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ASX Symbol

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Kalgoorlie Nickel Project
Goongarrie West Drilling
Ionic Clay Rare Earth Discovery

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to present an update on the Prefeasibility Study (**PFS**), following Sterilisation Drilling results adjoining proposed production pit locations. The program was designed for finalising the site layout General Arrangement Plan for the Kalgoorlie Nickel Project (**KNP**) – Goongarrie Hub. Additionally, the drilling was used to test Rare Earth Element (**REE**) targets previously generated by the Company's Critical Mineral Research and Development (**R&D**) in rocks adjoining the nickel laterite mineralisation.

One of two proposed infrastructure sites was at Goongarrie West adjoining the Goongarrie South Nickel Laterite mineralisation southwest of the Elsie Tynan pit. Three single hole traverses were designed at Goongarrie West as broad-spaced aircore drilling over a 3km NNW strike in a location containing no previous drilling.

Intercepts of Total Rare-Earth Oxides (**TREO**) at a 1,000ppm TREO cut-off for the three hole Goongarrie West program were received, with highlights including:

- **AGSA0224, 7m at 3,506ppm TREO from 64m**
- **AGSA0225, 12m at 2,487ppm TREO from 40m**
- **AGSA0226, 4m at 1,181ppm TREO from 56m**

These are considered significant intercepts, particularly based on such consistent mineralisation occurring in 1km spaced reconnaissance drill holes.

Mineralisation in the three holes, based on drill-chip logging and associated geochemistry, is controlled by regolith contacts, specifically hosted by Saprolite Lower clay at its regolith contact with the underlying clay-weathered Saprock.

Interpretation of results indicates **the system is an Ionic Adsorption Clay (IAC) Rare Earth occurrence**. As such, the drill intercept grades are considered particularly significant, precluding Goongarrie West as an infrastructure site option.

In view of the drill results at Goongarrie West and as required by the WA Mines Act 1978, the Department of Mines, Industry Regulation and Safety (**DMIRS**) has been notified that a **discovery of economic interest has been made**.

Ardea's Managing Director, Andrew Penkethman said:

"The Feasibility Study for the Kalgoorlie Nickel Project – Goongarrie Hub has completed pit optimisations and confirmed the production pit locations and thus likely infrastructure site requirements. The two main infrastructure alternatives were east of the Pamela Jean pit, or southwest of Elsie Tynan at Goongarrie West. Requisite drilling was completed in September 2022.

With the high grade TREO results returned for the three holes at Goongarrie West, it has been an easy decision to instruct the Consulting Engineer to site the key production infrastructure at Pamela Jean East.

The Goongarrie West REE Prospect will have confirmatory reverse circulation drill traverses completed as soon as possible, followed by bench-scale metallurgy designed to quantify the IAC REE potential.

This additional drilling is an unexpected variation for the PFS work programs, being an unavoidable if not valuable outcome from the PFS. We trust that KNP stakeholders are as excited as the Ardea Team with these REE drill results."

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1. BACKGROUND

The Prefeasibility Study (**PFS**) for the KNP – Goongarrie Hub (Figure 1) is designing a 3Mtpa High Pressure Acid Leach (**HPAL**) and 0.5Mtpa Atmospheric Leach (**AL**) circuit, with onsite Mineralised Neutraliser (**MN**) for hydrometallurgical solution neutralisation. This is a well understood and proven flowsheet, so minimising any flowsheet technical risk.

Strip ratio is approximately 2:1. In order to have a uniform plant feed and to coordinate exhausted pit void space for tailings storage, the earthmoving schedule exceeds the theoretical 10.5Mtpa and is up to 18.7Mtpa, necessitating both waste rock dumps and temporary ore feed laydown areas adjacent each and every pit.

The "centre of gravity" for the Mineral Resource Estimate (**MRE**) is the Pamela Jean and Elsie Tynan pits at Goongarrie South (ASX release 16 June 2021), with the processing plant as close as practical to this location.

This then leads to two preferred alternatives for location of the laydown areas and Processing Infrastructure, being east to southeast of the Pamela Jean pit extending to the eastern mining lease boundary or southwest of the Elsie Tynan pit extending to the Goldfields Highway in the west.

In order to confirm no non-outcropping mineralisation is present and that foundation conditions are suitable, Sterilisation Drilling is required. In view of the extensive historical exploration drilling for both nickel laterite and gold associated with the Bardoc Tectonic Zone (**BTZ**), Aircore drilling on a broad 320m x 160m pattern was utilised as a supplement to historic drill data.

Ardea's KNP Research and Development (**R&D**) commenced in 2017 with the systematic re-assay of archived KNP drill assay pulps for a multi-element suite including Rare Earth Elements (**REE**). This means that in addition to the pay-metals nickel and cobalt, all drill samples have been systematically assayed for REEs (ASX Releases 28 May 2020, 27 May 2021).

Pit Area	Drill Hole	Int Depth (m)	Int Length (m)	Ni (%)	Co (%)	Mn (%)	Sc (ppm)	Y (ppm)	Ce (ppm)	La (ppm)	Nd (ppm)	Pr (ppm)
Elsie North	AGSR001	14-18	4	0.85	**0.21**	**0.98**	43	6	**968**	10	14	4
Pamela Jean	AGSR170	22-24	2	0.63	0.05	**0.24**	43	**318**	32	**216**	**340**	**75**
Elsie North	AGSR369	18-26	8	0.49	0.14	**1.28**	40	25	325	51	59	16
Patricia Anne	AGSR392	24-26	2	0.49	0.07	0.11	52	**215**	**1120**	**260**	**341**	**87**
Patricia Anne	AGSR430	8-14	6	**1.05**	**0.77**	**4.60**	14	57	447	161	**135**	38
Patricia Anne	AGSR495	18-22	4	**1.19**	**1.01**	**7.53**	24	28	365	30	27	7
Pamela Jean	GSDD003	30-33	3	0.71	**0.64**	**3.03**	16	4	367	10	0	10
Pamela Jean	GSDD004	15-21	6	0.66	0.03	0.07	**161**	6	15	4	4	1
Pamela Jean	GSRC986	29-32	3	0.81	0.04	0.10	8	72	101	103	**110**	28
Canegrass Sth	ABFR012	22-24	2	0.63	0.01	0.13	**122**	14	34	7	8	2
Canegrass Sth	ABFR014	26-28	2	0.51	0.05	**0.52**	**128**	8	43	5	7	2
Mavis North	ABFR061	20-28	8	0.24	0.05	**0.76**	37	190	315	70	**110**	26
Mavis South	ABFR155	20-26	6	0.96	0.18	**0.66**	37	62	116	12	16	5
Mavis South	ABFR164	12-16	4	0.40	0.07	**0.36**	36	8	**1125**	12	16	5

Table 1: KNP Goongarrie Hub previously reported REE assay results.

Previous drilling at Goongarrie South has consistently recorded anomalous REE backgrounds both hosted within nickel laterite and on rare occasions within felsic rocks proximal to the nickel laterite (note for example ASX release 15 February 2021). Accordingly, the Goongarrie West drilling included assay of the full REE suite and associated elements.

The development model for any REE at Goongarrie South does not yet contemplate any standalone REE processing, it is more as a by-product credit for the nickel, just as cobalt is. As with scandium, which is chemically very close to the REEs, the strategy is that once the metals are in solution through hydrometallurgy, it is a matter of ascertaining if there is an industry Solvent Extraction (**SX**) or Ion Exchange (**IX**) product that is able to preferentially recover a REE precipitate as a saleable product (likely a Mixed Carbonate Precipitate, **MCP**).

The sole Goongarrie REE development model is Ionic Adsorption Clay (**IAC**), being a clay weathering product upon which loosely held REE metals are adsorbed within the clay mineral sheeted lattice.

The ionic-clay model at Goongarrie West can be quantified by hydrometallurgical bench-scale programs, but far more urgent PFS programs around AL and MN have unequivocal precedence.

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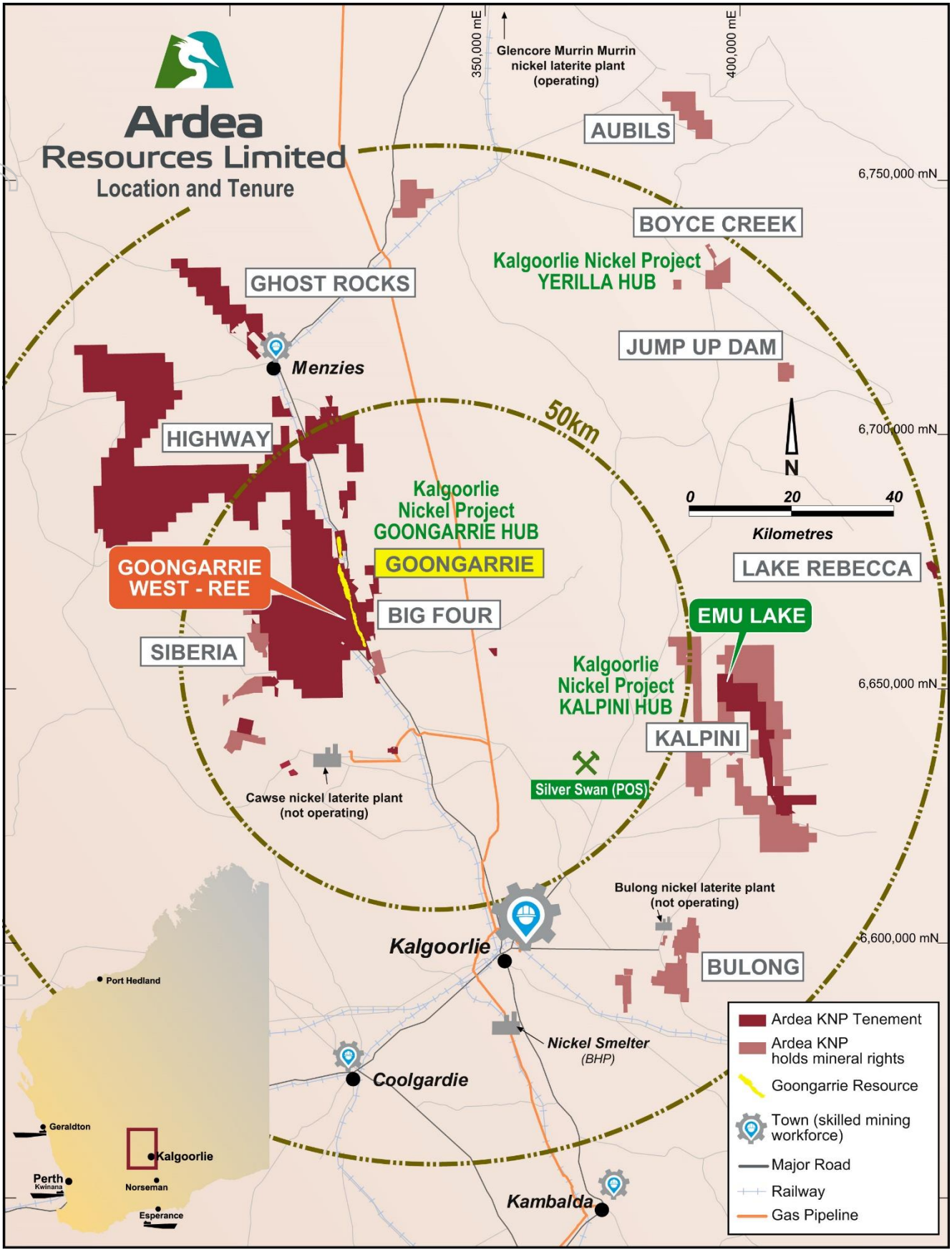

Figure 1: KNP location and infrastructure plan. Projection GDA94 MGA94 Zone 51.

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2. STERILISATION DRILLING PROGRAM

The Goongarrie Hub has been continually assessed for REE since 2017, as part of all resource drill-outs and more significantly through the pulp re-assay multi-element R&D that continually evaluates historic KNP data.

Aircore Sterilisation Drilling was conducted across the proposed Goongarrie Hub Process Plant site area during September 2022. A total of seventy-six holes for 2,047 metres were completed (AGSA0151 and AGSA0226).

Drilling was done at Goongarrie West as an opportunistic evaluation of a second tier infrastructure site at the very end of the main program. Only drill holes AGSA0224 to 226 being the total of holes drilled at Goongarrie West are addressed in this announcement. These were viewed as an excellent opportunity to evaluate the KNP REE model in parallel with confirming infrastructure sites.

Results for the remainder of the Sterilisation Drilling are still being reviewed and will be reported in due course. The focus of these holes is more of a geotechnical study involving infrastructure foundation suitability, with consultant review awaited.

3. DRILLING RESULTS

At Goongarrie West, as part of the Goongarrie South REE and infrastructure site assessments, three planned consecutive aircore holes over a 3km strike returned 0.1-0.4% Total Rare Earth Oxide (**TREO**) at the western contact with the Walter Williams Formation (**WWF**):

- AGSA0224 returned **7m at 3,506ppm TREO** from 64 metres.
- AGSA0225 returned **12m at 2,387ppm TREO** from 40 metres.
- AGSA0226 returned **4m at 1,181ppm TREO** from 56 metres.
- The three holes are hosted entirely within felsic intrusive (Ti/Zr ratio of 16 – 22, based on elevated REE, term “alkaline granodiorite” as field rock type classification).
- The REE anomalism occurs at the Saprolite Lower (80%) and Saprock (20%) contact.
- The highly sought and accordingly higher value Magnetic REE Oxide (**MREO**) comprise Dysprosium, Terbium, Neodymium and Praseodymium.
- Intercepts of MREO included AGSA0224 with 7m at 639ppm MREO from 64 metres and AGSA0225 with 8m at 952ppm MREO from 40 metres.
- The geological interpretation shows that the REE anomalous domain is over 3km in strike length (open in all directions).
- Based on similar intercept depths, and continuity of the same regolith units, this REE domain is interpreted to be a flat regolith horizon.
- On the basis of drill chip logging (refer Annexure 1), the host saprolite clay and clay-weathered saprock was viewed as having potential for Ionic Adsorption Clay (**IAC**) hosted REEs.

The historic drill coverage is very sparse, but where present and assayed for REE, confirms 50-200ppm Nd between the AGSA0224-226 drill-holes and the Elsie Tynan and Big Four pit areas located approximately 1km to the east (Figure 2).

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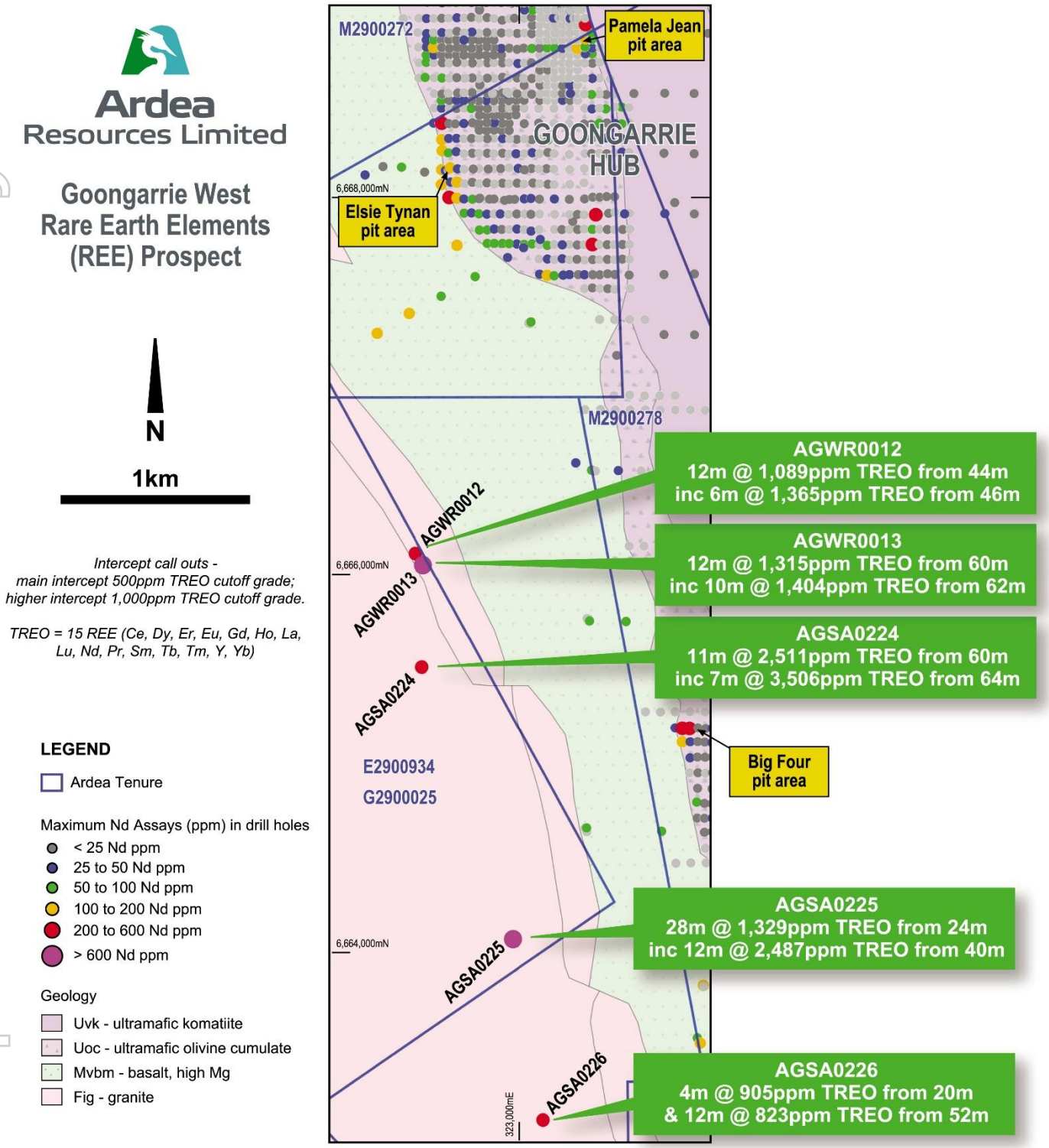

Figure 2: Goongarrie West Rare Earth Element Prospect, drill hole location plan and intercept summary. Projection: MGA94 Zone 51.

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4. INTREPRETATION OF RESULTS

Once the AGSA0224-226 TREO intercepts were interpreted, very similar mineralisation was identified in historic drill holes, AGWR0012-13, extending the strike extent of mineralisation to 3.5km, all as single hole sections requiring systematic follow-up drilling.

The REE mineralisation defined to date is remarkably consistent and clay-hosted (refer Annexure 1 following, Chip Tray Photographs with Intercepts).

AGWR0012 as an RC drill hole is the sole hole to have penetrated through to bedrock, so allowing a complete interpretation of the regolith profile and its likely genesis (Table 2).

Depth metres	Regolith	TREO ppm	Fe %	Mg %	Al %	Si %	LOI %	Ca %	K %
0-8	Pedogenic Qtz sand, calc cement	51	3.4	0.6	4.0	31.8	9.1	5.3	0.7
8-20	Laterite Mottled, hem-kaolin clay	103	8.2	0.7	7.4	29.3	6.9	0.4	0.5
20-30	Saprolite Upper, relic carbonate	164	3.1	0.8	11.9	27.0	11.0	0.8	0.1
30-50	Saprolite Upper, kaolinite-hem clay	442	2.7	0.2	11.1	29.7	9.1	0.1	0.1
50-54	Saprolite Lower, silica-kaol-hem clay	1,081	2.3	0.9	9.2	30.0	7.2	0.5	2.8
54-74	Saprock, qtz-kaol-hem, clay weather	290	2.1	0.5	7.9	32.6	1.1	1.4	2.5
74-80	Bedrock, feld-qtz-biot granodiorite	246	2.2	0.7	8.3	30.7	4.0	1.5	2.1

Table 2: RC hole, AGWR0012, regolith profile interpretation.

The bedrock granodiorite has a very high background of 246ppm TREO, being localised within the regolith profile at the Top of Fresh Rock (**TOFR**). Immediately overlying within the Saprolite Lower at the Base of Complete Oxidation (**BOCO**), there is a sharp grade increase to **1,081ppm TREO**.

Within the extensively studied Kalgoorlie Goldfields supergene gold deposits, the regolith interval between BOCO and TOFR is precisely where regolith-related supergene enrichment occurs. The Goongarrie West REE mineralisation is precisely following gold enrichment models documented in non-ultramafic host rocks.

In terms of ultramafic nickel laterite host rocks within the WWF olivine cumulate rocks at the immediate eastern contact of Goongarrie West, the high-grade nickel-cobalt occurs at the contact of Clay Upper and Clay Lower within the regolith profile, termed the Enrichment Zone (**EZ**). The EZ is characterised by high cobalt and manganese (asbolite mineral) and reflects palaeo-water table metal enrichment. The Goongarrie West REE enrichment profile thus corresponds precisely with the WWF nickel laterite enrichment within the immediate adjoining Elsie Tynan and Big Four proposed pit areas.

R&D has long confirmed the KNP EZ has significant REE enrichment, notably at Kalpini. Intercepts at Kalpini include WERC0371: 12m at 1.70% nickel, 0.151% cobalt, 28g/t scandium from 20m with 2,440ppm TREO and 1.320% Total Rare Metal Oxide (**TRMO**) which Includes titanium (Ti), yttrium (Y), zircon (Zr), niobium (Nb), hafnium (Hf), tantalum (Ta) and tungsten (W) (ASX release 14 March 2022).

There can be little doubt that the Goongarrie West REE mineralisation is regolith-related and due to palaeo-water table metal enrichment. This would indicate an Ionic Adsorbed Clay (**IAC**) genesis for the Goongarrie West mineralisation. Confirmation requires bench-scale metallurgy testing to evaluate metal leaching from the clays.

As an IAC, the REE grades returned at Goongarrie West can be considered as significant.

Drill hole details and supporting JORC Code (2012) Table 1 information is shown in Appendices 1 to 3.

5. IAC RARE EARTH DEPOSITS

Documented IAC REE deposits include:

Company	Deposit	Million Tonnes	TREO ppm	Geological Setting	Reference
Australian Rare Earths	Koppamurra, Sth Aust	81	785	Ionic Clay	ASX Release: AR3 29 Nov 2022
Ionic Rare Earths	Makuutu, Uganda	532	640	Ionic Clay	ASX Release: IXR 18 Nov 2022

Table 3:Published Mineral Resource Estimates for Ionic Clay REE deposits, ASX-listed companies.

Nothing as yet can be stated as to the Goongarrie West Exploration Target size. An area of approximately 3.5 x 1km has had five drill holes completed for water then infrastructure sterilisation and all intersected high grade IAC REE mineralisation with thickness of 11 – 28m and potential strip ratio of some 2 to 6:1.

Most significantly, chip tray photos show a clear clay host for the REE mineralisation specifically at the contact with underlying saprock (Annexure 1).

Additionally, the photos indicate a free-dig material which would suggest relatively low earthmoving costs.

6. DISCOVERY

The WA Mines Act 1978, section 63.(a) states "*the holder thereof will explore for minerals and – (a) will promptly report in writing to the Minister all minerals of economic interest discovered in, on or under the land subject of that exploration licence*".

Accordingly, on 27 January 2023 **Ardea formally notified the WA Department of Mines, Industry Regulation and Safety (DMIRS) that at Goongarrie West a Rare Earth Element discovery of economic interest has been made**.

7. FORWARD PROGRAM

The five identified mineralised intercepts at four sites are to be followed up with a 160 x 80m pattern Reverse Circulation (RC) drilling program once a rig can be secured.

If as expected, a flat-lying mineralised sheet is confirmed, RC drilling on four of the lines will be extended east at a 160m hole spacing to the WWF nickel laterite drilling areas centred on the proposed Big Four pit areas.

The exploration objective is to evaluate the effectively undrilled areas between the WWF pit areas which have only sporadic REE assays in historic nickel laterite resource drilling and the Goongarrie West discovery drill-holes.

Drill material from the RC drilling will be used for initial bench-scale hydrometallurgical studies.

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Annexure 1 Chip Tray Photographs with Intercepts

AGWR0012

12m @ 1,089ppm TREO from 44m (500ppm TREO cutoff grade)

6m @ 1,365ppm TREO from 46m (1,000ppm TREO cutoff grade)

AGWR0013

12m @ 1,315ppm TREO from 60m (500ppm TREO cutoff grade)

10m @ 1,404ppm TREO from 62m (1,000ppm TREO cutoff grade)

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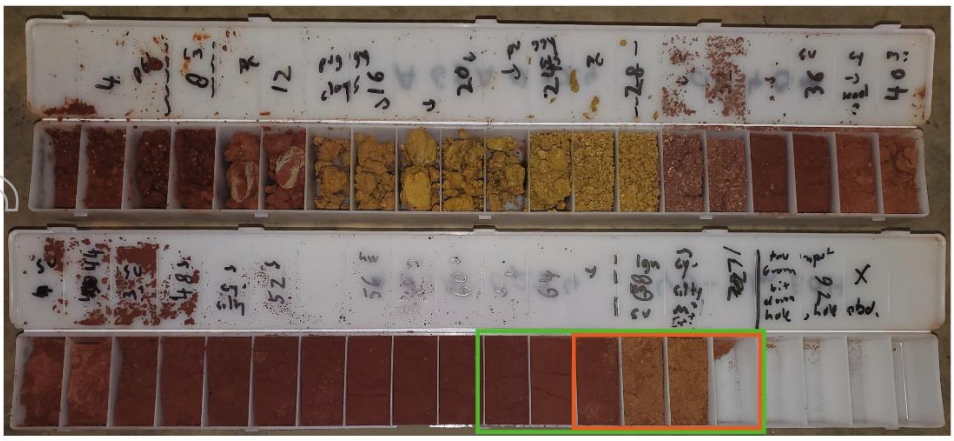
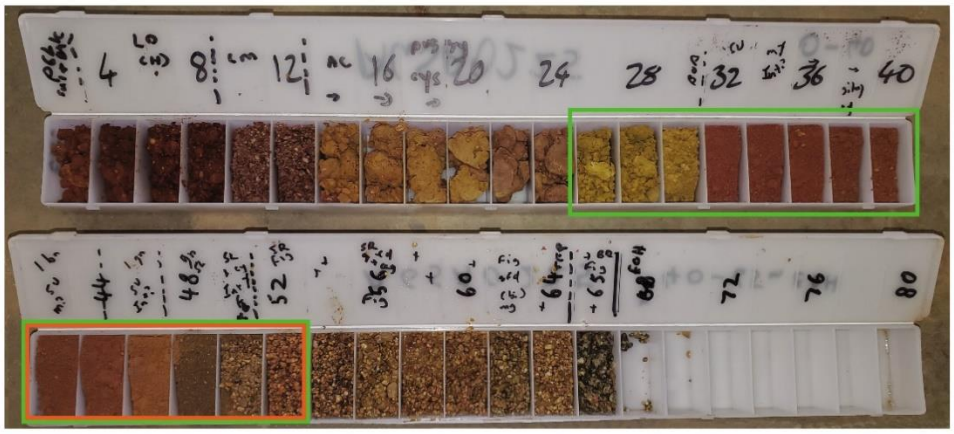
AGSA0224



11m @ 2,511ppm TREO from 60m (500ppm TREO cutoff grade)

7m @ 3,506ppm TREO from 64m (1,000ppm TREO cutoff grade)

AGSA0225



28m @ 1,329ppm TREO from 24m (500ppm TREO cutoff grade)

12m @ 2,487ppm TREO from 40m (1,000ppm TREO cutoff grade)

AGSA0226

4m @ 905ppm TREO from 20m (500ppm TREO cutoff grade)

12m @ 823ppm TREO from 52m (500ppm TREO cutoff grade)

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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:

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About Ardea Resources

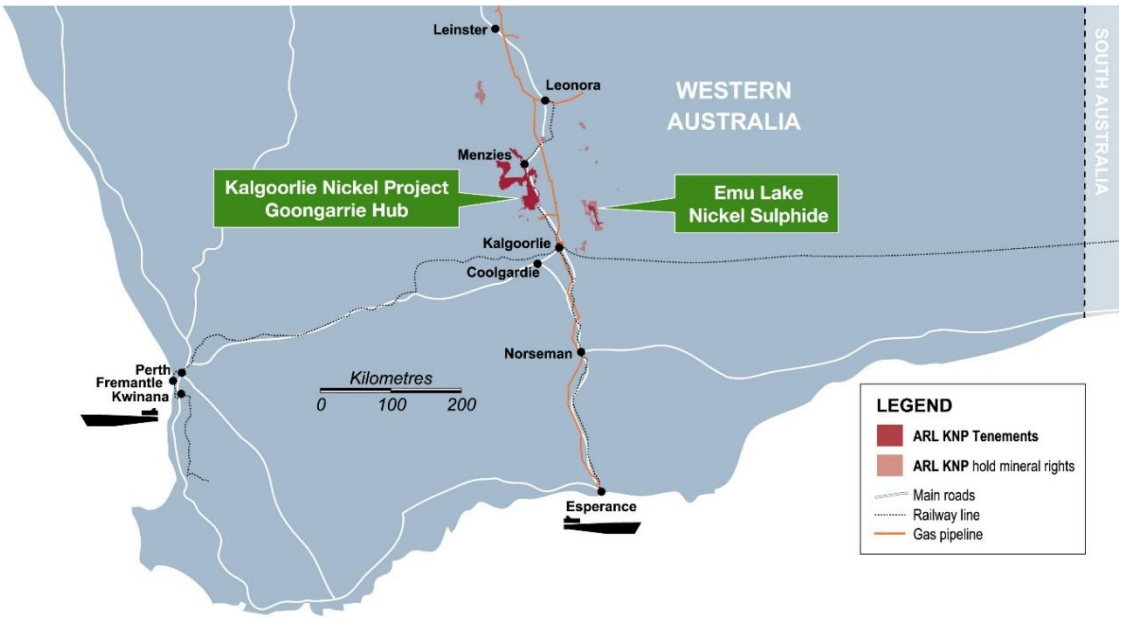
Ardea Resources (ASX:ARL) is an ASX-listed nickel and Critical Minerals resources company, with a large portfolio of 100%-controlled West Australian-based projects, focussed on:

- 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 environmental (notably in tropics), 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. There are no conflicts of land use such as with fully traditional First Nations people or with high-value agriculture. Tenure is unencumbered, there being no third-party royalty holders apart from the rightful Sate government production royalty.



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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 exploration, 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, the ability to create and spin-out a gold focussed Company, 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.

Compliance Statement (JORC Code 2012)

The exploration and industry benchmarking summaries are based on information reviewed or compiled by Mr. Ian Buchhorn, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Buchhorn 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 Buchhorn 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 Buchhorn owns Ardea shares.

Appendix 1 – Collar location data

Drillholes completed and reported by Ardea Resources at Goongarrie West.

Drill hole	Type	Depth (m)	Tenement	Grid	Easting GDA94-51	Northing GDA94-51	RL (mASL)	Dip (°)	Azimuth (°)
AGWR0012	RC	80	E29/00934	MGA94_51	322440	6666120	366.7	-60	30
AGWR0013	RC	83	E29/00934	MGA94_51	322480	6666060	367	-60	30
AGSA0224	AC	71	E29/00934	MGA94_51	322472	6665519	367	-90	0
AGSA0225	AC	65	E29/00934	MGA94_51	322961	6664077	376	-90	0
AGSA0226	AC	68	E29/00934	MGA94_51	323120	6663119	379	-90	0

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Appendix 2 – Assay results from Goongarrie West Drilling

All assays from drilling at Goongarrie West.

Abbreviations used: Ce – cerium, Dy – dysprosium, Er – erbium, Eu – europium, Gd – gadolinium, Ho – holmium, La – lanthanum, Lu – lutetium, Nd– neodymium, Pr – praseodymium, Sm – samarium, Tb – terbium, Tm – thulium, Y – yttrium, Yb – Ytterbium, TREO – total rare earth oxide, Th – thorium, U – uranium, ppm - parts per million.

REE results are reported as oxides using the following conversion factors:

Ce	Dy	Er	Eu	Gd	Ho	La	Lu	Nd	Pr	Sm	Tb	Tm	Y	Yb
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
1.1713	**1.1477**	**1.1435**	**1.1579**	**1.1526**	**1.1455**	**1.1728**	**1.1371**	**1.1664**	**1.1703**	**1.1596**	**1.1510**	**1.1421**	**1.2699**	**1.1387**

Hole ID	From (m)	To (m)	Ce_2O_3 ppm	Dy_2O_3 ppm	Er_2O_3 ppm	Eu_2O_3 ppm	Gd_2O_3 ppm	Ho_2O_3 ppm	La_2O_3 ppm	Lu_2O_3 ppm	Nd_2O_3 ppm	Pr_2O_3 ppm	Sm_2O_3 ppm	Tb_2O_3 ppm	Tm_2O_3 ppm	Y_2O_3 ppm	Yb_2O_3 ppm	TREO ppm	Th ppm	U ppm
AGWR0012	0	2	20	0	0	0	2	0	11	0	10	3	2	0	0	9	1	60	5	2
AGWR0012	2	4	29	0	0	0	2	0	14	0	12	3	2	0	0	11	1	82	5	5
AGWR0012	4	6	10	0	0	0	1	0	6	0	4	1	1	0	0	4	1	38	5	2
AGWR0012	6	8	14	0	0	0	1	0	9	0	6	2	1	0	0	6	1	54	7	2
AGWR0012	8	10	10	0	0	0	1	0	7	0	4	1	1	0	0	4	1	47	8	1
AGWR0012	10	12	11	0	0	0	1	0	7	0	4	1	1	0	0	7	1	55	10	1
AGWR0012	12	14	14	0	0	0	1	0	7	0	6	2	1	0	0	9	1	69	11	2
AGWR0012	14	16	15	0	0	0	2	0	7	0	7	2	2	0	0	12	1	78	11	2
AGWR0012	16	18	35	0	0	0	2	1	9	0	9	2	2	0	0	14	2	110	12	3
AGWR0012	18	20	309	0	0	0	4	1	26	0	23	6	5	1	0	15	2	429	20	8
AGWR0012	20	22	58	0	0	0	6	1	76	0	50	14	8	1	0	17	2	275	21	4
AGWR0012	22	24	63	0	0	0	5	1	78	0	37	11	6	1	0	25	2	275	18	3
AGWR0012	24	26	15	0	0	0	2	0	27	0	13	4	2	0	0	13	1	126	20	2
AGWR0012	26	28	26	0	0	0	5	0	97	0	48	16	7	1	0	18	1	272	19	2
AGWR0012	28	30	15	0	0	0	2	0	21	0	11	4	2	0	0	9	0	122	17	2
AGWR0012	30	32	9	0	0	0	1	0	14	0	6	2	1	0	0	5	0	100	20	2
AGWR0012	32	34	12	0	0	0	2	0	42	0	15	5	2	0	0	6	0	151	19	2
AGWR0012	34	36	30	0	0	0	1	0	20	0	7	2	1	0	0	4	0	135	20	3
AGWR0012	36	38	25	0	0	0	1	0	20	0	6	2	1	0	0	4	0	133	18	3
AGWR0012	38	40	40	0	0	0	1	0	44	0	13	5	2	0	0	4	0	188	20	3
AGWR0012	40	42	48	0	0	0	2	0	40	0	15	5	2	0	0	6	0	200	19	3
AGWR0012	42	44	84	0	0	0	4	0	114	0	46	17	5	0	0	12	0	369	18	4
AGWR0012	44	46	743	0	0	0	1	0	8	0	6	2	1	0	0	4	1	856	18	5
AGWR0012	46	48	1406	0	0	0	19	1	258	0	314	90	48	2	0	33	3	2268	18	6
AGWR0012	48	50	583	0	0	0	4	0	58	0	41	13	7	1	0	14	1	820	18	4
AGWR0012	50	52	712	0	0	0	16	1	155	0	191	52	31	2	0	36	3	1301	17	4
AGWR0012	52	54	365	0	0	0	19	2	178	0	246	63	39	2	0	43	4	1068	15	3
AGWR0012	54	56	180	0	0	0	21	2	152	0	199	50	34	2	0	67	5	823	14	2
AGWR0012	56	58	109	0	0	0	4	0	57	0	47	13	8	0	0	12	1	365	14	2
AGWR0012	58	60	106	0	0	0	4	0	54	0	44	13	7	1	0	13	1	361	15	2
AGWR0012	60	62	98	0	0	0	4	0	51	0	40	11	6	0	0	11	1	344	14	2
AGWR0012	62	64	98	0	0	0	4	0	51	0	41	12	7	0	0	11	1	350	13	2
AGWR0012	64	66	107	0	0	0	4	0	54	0	43	12	7	0	0	11	1	369	13	2
AGWR0012	66	68	103	0	0	0	4	0	54	0	43	12	7	0	0	11	1	370	14	2
AGWR0012	68	70	122	0	0	0	5	0	65	0	51	14	8	1	0	14	1	419	15	3
AGWR0012	70	72	118	0	0	0	5	0	62	0	49	14	8	1	0	13	1	412	15	3
AGWR0012	72	74	98	0	0	0	4	0	52	0	40	12	6	0	0	11	1	371	13	2
AGWR0012	74	76	137	0	0	0	4	0	52	0	42	12	7	1	0	13	1	419	15	4
AGWR0012	76	78	109	0	0	0	4	0	54	0	45	13	7	1	0	12	1	400	13	4
AGWR0012	78	80	97	0	0	0	4	0	50	0	40	11	6	0	0	11	1	380	12	4

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Hole ID	From (m)	To (m)	Ce_2O_3 ppm	Dy_2O_3 ppm	Er_2O_3 ppm	Eu_2O_3 ppm	Gd_2O_3 ppm	Ho_2O_3 ppm	La_2O_3 ppm	Lu_2O_3 ppm	Nd_2O_3 ppm	Pr_2O_3 ppm	Sm_2O_3 ppm	Tb_2O_3 ppm	Tm_2O_3 ppm	Y_2O_3 ppm	Yb_2O_3 ppm	TREO ppm	Th ppm	U ppm
AGWR0013	0	2	26	0	0	0	2	0	15	0	12	3	2	0	0	10	1	75	5	4
AGWR0013	2	4	57	0	0	0	4	1	36	0	29	8	5	1	0	22	2	169	7	6
AGWR0013	4	6	21	0	0	0	1	0	12	0	8	2	1	0	0	8	1	65	8	4
AGWR0013	6	8	15	0	0	0	1	0	11	0	6	2	1	0	0	6	1	57	10	2
AGWR0013	8	10	15	0	0	0	1	0	11	0	6	2	1	0	0	6	1	59	11	2
AGWR0013	10	12	10	0	0	0	1	0	7	0	4	1	1	0	0	5	1	52	9	1
AGWR0013	12	14	13	0	0	0	1	0	9	0	6	2	1	0	0	8	1	67	11	2
AGWR0013	14	16	10	0	0	0	1	0	6	0	6	1	1	0	0	9	1	67	11	2
AGWR0013	16	18	78	0	0	0	2	1	13	0	12	3	2	0	0	14	2	162	11	6
AGWR0013	18	20	104	0	0	0	13	2	120	0	90	25	17	2	0	52	6	470	14	7
AGWR0013	20	22	83	0	0	0	11	2	85	0	61	16	12	2	0	53	4	371	12	3
AGWR0013	22	24	32	0	0	0	5	1	29	0	23	6	4	1	0	29	1	176	7	2
AGWR0013	24	26	20	0	0	0	3	0	42	0	16	4	3	0	0	18	1	156	15	2
AGWR0013	26	28	14	0	0	0	2	0	23	0	11	3	2	0	0	12	0	120	14	2
AGWR0013	28	30	9	0	0	0	1	0	13	0	6	2	1	0	0	6	0	97	14	2
AGWR0013	30	32	7	0	0	0	1	0	9	0	4	1	1	0	0	3	0	88	19	3
AGWR0013	32	34	13	0	0	0	1	0	36	0	11	4	2	0	0	4	0	138	18	3
AGWR0013	34	36	8	0	0	0	1	0	25	0	7	2	1	0	0	4	0	120	18	3
AGWR0013	36	38	11	0	0	0	0	0	6	0	3	1	1	0	0	2	0	99	17	3
AGWR0013	38	40	22	0	0	0	0	0	10	0	5	1	1	0	0	2	0	120	16	3
AGWR0013	40	42	25	0	0	0	1	0	10	0	5	2	1	0	0	2	0	127	18	3
AGWR0013	42	44	31	0	0	0	1	0	6	0	4	1	1	0	0	2	0	133	18	4
AGWR0013	44	46	31	0	0	0	1	0	4	0	3	1	1	0	0	2	0	133	18	4
AGWR0013	46	48	32	0	0	0	1	0	5	0	3	1	1	0	0	2	0	140	18	4
AGWR0013	48	50	41	0	0	0	1	0	24	0	6	2	1	0	0	3	0	178	18	4
AGWR0013	50	52	52	0	0	0	1	0	5	0	4	1	1	0	0	3	0	169	19	4
AGWR0013	52	54	81	0	0	0	1	0	3	0	4	1	1	0	0	3	0	199	20	5
AGWR0013	54	56	113	0	0	0	1	0	4	0	6	2	1	0	0	4	0	241	19	4
AGWR0013	56	58	115	0	0	0	1	0	4	0	4	1	1	0	0	4	1	245	17	5
AGWR0013	58	60	370	0	0	0	2	0	23	0	20	6	3	0	0	7	1	550	17	4
AGWR0013	60	62	617	0	0	0	7	1	101	0	90	28	13	1	0	14	1	994	18	4
AGWR0013	62	64	596	0	0	0	41	3	557	0	458	138	71	5	0	88	4	2087	18	5
AGWR0013	64	66	319	0	0	0	7	1	116	0	105	32	15	1	0	15	1	742	16	3
AGWR0013	66	68	321	0	0	0	14	1	195	0	171	50	26	2	0	32	2	948	16	3
AGWR0013	68	70	315	0	0	0	65	6	849	0	705	194	108	7	0	185	12	2584	15	4
AGWR0013	70	72	194	0	0	0	32	3	402	0	310	83	48	4	0	101	7	1327	14	3
AGWR0013	72	74	141	0	0	0	8	1	91	0	67	18	11	1	0	30	2	515	13	2
AGWR0013	74	76	112	0	0	0	5	1	65	0	53	15	8	1	0	19	1	430	14	2
AGWR0013	76	78	115	0	0	0	5	1	69	0	55	15	9	1	0	17	1	442	14	3
AGWR0013	78	80	105	0	0	0	4	0	56	0	45	13	7	0	0	12	1	401	13	2
AGWR0013	80	82	117	0	0	0	5	0	66	0	53	15	8	1	0	14	1	441	13	3
AGWR0013	82	83	124	0	0	0	5	0	66	0	51	15	8	1	0	13	1	450	13	2

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Hole ID	From (m)	To (m)	Ce_2O_3 ppm	Dy_2O_3 ppm	Er_2O_3 ppm	Eu_2O_3 ppm	Gd_2O_3 ppm	Ho_2O_3 ppm	La_2O_3 ppm	Lu_2O_3 ppm	Nd_2O_3 ppm	Pr_2O_3 ppm	Sm_2O_3 ppm	Tb_2O_3 ppm	Tm_2O_3 ppm	Y_2O_3 ppm	Yb_2O_3 ppm	TREO ppm	Th ppm	U ppm
AGSA0224	0	4	20	2	1	0	2	0	12	0	10	3	2	0	0	9	1	65	4	2
AGSA0224	4	8	10	1	1	0	1	0	7	0	4	1	1	0	0	5	1	42	6	2
AGSA0224	8	12	17	1	1	0	1	0	9	0	7	2	1	0	0	7	1	68	8	2
AGSA0224	12	16	8	1	1	0	1	0	5	0	5	1	1	0	0	8	1	63	11	2
AGSA0224	16	20	61	2	1	0	1	0	3	0	5	1	1	0	0	8	1	121	14	2
AGSA0224	20	24	221	6	3	3	8	1	78	0	66	17	12	1	0	21	2	483	10	6
AGSA0224	24	28	27	4	3	1	3	1	19	0	14	4	3	1	0	27	2	159	11	2
AGSA0224	28	32	12	1	0	0	1	0	4	0	3	1	1	0	0	10	0	91	12	2
AGSA0224	32	36	27	1	0	0	1	0	3	0	3	1	1	0	0	3	0	108	14	2
AGSA0224	36	40	65	1	0	0	1	0	5	0	4	1	1	0	0	3	0	156	11	2
AGSA0224	40	44	24	0	0	0	0	0	8	0	3	1	1	0	0	2	0	125	12	2
AGSA0224	44	48	34	0	0	0	0	0	4	0	3	1	1	0	0	2	0	138	13	2
AGSA0224	48	52	32	0	0	0	0	0	4	0	1	0	0	0	0	1	0	139	13	2
AGSA0224	52	56	49	1	0	0	1	0	23	0	7	2	1	0	0	3	0	196	14	2
AGSA0224	56	60	52	1	0	0	2	0	40	0	10	3	2	0	0	4	0	232	14	2
AGSA0224	60	64	231	2	1	1	4	0	201	0	47	17	5	0	0	11	1	646	13	3
AGSA0224	64	68	1359	26	9	18	44	4	534	1	415	121	74	6	1	92	7	2842	12	3
AGSA0224	68	71	2975	52	19	29	69	8	308	2	442	113	107	10	2	149	16	4441	11	2
AGSA0225	0	4	57	4	2	1	4	1	24	0	21	5	4	1	0	19	2	149	7	5
AGSA0225	4	8	8	1	1	0	1	0	5	0	4	1	1	0	0	5	1	39	8	2
AGSA0225	8	12	7	1	0	0	0	0	3	0	3	1	1	0	0	4	1	40	8	1
AGSA0225	12	16	11	1	1	0	1	0	5	0	5	1	1	0	0	7	1	65	10	2
AGSA0225	16	20	11	1	1	0	1	0	4	0	4	1	1	0	0	7	1	71	11	2
AGSA0225	20	24	192	2	1	1	2	0	9	0	9	2	2	0	0	8	1	273	12	3
AGSA0225	24	28	176	15	7	7	22	3	230	1	157	42	26	3	1	66	5	813	12	4
AGSA0225	28	32	19	2	1	1	3	0	33	0	13	4	2	0	0	21	1	160	12	2
AGSA0225	32	36	23	1	1	0	1	0	11	0	6	2	1	0	0	5	1	120	13	2
AGSA0225	36	40	302	6	2	5	12	1	338	0	160	52	22	1	0	23	2	1002	13	3
AGSA0225	40	44	494	25	8	21	49	4	699	1	598	178	91	6	1	87	6	2352	13	4
AGSA0225	44	48	1581	47	18	34	87	7	771	2	826	207	136	10	2	196	13	4029	12	6
AGSA0225	48	52	473	18	8	11	31	3	270	1	243	60	42	4	1	88	6	1357	10	3
AGSA0225	52	56	146	6	2	4	10	1	97	0	89	23	15	1	0	32	2	537	8	2
AGSA0225	56	60	108	3	1	2	4	0	53	0	43	12	7	1	0	17	1	369	8	2
AGSA0225	60	64	108	3	1	2	4	0	52	0	43	11	7	1	0	12	1	368	8	2
AGSA0225	64	65	101	2	1	1	4	0	48	0	39	10	6	0	0	11	1	357	8	1
AGSA0226	0	4	28	2	1	1	2	0	17	0	14	4	3	0	0	10	1	88	6	3
AGSA0226	4	8	13	1	1	0	1	0	9	0	6	2	1	0	0	5	1	52	11	2
AGSA0226	8	12	13	1	1	0	1	0	7	0	5	1	1	0	0	5	1	56	9	2
AGSA0226	12	16	7	1	1	0	1	0	4	0	3	1	1	0	0	5	1	52	11	2
AGSA0226	16	20	7	1	1	0	1	0	2	0	2	1	1	0	0	5	1	59	13	2
AGSA0226	20	24	387	14	6	7	20	2	189	1	149	42	29	3	1	51	5	949	12	9
AGSA0226	24	28	58	7	5	2	7	2	53	1	35	9	6	1	1	43	4	284	14	4
AGSA0226	28	32	23	2	1	0	1	0	27	0	8	3	1	0	0	19	1	148	13	2
AGSA0226	32	36	6	1	0	0	1	0	6	0	3	1	1	0	0	10	0	96	14	2
AGSA0226	36	40	23	1	0	0	1	0	27	0	6	3	1	0	0	4	0	141	16	3
AGSA0226	40	44	191	1	1	1	1	0	161	0	36	18	3	0	0	5	1	501	18	3
AGSA0226	44	48	156	1	1	1	2	0	158	0	56	23	6	0	0	6	1	503	15	3
AGSA0226	48	52	57	2	1	1	3	0	35	0	33	9	5	0	0	8	1	254	15	5
AGSA0226	52	56	271	8	3	6	15	1	171	0	168	46	26	2	0	29	2	857	15	3
AGSA0226	56	60	466	14	6	9	25	2	249	1	234	60	38	3	1	68	5	1297	12	3
AGSA0226	60	64	159	7	3	5	13	1	138	0	117	30	18	1	0	42	2	662	11	2
AGSA0226	64	68	109	3	2	2	6	1	64	0	52	14	8	1	0	21	1	416	11	2

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Appendix 3 – JORC Code, 2012 Edition, Table 1 report

Section 1 - Sampling Techniques and Data

(Criteria in this section applies to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques *Note: Due to the similarity of the deposit styles, procedures and estimations used this table represents the combined methods for all Ardea Resources (ARL) Nickel and cobalt Laterite Resources. Where data not collected by ARL has been used in the resource calculations, variances in techniques are noted.*	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Aircore holes were sampled on a 4 metre composite interval basis, and RC holes on 2m composite interval basis with exceptions being end of hole final-lengths. • Sample condition, sample recovery and sample size were recorded for samples collected by Ardea. • Industry standard practice and QAQC procedures were carried out using Ardea protocols, with samples collected in calico bags. • Assay of samples utilised standard laboratory techniques with mixed-acid digest ICP-AES and ICP-MS undertaken to determine 60 elements including REE, and lead collection fire-assay to determine Au, Pt, Pd. Further details of lab processing techniques are found in Quality of assay data and laboratory tests below.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Aircore drilling was completed utilising an either 3½ or 4½ inch tungsten tipped blade, with hammer drilling into harder basement rock as required. • RC drilling was completed utilising a face sampling hammer (bit diameter between 4½ and 5 ¼ inches) and samples were collected by either a cone or riffle splitter using 2 metre composites.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Qualitative sample recoveries are recorded for each sample interval. Sample condition recorded using a three code system, D=Dry, M=Moist, W=Wet. • With RC and AC drilling, fluids can be used to maximise recoveries where appropriate as can conservatively reduce drill penetration rates to limit overgrinding and pressure, maintaining a clean cyclone and drilling equipment, as well as regular communication with the drillers and slowing drill advance rates when variable to poor ground conditions are encountered.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Visual geological logging was completed for all drilling both at the time of drilling using standard Ardea logging legend which records lithology, mineralisation, weathering, texture, alteration, colour and comments. The geologist also oversaw all sampling and drilling practices. • The geological logging is considered qualitative. • All drill holes were logged in full to end of hole. • Handheld Niton XRF was also used to cross-check logging and specific rock properties. • A small selection of representative chips were collected for every 1 metre interval and stored in chip-trays for future reference. • Chip trays are systematically photographed, and photographs used in geo-metallurgical interpretation.

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Sub-sampling techniques and samplepreparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub- sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No core drilling was utilised • 4m for aircore and 2 metre for RC composite samples were recovered using a 15:1 rig mounted cone splitter or trailer mounted riffle splitter during drilling into calico sample bags. • The sample preparation involves oven drying, coarse crush and pulverisation of the entire sample to minimum of 85% passing -75µm • QAQC was employed. A standard, blank or duplicate sample was inserted into the sample stream as per company procedure to determine precision and accuracy of assays. • Sample equipment was cleaned between drill sites to avoid contamination. • The sample size collected is considered appropriate.
Quality of assay dataand laboratory tests	• *The nature, quality and appropriateness of theassaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, readingtimes, calibrations factors applied and theirderivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• All Ardea samples were submitted to Kalgoorlie BV laboratories and transported to BV Perth, where they were pulverised. • The samples were sorted, wet weighed, dried then weighed again. Primary preparation has been by crushing and splitting the sample with a riffle splitter where necessary to obtain a sub-fraction which has then been pulverised in a vibrating pulveriser. All coarse residues have been retained. • Analysis at BV Perth was by Mixed acid digest Full ICP-AES and ICP-MS utilising a 50g charge (ARL02 Suite) to define: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pr, Rb, Re, S, Sb, Sc, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn, Zr • For PGM suite elements (Au, Pt, Pd) 40g lead collection fire assay ICP-MS was used. • LOI (Loss on Ignition) was also determined using robotic TGA system where sample is dried at 105°C then ignited at 1000°C. • No geophysical tools were used to determine any element concentrations • BV routinely inserts analytical blanks, standards and duplicates into the client sample batches for laboratory QAQC performance monitoring. • Ardea also inserted QAQC samples into the sample stream at a 1 in 20 frequency, alternating between duplicates, blanks (industrial sands) and standard reference materials. • All of the QAQC data has been statistically assessed. There were rare but explainable inconsistencies in the returning results from standards submitted, and it has been determined that levels of accuracy and precision relating to the samples are acceptable.
Verification of samplingand assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Significant intersections have been verified by multiple company personal, including technical staff, management and directors. • No twin holes have been completed. • Primary sampling data is collected in a set of standard company templates. The information is managed by Ardea's Database Manager and compiled into the central database. • Primary assay data has been converted to oxide data as reported to calculate a total rare earth oxide component.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All drill holes were recorded using handheld Garmin GPS and later surveyed using an RTK DGPS system with either a 3 or 7 digit accuracy. The coordinates are stored in the exploration database referenced to the MGA Zone 51 Datum GDA94. • Downhole surveys were undertaken periodically using single shot camera surveys. • Topography is very flat. The topographic surface has been constructed from hole collar surveys. These are consistent with regional DTMs and are considered adequate for exploration purposes.

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Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The drill line spacing for the overall aircore program was 160m by 320m pattern, with the three western collars defined on an ad hoc basis to delimit interpreted lithology. • The spacing is not considered sufficient at this stage for the definition of Mineral Resources. • Samples were composited over 2m for the RC drilling and 4m for the Aircore drilling.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• All aircore drill holes in this program were vertical. The sampling is preliminary in nature and is currently not possible to assess whether sampling is unbiased. • Not applicable as above.
Sample security	• *The measures taken to ensure sample security.*	• All samples were collected and accounted for by Ardea employees/consultants during drilling. All samples were bagged into calico plastic bags and closed with cable ties. Samples were transported to Kalgoorlie from logging site by Ardea employees/ consultants and submitted directly to BV Kalgoorlie. • The appropriate manifest of sample numbers and a sample submission form containing laboratory instructions were submitted to the laboratory. Any discrepancies between sample submissions and samples received were routinely followed up and accounted for.

Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• ARL has periodically conducted internal reviews of sampling techniques relating to resultant exploration datasets, and larger scale reviews capturing the data from multiple drilling programmes within the KNP.
		• Internal reviews of the exploration data included the following:
		  • Unsurveyed drill hole collars (less than 1% of collars).
		  • Drill Holes with overlapping intervals (0%).
		  • Drill Holes with no logging data (less than 2% of holes).
		  • Sample logging intervals beyond end of hole depths (0%).
		  • Samples with no assay data (from 0 to <5% for any given project, usually related to issues with sample recovery from difficult ground conditions, mechanical issues with drill rig, damage to sample in transport or sample preparation).
		  • Assay grade ranges.
		  • Collar coordinate ranges
		  • Valid hole orientation data.
		• The BV Laboratory was visited by ARL staff in 2021, and the laboratory processes and procedures were reviewed at this time and determined to be robust.

Section 2 - Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments*	• The tenements on which the drilling was undertaken are M29/272, M29/278, M29/426 and E29/934. Ardea or its' subsidiaries are the sole holder of the tenements. The tenements are in good standing. • The tenements are located in the Goongarrie project as part of Ardea's globally significant KNP (Kalgoorlie Nickel Project)
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Exploration at Goongarrie for nickel-cobalt laterite mineralisation was initially completed by Heron Resources Ltd and subsequently drilled by Vale Inco Limited in a Joint Venture. These parties did not evaluate REEs. Recent recognition of REE potential has arisen from Ardea's intensive R&D programs, notably with the FBICRC based at Curtin University, Perth and CSIRO.

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Geology	• *Deposit type, geological setting and style ofmineralisation.*	• The sole Goongarrie REE development model is Ionic Adsorption Clay (IAC), being a clay weathering product upon which loosely held REE metals are adsorbed within the clay mineral sheeted lattice. • The three holes are hosted entirely within felsic-intermediate intrusive (Ti/Zr ratio of 16 – 22, based on elevated REE, term "alkaline granodiorite" as field rock type classification). The REE anomalism occurs at the Saprolite Lower (80%) and Saprock (20%) contact.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *easting and northing of the drill hole collar* • *elevation or RL (Reduced Level – elevationabove sea level in metres) of the drill hole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.*	• All holes drilled in this most recent program with significant REE mineralisation are reported in the table in the body of the release.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Most drill hole samples have been collected over 2m and 4m down hole intervals. • All REE intercepts were calculated at two separate cut-offs using a minimum 500ppm and including 1000ppm TREO (Total Rare Earth Element) cut-off over either 2m or 4m sample intervals. • Primary assay data has been converted to oxide data as reported to calculate a TREO component. The elements used to calculate this are Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Tb, Tm, Y, Yb • No metal equivalent calculations have been used in this assessment.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The REE mineralisation at Goongarrie is interpreted to be flat-lying • All Aircore drill holes are vertical, hence intersect the mineralisation at approximately 90°to its orientation and approximate true width
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Maps and photos relevant to the REE mineralisation are shown within the report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Not applicable to this report. All results are reported either in the text or in the associated appendices. Examples of high-grade mineralisation are labelled as such.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• No other data are, at this stage, known to be either beneficial or deleterious to recovery of the metals reported. All results considered to be significant are reported.

Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further drilling is expected to be undertaken at Goongarrie West to follow-up the REE anomalism but has not yet been defined. Further drilling would likely involve RC drilling on a 160x80m grid to define the anomalism along the interpreted trend. • In view of the drill results at Goongarrie West and as required by the WA Mines Act 1978, the Department of Mines, Industry Regulation and Safety (DMIRS) has been notified that a discovery of economic interest has been made.

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