	Indicated	68,400,000	0.78	0.049	531	33
	Inferred	67,800,000	0.68	0.057	462	39
	Sub Total	140,000,000	0.73	0.053	1,028	74
	Measured	22,000,000	0.94	0.079	207	17
Kalgoorlie Nickel Project Total	Indicated	360,800,000	0.73	0.047	2,622	169
	Inferred	470,700,000	0.70	0.043	3,272	200
KNP	Grand Total	853,500,000	0.71	0.045	6,101	386



KNP Goongarrie Hub MRE

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- 15 February 2021 'GNCP High Grade Resource -60 million tonnes at 1.0% nickel Sustainable Long-life Battery Metal Resource Confirmed'.

KNP Goongarrie Hub nickel and cobalt Mineral Resources based on a 0.5% Ni cut-off grade

Prospect	Resource	Size	Ni	Со	Contain	ed Metal	Е	Estimation De	tails
	Category	(Mt)	(%)	(%)	Ni (kt)	Co (kt)	Method	Source	Year
Coongorio	Measured	18	0.94	0.085	171	15	LUC	Ardea	2021
Goongarrie South	Indicated	82	0.71	0.049	584	40	LUC	Ardea	2021
Oodiii	Inferred	10	0.64	0.033	61	3	LUC	Ardea	2021
Highway	Indicated	71	0.69	0.038	487	27	LUC	Ardea	2023
Tilgilway	Inferred	21	0.67	0.04	141	8	LUC	Ardea	2023
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
Gooriganie mii	Inferred	29	0.6	0.025	176	7	LUC	Ardea	2021
Big Four	Indicated	49	0.71	0.047	346	23	LUC	Ardea	2021
Dig i oui	Inferred	14	0.68	0.043	96	6	LUC	Ardea	2021
Scotia Dam	Indicated	12	0.71	0.065	82	7	LUC	Ardea	2021
Scotta Daili	Inferred	5	0.72	0.043	37	2	LUC	Ardea	2021
	Measured	18	0.94	0.085	171	15			
Goongarrie	Indicated	253	0.69	0.044	1,758	112			
Subtotal	Inferred	127	0.65	0.037	823	47			
	Combined	398	0.69	0.044	2,753	175			
Siberia South*	Inferred	81	0.65	0.033	525	27	OK	Snowden	2004
Siberia North	Indicated	14	0.72	0.042	102	6	Ni (UC), Co (OK)	Snowden	2009
Siberia Notui	Inferred	72	0.74	0.034	534	25	Ni (UC), Co (OK)	Snowden	2009
Black Range*	Indicated	9	0.67	0.09	62	8	OK	HGMC	2017
Diack Range	Inferred	10	0.69	0.1	68	10	OK	HGMC	2017
	Indicated	24	0.7	0.061	165	14			
Siberia Subtotal	Inferred	163	0.69	0.038	1,127	61			
	Combined	186	0.69	0.04	1,292	75	44.1		
	Measured	18	0.94	0.085	171	15		Mineral Res	
KNP Goongarrie	Indicated	277	0.7	0.046	1,923	127	are no	t considered	in 2023 P

584

Combined

0.69

0.043

4.044

250

Hub TOTAL







KNP Goongarrie Hub Ore Reserve Summary

KNP Goongarrie Hub Ore Reserve Summary consisting of ore above 0.5% Ni as the feed stock for the processing facility, and ore as Mineralised Neutraliser above 0.5% Nieq and LOI above 25%

Notes:

- The Ore Reserve is reported in accordance with JORC Code 2012.
- Ore reserves are reported at a cut-off of 0.5% Ni for primary feed stock to the processing facility, plus mineralised neutraliser as ore at a cut-off of 0.5% Ni Equivalent (NiEq) and Loss on Ignition (LOI) above 25%.
- NiEq defined using Ni + 2.32 x Co.
- The Ore Reserve was evaluated using a base price of U\$\$22,000/t for Ni and U\$\$51,000/t for Co at 85% payable for a Mixed Hydroxide Precipitate (MHP) product, and an exchange rate 0.69 USD/AUD. In view of forward metal price projections averaging U\$\$25,000/t Ni, the Ore Reserve can be considered conservative.
- · Ore Reserves account for mining dilution and mining ore loss.
- · Ore Reserves are reported on a Dry Tonnage Basis.
- Proven Ore Reserves are based on Measured Mineral Resources only and Probable Ore Reserves are based on Indicated Mineral Resources only.
- The sum of individual amounts may not equal due to rounding.
- This Ore Reserve estimate is for a subset of the KNP Goongarrie Hub deposits being Goongarrie South, Big Four / Scotia Dam, Goongarrie Hill, Highway and Siberia North.
- The Ore Reserve Summary was detailed in ARL ASX PFS Announcement, 5 July 2023.
- · Minor discrepancies may occur due to rounding of appropriate significant figures.

	Ore >= 0.5% Ni					Ore > 0.5% NiEq and LOI > 25%					Total Ore				
Deposit	Mt	Ni %	Co %	Ni kt	Co kt	Mt	Ni %	Co %	Ni kt	Co kt	Mt	Ni %	Co %	Ni kt	Co kt
Proven	Proven														
Goongarrie South	16.7	0.96	0.09	160	15	0.05	0.43	0.03	0.20	0.01	16.7	0.96	0.09	160	15
Sub-total	16.7	0.96	0.09	160	15	0.05	0.43	0.03	0.20	0.01	16.7	0.96	0.09	160	15
Probable	Probable														
Big Four/Scotia Dam	34.9	0.76	0.07	265	23	0.8	0.38	0.04	3	0	35.7	0.75	0.06	268	23
Goongarrie South	33.6	0.79	0.07	265	23	1.8	0.40	0.03	7	1	35.4	0.77	0.07	272	24
Goongarrie Hill	15.8	0.70	0.04	110	7	0.1	0.44	0.02	0	0	15.9	0.70	0.04	111	7
Highway	54.0	0.70	0.04	380	22	27.2	0.39	0.01	106	4	81.2	0.60	0.03	486	26
Siberia North	9.2	0.74	0.05	68	4	-	-	-	-	-	9.2	0.74	0.05	68	4
Sub-total	147.4	0.74	0.05	1,087	79	29.9	0.39	0.02	117	5	177.4	0.68	0.05	1,204	84
PROVEN AND I	PROBABL	E TOTAL													
Big Four/Scotia Dam	34.9	0.76	0.07	265	23	0.8	0.38	0.04	3	0	35.7	0.75	0.06	268	23
Goongarrie South	50.2	0.85	0.08	425	38	1.9	0.40	0.03	7	1	52.1	0.83	0.07	432	39
Goongarrie Hill	15.8	0.70	0.04	110	7	0.1	0.44	0.02	0	0	15.9	0.70	0.04	111	7
Highway	54.0	0.70	0.04	380	22	27.2	0.39	0.01	106	4	81.2	0.60	0.03	486	26
Siberia North	9.2	0.74	0.05	68	4	-	-	-	-	-	9.2	0.74	0.05	68	4
TOTAL	164.1	0.76	0.06	1,247	94	30.0	0.39	0.02	117	5	194.1	0.70	0.05	1,365	99

Kalgoorlie Nickel Project (KNP) – Strong Fundamentals



Granted Mining Lease tenure in premier location for infrastructure, skills and resource project operation



Low-cost Ni & Co production, with strong average annual EBITDA for over 40 years³



6.1Mt Nickel & 386kt Cobalt MRE¹ positions KNP in TOP 10 global nickel resources²



Ardea, Sumitomo Metal Mining and Mitsubishi Corporation to form JV to develop KNP Goongarrie Hub⁴



PFS shows KNP Goongarrie Hub will be a multi-decade operation to meet global demand for ethical Ni & Co³



Ardea have \$17M cash-at-bank, no debt, supportive shareholders and stakeholders. KNP has Australian Government - Major Project Status





^{2.} See slide 13 and Appendices in this presentation

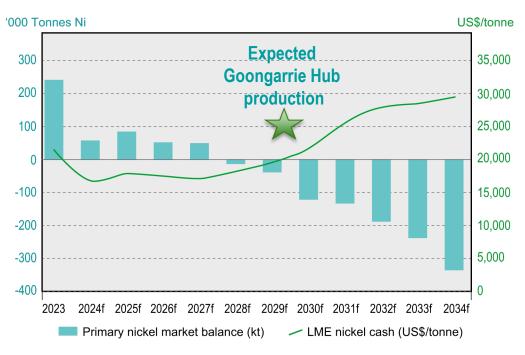
4. See 29 April 2024 ARL SMM and MC to form a JV to develop KNP Goongarrie Hub ASX Announcement

^{3.} See 5 July 2023 ARL PFS ASX Announcement and full Financial Metrics. See Appendices in this presentation

Nickel output cuts to pressure near term surpluses lower

- 2023 large nickel surplus led to significant drop in LME nickel cash price
- Higher cost producers have responded by cutting / ceasing production which in turn has put pressure on supply
- 2024-2027 forecast showing reducing surplus, with supply gap increasing progressively from 2028, with forecast LME nickel prices correspondingly rising
- Security and diversity of nickel supply is imperative with Goongarrie Hub production perfectly timed

Nickel Market Balance and Price Forecast

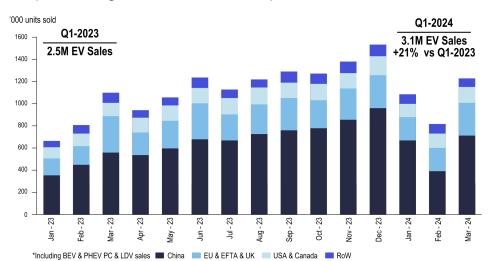


After Source: Fastmarkets Long Term Forecasts 2024



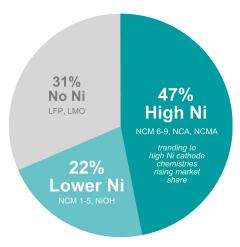
EV Sales Grow – High Nickel Batteries hold increasing share of market

- Nickel batteries, which have nearly twice the energy density of other materials, are leading EV applications in Domestic, Commercial and Public Transport
- Global EV sales* for Q1 2024 totalled 3.1 million units, representing 21% increase compared to Q1 2023¹



Nickel batteries hold a large share of the EV landscape. High Ni cathodes favoured, with increasing market share.² Developers moving towards >90% Ni cathodes

Nickel Cathode Chemistry Share of EV market by MWh Jul 2023







KNP Goongarrie Hub Ore Reserve¹

- 1.36Mt of nickel metal
- 99kt of cobalt metal

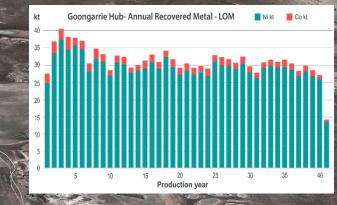
Highway

підііма

Goongarrie Hill

Cross Section

669 9364mN



Cross Section 666 9600mN **Goongarrie South**

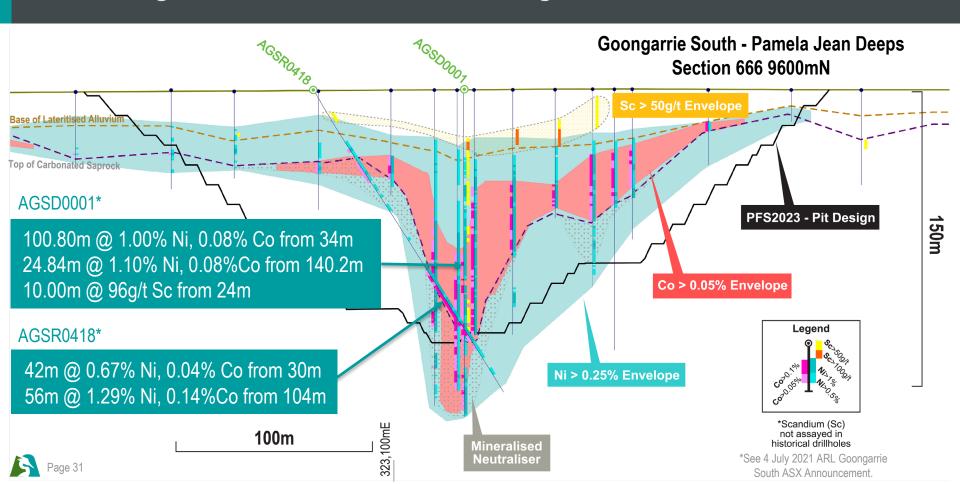
GOONGARRIE HUB PROCESSING FACILITY

Big Four / Scotia Dam

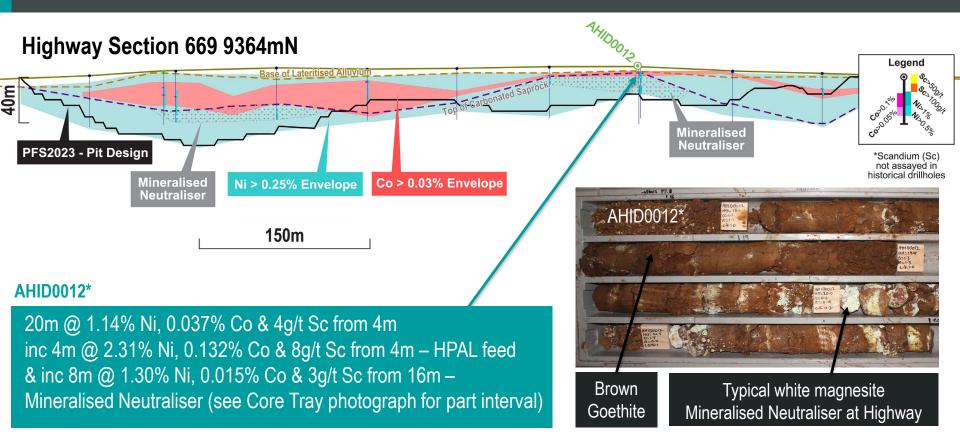
N 1000m 70km to Kalgoorlie-Boulder

Siberia North

KNP Goongarrie Hub – Shallow, Thick, High-Grade Nickel



KNP Goongarrie Hub – Mineralised Neutraliser within Highway Ore







PFS 2023 – Capital Cost Estimate

KNP – Goongarrie Hub

- Contingency considered appropriate to the level of the capital cost estimate has been included
- Base date March 2023
- Refer to 5 July 2023 ARL PFS ASX Announcement for full details and Reasonable Basis Statement

Preproduction Cost Category	Costs (A\$)
Mining – overheads, mobilisation, pre-strip and other	98M
Process plant & infrastructure	2,264M
Sulphuric acid, steam and power plant	574M
Borefield	181M
Total Capital Cost ¹	3,117M

Ardea 5 July 2023 PFS capital cost estimate based on a 3.5Mtpa processing operation consisting of x2, 1.5Mtpa HPAL autoclaves and a 0.5Mtpa Atmospheric leach circuit.

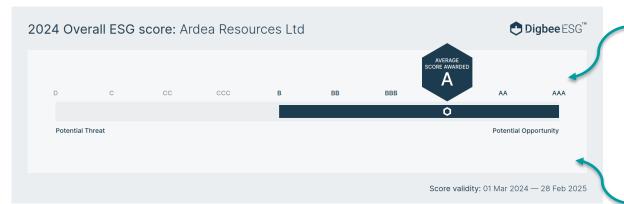


Ardea Receives Improved ESG Certification Score 2024









Ardea's work practices are aimed at meeting or exceeding the high ESG standards expected by modern society with continuous improvement shown in the two Digbee ESG™ surveys completed

2024 ESG Scores for Ardea









KNP – Goongarrie Hub Superior HPAL Intensity

- ✓ Good ore grade + good slurry density = Lower Capex & Opex \$\$
- ✓ Atmospheric leach = stable operation, utilizes saprolite resource
- ✓ MHP & MSP Product = known technology & good market acceptance



Operating data from Australian HPAL Producers

Performance Driver	Ardea	Bulong#	Cawse#	Murrin	RNO^	Metric	Ardea Rank	Comment
Atmospheric Leach	Yes	No	No	No	Yes	-	#1	Stable operation and full resource utilisation
HPAL Feed Density	45%	31%	35%	38%	42%	% Solids	#1	The higher the better = Maximises plant throughput
Residence Time	70*	75	105	90	60	minutes	#2	The lower the better = Maximises plant throughput
Slurry Grade Ni	7.55	2.89	3.07	3.87	7.39	Ni kg/m3	#1	The higher the better = Increased revenue stream
Slurry Grade Co	0.59	0.23	0.24	0.34	0.31	Co kg/m3	#1	The higher the better = Strategic Co-Product credits

Data Sources

Ardea – Goongarrie Hub testwork results from PFS and Expansion Study, ASX release 28 March 2018 & Goongarrie Expansion Study, 24 July 2018 and ongoing project assessment as part of completing the DFS. Bulong, Cawse, Murrin - ALTA 1999, An Engineering Comparison of the Three Treatment Flowsheets In WA Nickel Laterite Projects.

RNO - ALTA 2001, Observations from the RNO Pilot Plant at Lakefield Research, 2000 AD.

^Ravensthorpe Nickel Operation (RNO) figures based on design numbers on upgraded beneficiated ore from the Halleys Deposit which has since been mined out. # Bulong & Cawse – care and maintenance

Ardea data is based on non-beneficiated material (with always an option to beneficiate selected KNP geomet types, notably at Highway & Goongarrie Hill).

*Goongarrie Hub DFS to assess reduction in Ardea residence time from 70 minutes to 60 minutes. Residence time 45 minutes estimated in Goongarrie Expansion Study (ASX announcement 24 July 2018)





References for Global Nickel Resource Chart

	Defenses Date			
	Reference Date	Title	ref. pp	Link
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Norilsk Division		Annual Report 2022	54-55	https://nornickel.com/upload/iblock/461/19utieij7n11286t4gj2qwyld0qt36hc/2022_Annual_Report_of_PJSC_MMC_Norilsk_Nickel_eng.pdf
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Merdecka SCM	02 May 2023	Annual Report 2022	30	https://merdekacoppergold.com/wp-content/uploads/2023/05/MDKA_2022-12-31_Laporan-Tahunan-2022.pdf
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Mount Keith / Yakabinde	22 Aug 2023	Annual Report 2023	232	https://www.bhp.com/-/media/documents/investors/annual-reports/2023/230822_bhpannualreport2023.pdf
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Koniambo	23/03/2023	Annual Report 2022	278	https://www.glencore.com/.rest/api/v1/documents/ded10fa92974aa388a43aa9f86f483e9/GLEN-2022-Annual-Report.pdf
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Goro	28 Jul 2023	NCZ - Potential Acquistion of the Goro Nickel & Cobalt Mine	5	https://announcements.asx.com.au/asxpdf/20200728/pdf/44kwy3yff07cc1.pdf
Ambatovy	19 Mar 2020	Sherritt International AIF 2019	54	https://s2.q4cdn.com/343762060/files/doc_financials/Annual-Report/2019/2019-AIF-(March-20-2020).pdf
Murrin Murrin	23/03/2023	Annual Report 2022	278	https://www.glencore.com/.rest/api/v1/documents/ded10fa92974aa388a43aa9f86f483e9/GLEN-2022-Annual-Report.pdf
INO (Sudbury, Raglan, Nikkelverk))	23/03/2023	Annual Report 2022	278	https://www.glencore.com/.rest/api/v1/documents/ded10fa92974aa388a43aa9f86f483e9/GLEN-2022-Annual-Report.pdf
Moa Nickel	31 Mar 2023	Sherritt International AIF 2022	20	https://s2.q4cdn.com/343762060/files/doc_financials/2022/ar/sic-2022-aif-03-31-23-sedar.pdf
VALE Sorowako	Unknown	Annual Report 2022	48	https://www.vale.com/documents/d/guest/pt-vale-indonesia-tbk-annual-report-2022-1
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Eagle	22 Feb 2023	NI 43-101 Technical Report on the Eagle Mine, Michigan USA	30	https://lundinmining.com/site/assets/files/3640/230222 - lundin_mining - eagle 2022 tr.pdf
Codemin (Niquelandia)		Annual Report 2022	17	https://www.angloamerican.com/~/media/Files/A/Anglo-American-Group-v5/PLC/investors/annual-reporting/2022/ore-reserves-and-mineral-resources-report-2022.pdf



