Ardea Resources Limited

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ASX Symbol

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Shares
67,000,747

Unlisted options
12,310,022

ABN 30 614 289 342

Preliminary Results from Lewis Ponds

Pre-Feasibility Study drilling now underway at Lewis Ponds, in parallel with KNP Cobalt Zone PFS program

Figure 1 – Massive to banded sulphide mineralisation from Ardea's first drillhole at Lewis Ponds. Pinkish-brown colouring is sphalerite (zinc sulphide), brassy-brown colouring is pyrite (iron sulphide), ALD0001, ~43.0m.

- First diamond drill hole at Lewis Ponds has successfully intercepted over 50 m of massive, banded, and stringer zinc sulphide mineralisation. Drilling is ongoing.
- Visible zinc mineralisation intercepted from only 42 m downhole, associated with intense shearing, alteration and quartz-sulphide veining, suggests favourable bulk tonnage setting.
- Rock chip sampling over the deposit has defined strong gold (up to 5.69 g/t), silver (up to 1040 g/t), zinc (up to 2.91 %) and lead (up to 2.80 %) mineralisation.
- Initial results suggest multiple mineralisation events at and around Lewis Ponds.
- Drill core required for Lewis Ponds metallurgical testwork.
- Drilling to commence at the KNP Cobalt Zone this month.

Ardea Resources Limited (ASX: ARL, "Ardea" or "the Company") has successfully intercepted zinc sulphide mineralisation from 42 m downhole in its first drillhole at its Lewis Ponds Project, near Orange in New South Wales. The drilling at Lewis Ponds is being undertaken in parallel with the Pre-feasibility Study program at the KNP Cobalt Zone.

Diamond drilling is aimed at a series of targets defined by Ardea to characterise broad mineralisation intercepts along the strike length of the deposit. The drill core will be used to define mineralisation styles, structural controls, and for forthcoming metallurgical testwork.

Drilling is expected to continue over the coming months as up to eight diamond drill holes are completed.

Visual mineralisation in the first drill hole

Ardea's first drill hole at Lewis Ponds has intercepted around 50 m (downhole thickness) of significant visible massive to stringer zinc mineralisation from a depth of 42 m downhole (e.g. Figure 1, assays are not yet available).

Most observed mineralisation comprises sphalerite (zinc sulphide), pyrite, and pyrrhotite (iron sulphides). Lesser amounts of galena (lead sulphide) and chalcopyrite (copper iron sulphide) are also present.

Gold and silver are usually not visible at Lewis Ponds and have not been observed in this core. However, a distinctive quartz-pyrite veining and sericite alteration is commonly associated with gold-silver mineralisation, and this style of alteration is evident. The mineralised zone as defined in adjoining holes is gold-enriched (TLPRC04010, 114-151 m, 37 m at 0.3g/t Au, 38 g/t Ag, 2.0% Zn and 0.7% Pb).

Rock chip sampling

During preparation for drilling, outcropping and surface float samples of interest were sampled. Most of the rock samples contain quartz veins and are strongly altered, similar to rocks observed in the drill-hole ALD0001 stringer zones.

Results

Geochemical analysis of these samples show local strong mineralisation at surface. A summary of well mineralised samples is shown in Table 1, with all samples listed in Appendix 1.

Results show the following:

- gold values up to 5.69 g/t
- silver values up to 1040 g/t (over 33 oz/t)
- zinc values up to 2.91 %
- lead values up to 2.80 %.

Zinc, copper and sulphur values are generally low in the weathered rocks (as expected) but lead values are more consistent. One particular sample (S124054) contains 2.91 % zinc and 2.53 % lead but with low precious metal contents.

Geological controls on geochemistry

Analysis of the dataset by Ardea shows distinct geochemical groupings that correspond well with the surface geology and historic workings.

Four distinct lines of workings correspond to geological structures that are poorly defined at surface but which trend in a northwesterly direction. At each of these, intense sericite alteration corresponds with quartz veining and elevated gold, silver, and base metal values.

The Lady Belmore Line of Lode shows elevated molybdenum, arsenic, and antimony associated with the mineralisation. Adjacent to this, Toms Line shows elevated copper. On the outer periphery of these, the New Lewis Ponds (to the northeast) and the Torpys Lines (to the southwest) show elevated antimony.

Although there are variations in host rocks on some of these Lines, the arrangement described is consistent with a thermally graded series of structures in an epithermal system. It is also consistent with textural features identified in outcrop. Under such an arrangement, the Lady Belmore Line, which would be the hottest, could be the main fluid conduit. It is interesting to note that the highest-grade gold and silver mineralisation is hosted by the New Lewis Ponds Line in the hangingwall to the Lady Belmore Line.

Further work is required to define the plumbing system of a late-stage epithermal gold-silver system that appears to overprint the earlier VMS style base metal system.

Table 1 – Selected surface samples from Lewis Ponds, arranged north to south. See Appendix 1 for full listing.

Sample	Easting (mE)*	Northing (mN)*	Gold (g/t)	Silver (g/t)	Zinc (%)	Lead (%)	Copper (%)	Sulphur (%)
S124050	709794	6316604	**5.69**	**195.0**	0.04	**1.63**	0.03	0.87
S124049	709790	6316603	**3.81**	**76.6**	0.05	0.69	0.02	0.27
S124051	709799	6316600	**1.58**	**1040.0**	0.06	0.32	0.03	0.27
S124034	709705	6316514	**1.53**	41.5	0.24	0.95	0.18	0.33
S124039	709788	6316510	0.23	30.9	0.09	**1.88**	0.75	0.59
S124054	710072	6316455	0.06	29.1	**2.91**	**2.53**	0.20	0.02
S124063	709946	6316435	0.05	57.3	0.31	**2.80**	0.03	0.51
S124061	709959	6316424	0.28	44.3	0.17	**1.88**	0.09	0.13
S124060	709999	6316395	**0.91**	**95.0**	0.04	**1.94**	0.08	0.51
S124069	710027	6316256	**1.35**	**75.9**	0.01	**1.89**	0.03	2.61
S124071	710064	6316247	**1.65**	**92.8**	0.16	**1.65**	0.08	1.30
S124083	709989	6316129	**0.97**	**82.6**	0.18	**1.75**	0.23	0.75
S124081	709990	6316128	0.22	43.2	**2.35**	**1.79**	0.24	3.09
S124074	710158	6316127	0.08	21.2	0.12	**1.56**	0.37	0.37
S124082	709989	6316127	**0.81**	**93.8**	**0.84**	**1.85**	0.35	0.90

*GDA94 Zone 55

Potential for multiple mineralising events

Several distinct geochemical associations are recognised, which highlight that Lewis Ponds has a complex mineralising overprint.

There was a surprising absence of Volcanogenic Massive Sulphide (VMS) pathfinders (Bi, Cd, Ga – see Appendix 1). The geochemical signatures are consistent with a low temperature epithermal system, with consistent Pb-Au-Ag signature (in contrast to the Zn-Au-Ag mineralization of the documented 6.6Mt resource).

It should be noted that such interpretations are preliminary and will require analysis of fresh samples from drill core. However, they are consistent with other features recently discovered at Lewis Ponds that are indicative of multiple mineralisation events with particularly well defined gold-silver association.

Forward program

It is likely that the absence of multi-element data in the historic drill database has led to a previous focus on VMS models at Lewis Ponds.

Initial work by Ardea suggests that there is outstanding potential for orogenic gold-base metal mineralisation of the McPhillamys style (73Mt at 0.9g/t Au, 2.2Moz contained gold). McPhillamys (Regis Resources) lies 20 km along strike along the genetically related Godolphin Fault.

To further evaluate the Ardea exploration model, a concerted program of re-logging and hand-held XRF assay of historic drill core is required. On the basis of these programs, plus interpretation of current drill core, a significant amount of core cutting for assay will likely be required.

This had not been foreseen in the Ardea Prospectus program and budget, so additional budget resources will be required to complete the recommended programs.

About the Lewis Ponds zinc-gold project

The historic mining centre of Lewis Ponds, near Orange in NSW, has been the focus of high-grade gold, silver, and zinc-lead-silver mining at various times over its long history. Ardea is the first, however, to examine the deposit as a bulk tonnage open pittable system. Such reconsideration is expected to define broad mineralised intercepts and allow appraisal of the deposit in a manner akin to that used for the development of the successful mines of the region (e.g. Cadia and Northparkes, with McPhillamys currently undergoing feasibility).

Figure 2 – Lewis Ponds deposit, looking northwest from Torpy's mine.

About the current diamond drilling program

The present diamond drilling program is split into two phases. The first phase comprises four diamond drill holes, each on section lines that are 200 m apart. None of these holes repeat earlier diamond drilling but rather fill gaps in the often sparse drilling in the shallower reaches of the deposit.

On completion, the first phase will be assessed for its effectiveness. It is expected that the second phase will follow immediately, infilling section lines to 100 m line spacing. Once again, drill holes are aimed to fill gaps in existing datasets.

The program will be used to provide information on the following:

1. Assay data will define the extent on known high grade mineralisation between drill holes, but will also define broad disseminated stringer-style precious and base metal mineralisation. Such mineralisation will be instrumental in defining a bulk-tonnage mining model.
2. Structural information will assist in defining faults and folds that disrupt and deform mineralisation. Ardea's assessment is that structural controls will be the main control on the distribution and continuity of mineralisation at Lewis Ponds.
3. The mineralisation styles present at Lewis Ponds require clarity. It is clear from Ardea's assessment that early stage zinc-lead(-silver) mineralisation coexists with (and may be overprinted by) possibly several generations of later stage gold-silver mineralisation.
4. Samples for metallurgical assessment of the Lewis Ponds deposit. With the identification of stringer style mineralisation and of zinc-lead(-silver) and gold-silver mineralisation, extensive work will be required to characterise suitable processing procedures.

Ardea looks forward to updating shareholders as results are received.

For further information regarding Ardea, please visit www.ardearesources.com.au or www.heronresources.com.au or contact:

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Compliance Statement (JORC 2012)

A competent person's statement for the purposes of Listing Rule 5.22 has previously been announced by the Company for:

1. *Kalgoorlie Nickel Project on 21 October 2013 and 31 June 2014, October 2016, 2016 Heron Resources Annual Report and 6 January 2017;*
2. *KNP Cobalt Zone Study on 6 January 2017*

The Company confirms that it is not aware of any new information or data that materially affects information included in previous announcements, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. All projects will be subject to new work programs following the listing of Ardea, notably drilling, metallurgy and JORC Code 2012 resource estimation as applicable.

The information in this report that relates to KNP Exploration Results is based on information originally compiled by previous and current full time employees of Heron Resources Limited. The Exploration Results and data collection processes have been reviewed, verified and re-interpreted by Mr Ian Buchhorn who is a Member of the Australasian Institute of Mining and Metallurgy and currently a director of Ardea Resources Limited. Mr Buchhorn has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the exploration activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Buchhorn consents to the inclusion in this report of the matters based on his information in the form and context that it appears.

The exploration and industry benchmarking summaries are based on information reviewed by Dr Matthew Painter, who is a Member of the Australian Institute of Geoscientists. Dr Painter is a full-time employee and a director of Ardea Resources Limited and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Painter has reviewed this press release and consents to the inclusion in this report of the information in the form and context in which it appears.

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 ability to complete the Ardea spin-out, 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 complete the Ardea spin-out on the basis of the proposed terms and timing or at all, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.

Although the forward-looking information contained in this news release is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.

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

Appendix 1 – Tabulation of assay results

All rock chip samples selected from outcrop at Lewis Ponds during preparation of the site for drilling (February-March, 2017). Selected elements shown only.

			Precious metal related				*Base metal related (VMS indicators)*								
Sample	Easting	Northing	Au (g/t)	Ag (g/t)	As (ppm)	Mo (ppm)	Zn (%)	Cu (%)	Pb (%)	S (%)	Ba (ppm)	Bi (ppm)	Cd (ppm)	Ga (ppm)	Sb (ppm)
S124034	709705	6316514	**1.53**	**41.5**	2610	11	0.24	0.18	**0.95**	0.3	680	21	2	17	148
S124035	709705	6316534	0.04	0.8	46	3	0.01	0.00	0.01	0.1	260	1	0	8	4
S124036	709705	6316536	0.06	1.1	39	2	0.03	0.00	0.01	0.1	830	1	1	14	4
S124037	709734	6316531	0.04	3.0	58	1	0.02	0.01	0.05	0.0	520	7	0	9	2
S124038	709734	6316531	0.00	1.2	77	1	0.05	0.02	0.04	0.0	1080	1	0	17	2
S124039	709788	6316510	0.23	**30.9**	2820	7	0.09	**0.75**	**1.88**	0.6	90	203	2	71	46
S124040	709789	6316511	0.00	1.8	52	1	0.18	0.03	0.10	0.0	480	3	1	12	1
S124041	709803	6316512	0.03	9.3	75	3	0.16	0.02	0.07	0.4	590	18	2	11	11
S124042	709802	6316513	0.05	5.0	95	2	**0.32**	0.04	0.10	0.5	390	4	1	14	24
S124043	709801	6316513	0.05	4.9	127	3	0.13	0.05	**0.25**	0.4	190	23	2	15	8
S124044	709801	6316478	0.01	2.0	118	1	0.11	0.02	0.04	0.0	1530	5	1	21	3
S124045	709805	6316470	0.00	1.4	97	1	0.17	0.01	0.01	0.0	1250	1	3	17	2
S124046	709610	6316467	0.04	5.6	46	1	0.09	0.01	0.02	0.0	980	1	5	19	3
S124047	709896	6316525	0.40	5.7	38	5	0.19	0.07	**0.27**	0.1	1020	14	1	11	3
S124048	709894	6316526	0.56	20.7	35	7	0.08	0.15	**0.35**	0.0	290	14	5	2	16
S124049	709790	6316603	**3.81**	**76.6**	212	15	0.05	0.02	**0.69**	0.3	3130	2	1	12	90
S124050	709794	6316604	**5.69**	**195.0**	558	26	0.04	0.03	**1.63**	0.9	750	0	0	15	147
S124051	709799	6316600	**1.58**	**1040.0**	189	9	0.06	0.03	**0.32**	0.3	4160	0	3	7	286
S124052	710076	6316447	0.02	7.2	43	2	**0.56**	0.02	**0.35**	0.0	2170	1	2	17	6
S124053	710074	6316447	0.01	1.4	381	1	0.01	0.01	0.21	0.0	1790	1	0	18	15
S124054	710072	6316455	0.06	29.1	50	3	**2.91**	0.20	**2.53**	0.0	2310	0	22	7	37
S124055	710079	6316468	**0.73**	15.1	43	1	0.03	0.01	**0.32**	0.5	1910	3	0	9	12
S124056	710080	6316468	0.02	20.7	43	1	0.01	0.01	0.15	0.1	640	0	0	3	16
S124057	710080	6316469	0.50	**55.4**	77	4	0.06	0.05	**1.43**	0.9	1290	4	1	15	64
S124058	710002	6316401	0.08	4.3	128	14	0.05	0.03	0.15	0.0	5060	1	0	25	14
S124059	710001	6316397	0.38	**73.6**	3110	1645	0.05	0.05	**1.49**	0.5	720	1	4	5	19
S124060	709999	6316395	**0.91**	**95.0**	2580	4110	0.04	0.08	**1.94**	0.5	2260	1	1	15	115
S124061	709959	6316424	0.28	**44.3**	1020	724	0.17	0.09	**1.88**	0.1	1010	3	4	11	75
S124062	709947	6316421	0.06	15.3	52	184	0.14	0.03	**1.20**	0.4	2560	0	2	14	21
S124063	709946	6316435	0.05	**57.3**	6	134	**0.31**	0.03	**2.80**	0.5	630	54	10	2	31
S124064	709944	6316430	0.02	1.3	37	15	0.03	0.01	0.08	0.0	2160	1	0	17	1
S124065	709932	6316418	0.00	0.6	15	14	0.01	0.00	0.01	0.0	2240	0	0	13	1
S124066	710026	6316276	0.02	2.9	43	7	0.02	0.01	0.04	0.3	3840	0	0	15	7
S124067	710008	6316308	0.08	1.1	54	2	0.03	0.00	0.02	0.2	3310	0	0	16	3
S124068	710007	6316307	0.00	4.9	8	4	0.02	0.01	0.06	0.0	750	1	0	4	2

Sample	Easting	Northing	*Precious metal related*				*Base metal related*								
			Au (g/t)	Ag (g/t)	As (ppm)	Mo (ppm)	Zn (%)	Cu (%)	Pb (%)	S (%)	Ba (ppm)	Bi (ppm)	Cd (ppm)	Ga (ppm)	Sb (ppm)
S124069	710027	6316256	**1.35**	**75.9**	503	6	0.01	0.03	**1.89**	2.6	250	6	0	7	94
S124070	710036	6316243	0.01	1.3	8	1	0.00	0.00	0.03	0.0	240	0	0	1	1
S124071	710064	6316247	**1.65**	**92.8**	572	7	0.16	0.08	**1.65**	1.3	550	5	2	12	106
S124072	710089	6316227	0.01	3.5	7	1	0.09	0.07	0.08	0.0	590	7	1	8	5
S124073	710156	6316130	0.03	9.6	46	5	0.06	0.24	**0.99**	0.2	2360	13	1	15	9
S124074	710158	6316127	0.08	21.2	75	5	0.12	**0.37**	**1.56**	0.4	250	6	1	7	17
S124075	710032	6316165	0.09	22.5	407	5	0.09	0.08	0.21	0.0	2840	0	8	4	29
S124076	710074	6316110	0.33	13.6	83	6	0.07	0.03	0.12	0.1	450	1	1	10	31
S124077	710073	6316108	0.02	2.6	4	1	0.01	0.01	0.01	0.0	50	0	0	2	2
S124078	710023	6316079	0.02	2.1	61	2	0.01	0.00	0.02	0.1	2380	1	0	22	4
S124079	710017	6316085	0.22	4.8	162	5	0.02	0.03	0.22	0.2	1920	6	0	20	11
S124080	710016	6316088	0.07	**46.0**	152	3	0.03	0.20	**0.31**	0.2	1200	7	0	17	13
S124081	709990	6316128	0.22	**43.2**	155	5	**2.35**	0.24	**1.79**	3.1	320	6	60	14	70
S124082	709989	6316127	**0.81**	**93.8**	280	6	**0.84**	**0.35**	**1.85**	0.9	530	8	13	19	182
S124083	709989	6316129	**0.97**	**82.6**	372	7	0.18	0.23	**1.75**	0.8	610	9	2	20	298

Appendix 2 – 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	• *Nature and quality of sampling (eg 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.*	• Samples from the diamond-core holes are being taken from mostly HQ3 and NQ3 sized core and sampled on a nominal 1 metre basis taking into account smaller sample intervals up to geological contacts. The core is cut in half along the core orientation line (where available) and in massive sulphide zones one portion is quartered for assaying, half the core is preserved for metallurgical testing and the remaining quarter is retained as reference material in the core trays. In non-massive sulphide material half core is sampled. • Rock chip samples are collected from outcrop, float, or other exposure. Samples are clear of organic matter. • These sampling methods are standard industry methods and are believed to provide acceptably representative samples for the type of mineralisation encountered.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details.*	• Diamond-core drilling is being undertaken by a Sandvik DE710 rig with mostly NQ3 sized core being drilled. Various techniques are employed to ensure the hole is kept within limits of the planned position. The core is laid out in standard plastic cores trays.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• The core is transported to an enclosed core logging area and recoveries are recorded. Recoveries to date have been better than 95%. The core is orientated where possible and marked with 1 metre downhole intervals for logging and sampling.
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.*	• The diamond core is geologically logged by qualified geologists. Geotechnical logging is also being undertaken on selected sections of the core. Samples for metallurgical testing are being kept in a freezer to reduce oxidation prior to being transported to the metallurgical laboratory.
Sub-sampling techniques and sample preparation	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• All core and rock chip samples are crushed then pulverised in a ring pulveriser (LM5) to a nominal 90% passing 75 micron. An approximately 250g pulp sub-sample is taken from the large sample and residual material stored. • A quartz flush (approximately 0.5 kilogram of white, medium-grained sand) is put through the LM5 pulveriser prior to each new batch of samples. A number of quartz flushes are also put through the pulveriser after each massive sulphide sample to ensure the bowl is clean prior to the next sample being processed. A selection of this pulverised quartz flush material is then analysed and reported by the lab to gauge the potential level of contamination that may be carried through from one sample to the next.

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Sample preparation and assaying is being conducted through ALS Laboratories, Orange, NSW with certain final analysis of pulps being undertaken at the ALS Laboratory in Brisbane QLD. • Gold is determined by 30g fire assay fusion with ICP-AES analysis to 1ppb LLD. • Other elements by mixed acid digestion followed by ICP-AES analysis. • Laboratory quality control standards (blanks, standards and duplicates) are inserted at a rate of 5 per 35 samples for ICP work.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• An internal review of results was undertaken by Company personnel. No independent verification was undertaken at this stage. • All field and laboratory data has been entered into an industry standard database using a contract database administrator (DBA) in the Company's Perth office. Validation of both the field and laboratory data is undertaken prior to final acceptance and reporting of the data. • Quality control samples from both the Company and the Laboratory are assessed by the DBA and reported to the Company geologists for verification. All assay data must pass this data verification and quality control process before being reported.
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.*	• The drill collars were initially located with a combination of handheld GPS and licenced surveyor using a DGPS system, with accuracy of about 1m. The final drill collars are "picked up" by a licenced surveyor with accuracy to 1 centimetre. • While drilling is being undertaken, downhole surveys are conducted using a downhole survey tool that records the magnetic azimuth and dip of the hole. These recordings are taken approximately every 30 metres downhole. Where possible holes are also being surveyed with gyroscopic methods, with some 80 percent of holes drilled in the current program also surveyed by this method after drilling has been completed.
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 diamond drilling is mostly following-up in various directions from previous intercepts with a nominal spacing in the range 50-100m. This drill hole spacing will be sufficient to provide Mineral Resource estimates in the future.
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.*	• The drilling orientation is designed to intersect the mineralised lenses at a close to perpendicular angle. The mineralised lenses are dipping at approximately 50-60 degrees to the northeast and the drilling is approximately at 60 degrees to the southwest. This will vary from hole to hole.
Sample security	• *The measures taken to ensure sample security.*	• Samples are being secured in green plastic bags and are being transported to the ALS laboratory in Orange, NSW via a courier service or with Company personnel/contractors.

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Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• A review and assessment of the laboratory procedures was under taken by Company personnel in late 2016.

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 to obtaining a licence to operate in the area.*	• The Lewis Ponds project is located 14km east-northeast of the city of Orange, central New South Wales, and has an elevation 700 m and 900 m above sea-level. • The exploration rights to the project are owned 100% by the Ardea Resources through the granted exploration licence EL5583, which expires on 24 June 2017. The company is applying for a 5 year renewal of the licence. • A capped (A$2M) royalty and finders fee is payable to a private third party if the project is sold or commences production. • The project is on partly cleared private land, most of which is owned by Ardea. Access agreements are in place for the private land surrounding the main deposit area. There are no national parks, reserves or heritage sites affecting the project area.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Lewis Ponds deposit and surrounding workings were part of Australia's first recognised gold field, discovered 1835. Various surface and shallow underground mining operations and associated processing and smelting operations were present at various times between discovery and approximately 1920. The detailed history for this period is presently the subject of research. • Amax Exploration Australia Inc entered a Joint Venture Agreement which Metals Investments Holdings NL and A.I.Consolidated Gold Pty Ltd held with the owner of the title ,Wentworth Mining Corporation Pty Ltd, over ground which included the Lewis Ponds deposit. Amax drilled four DD holes totalling 875 meters in 1971-1972 which contributed four intercepts above 7% ZnE to this Resource estimate. The only drilling done prior to Amax was by Cominco in 1969. Three holes were abandoned after entering disused workings at the Spicers Mine location, Lewis Ponds. • Subsequent drilling by Aquitaine Australia Minerals Pty Ltd in 1975-1976 was under joint venture agreement with Amax and Shell Company of Australia. 10 (BOA series) holes were drilled totalling 2102 metres, which also contributed four intercepts. • Between 1979 and 1981 a further 7 holes totalling 2274 metres (SLP series) were drilled by Shell and Aquitaine under the JV agreement with Amax. This drilling contributed five intercepts including one twinned in a wedge hole. In total, other party exploration contributed 15 percent of the database which now determines the geometry of potentially ore grade mineralisation for this

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		Resource estimate. • In 1987-1988, the Homestake subsidiary Sabminco drilled 33 RCP holes totalling 2300 metres (LPRC series). This drilling contributed 21 intercepts of the 230 used to interpret the Resource. • Prior to the acquisition of TriAusMin by Heron in August 2014, Tri Origin Australia drilled 42232 metres in 124 holes, followed by Tri Origin Minerals with 3812 metres in 30 holes.
Geology	• *Deposit type, geological setting and style of mineralization.*	• The most recent statement of the Lewis Ponds geology by Dr Peter Gregory (2005) has also built on much prior geological insight by other parties in the 1970s and 1980s, and by geologists employed by predecessor companies to Tri Origin Minerals since 1992. Also between 1999 and 2003 a comprehensive Ph.D study of the geology was made (Agnew 2003) A re-cast of Peter Gregory's summary is as follows: • Type: Results of the study show that primary volcanogenic mineralisation of Late Silurian age developed within an extensive axial zone over 1200m in a moderately deep water trough (extensional back arc). Mineralisation deposited at one horizon close to and possibly on the seafloor within sediments and volcaniclastics and at the end of a rhyolite-dacite volcanic episode involving lava domes. Tom's Zone in the south formed in a quieter sedimentary environment dominated by siltstones. Current work by Ardea is showing that late-stage gold mineralization overprints the earlier VMS style mineralsation. • Setting: The Lewis Ponds mineralised zone is located on the eastern limb of a major regional F1 anticline and within several subsidiary anticlinal and synformal zones on that limb. Plunges are variable with Main Zone plunging moderately northwest, but there appears to be little or no plunge along other sections of the mineralised trend. Various reverse faults probably emanating from a basal sole thrust at the contact of the Ordovician basement and the Silurian rift succession cut the axial zones of several of these folds and leave most volcanic sediment contacts as fault zones. The Lewis Ponds Fault, a ductile and brittle fault zone cuts a synform axis and has caused, kinking and reorientation of cleavage and remobilisation of sulphides. An interpreted southwest-northeast dip slip fault near 1220N is suggested to downfault the mineralised package to the northwest • Style of mineralisation: Main Zone mineralisation to the north is largely composed of massive to semi-massive sulphide replacement as well as veining and dissemination within the host polymict breccia-volcaniclastic-siltstone package. Mineralising fluids emanating from syn-volcanic faults in the footwall porphyry moved laterally through porous zones in the host package causing sulphide replacement. The mineralising fluids may have exhaled on the seafloor at some stage based on the minor occurrence of interpreted reworked sulphide clasts and interstitial bands of fine sulphide in some carbonate dominated breccias. Tom's Zone in the south consists of a narrow massive sulphide stratiform zone in reasonable proximity to interpreted footwall feeder pyrite-chalcopyrite stringers. Subsequent, possibly epithermal style precious metal mineralisation is present though its relationship to the earlier, well-documented mineralisation is not yet clear.

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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:*	• The archival database carries 211 holes totalling 54,516 metres of drilling. Ardea is presently reviewing this database. • No significant drilling information has been generated by Ardea at this stage.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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.*	• No grade aggregation methods were used for this announcement. For treatment of historical data, see below. • Grades: Grade compositing was by averages above cutoff weighted for sample length. The maximum total inclusion of subgrade was 5m and the maximum consecutive inclusion of subgrade was 3m. Two sets of composites were prepared, one based on downhole cutoff of 1 percent Zinc Equivalent (% ZnE) and the other based on 7% ZnE (potentially economic). No cutting of high grades took place at the aggregation stage because grade composites were used only for the interpretation of the geometry of the mineralisation on cross section and in plan, prior to wireframing, not for Resource estimation. • Metal Equivalent: Being a multi-element deposit in terms of value, some synthesis of the contribution of five metals, Au, Ag, Cu, Pb and Zn to the application of any downhole (or block) cutoff was required. The standard technique of converting grade to $US per grade unit (gram, ounce, percent), adding the dollar contributions then converting back to a single metal equivalent was used, in this case Zn Equivalent percent. Conversion to Au equivalent grams per tonne would have served the same purpose. • For 2016 purposes the question arises: would the use of current metal prices make an appreciable change to the estimated Resource figure via changes to the intercept lengths used to define the geometry of the mineralised lenses? Re-calculation of the project's zinc equivalents and comparison with the 2005 figures give interesting results for intercepts above the 7% ZnE cutoff: the number of intercepts increases by 20 percent (although many lie between 7 and 8% ZnE); the sum of intercept lengths increases 30 percent and the weighted average ZnE grade of intercepts increases marginally, about 7 percent. Much of this lift is carried by the higher Au intercepts, the gold price having increased 300% since 2005. These changes in ZnE suggests that if the same cutoffs are retained (1% and 7% ZnE), a somewhat larger mineralisation could be interpreted at a similar grade. For the purposes of this report it is sufficient to say that there is no ZnE penalty in respect of today's metal prices.
Relationship between mineralization 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.*	• Within the Main zone the strongest mineralisation dips about 50° northeast with vertical tails up to the west and down to the east, ie sigmoid. This has resulted in intersection angles effectively normal to the thicker parts of the mineralisation making true widths equal to downhole widths. Where the lens tails up to the west and down to the east, the angles reduce to 40° to 60° with much reduced true widths in the thinnest parts of the mineralised lenses. • In Toms zone to the south of Main zone, dips of mineralisation are vertical or sub-vertical. In the upper levels, angles between hole and mineralisation are around 50° but at deeper levels can be as low as 30° or 20°, substantially reducing true widths. Interpretation of mineralised lenses

Criteria	JORC Code explanation	Commentary
		honours the true widths.
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.*	• No new drilling to show at this stage. Do be drafted for future releases.
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 Results.*	• The reporting is considered to be balanced and all relevant results have been disclosed for this current phase of exploration.
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.*	• The most material information affecting the resource estimates was the geological logging and core photography carried out by Dr Peter Gregory (Gregory, P., February 2004 and Gregory P., January 2005). This work was completed in time for this estimate (April 2005). Of particular interest were his views on the likely continuity of the massive sulphides as distinct from the enclosing dissemination, veins and stringers, especially as the highest grades are identified with massive or 'semi-massive' sulphides. A number of geologists, including Gregory, are of the opinion that mass flows incorporating carbonate and volcanic debris have disrupted earlier seafloor-deposited massive banded sulphides. This happened in situ without significant transport away from the original depositional site. Thus at say a 1% ZnE cutoff, the mineralisation has good continuity. At a higher cutoff, say 7% ZnE continuity could become an issue. With a drill spacing sometimes 50-100m there is every possibility of a massive sulphide 'bed' being disrupted into a series of "rafts" generally parallel to the axis of the +1% mineralisation.. However, in seeking to model the deposit, statistically massive sulphide seems to be represented in adjacent holes as though it were a continuous or semi-continuous bed. • A number of metallurgical studies have now been made of Lewis Ponds mineralisation. These have centred on optimising the number of concentrates, predicting what percentage of the gold could report to a gravity circuit and whether refractory gold should go to CIL or be paid in the concentrates. These studies have been reviewed by R W Nice (2006).
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• In the 11 years since this estimate was prepared Au and Ag metal prices have trebled and Cu, Pb and Zn effectively doubled. To test the effect, zinc equivalents for Lewis Ponds have been re-calculated using metal prices current at 1 September 2016. Any intercepts with significant Au have increased 30 to 50 percent in terms of ZnE and a significant number which were near below the 7 percent ZnE cutoff are now above the cutoff. The result has been a 20 percent increase in the number of intercepts, a 30 percent increase in the total intercept metreage, and a 6 percent increase in the average dollar value of the intercepts. Thus there could be case at some stage to re-model the geometry of the lenses and to re-estimate a block model. • Also the LPRC34-LPRC41 drilling done in 2011, which had some intersections of interest, with

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		further comparatively short hole drilling, approximately 100m each, could add a useful tonnage and value to the Resource. The structure drilled is on the Torpy's Shaft line and is clearly open to the south.