

ABN: 30 068 263 098

31 October 2016

### HIGHLIGHTS

#### Woodlawn Zinc-Copper Project

- o Key Woodlawn project appointments made Woodlawn General Manager and Process Manager
- o Underground mine plan optimised resulting in increased production rates, refined schedule and improved costs
- Project construction tender process underway
- o Award of Front End Engineering Design (FEED) expected in the next month
- o Project Financing and off-take discussions both progressing well

#### **Woodlawn Drilling**

- Eight diamond holes for 2,527m completed testing B Lens extension and shallow portions of G2 Lens. Several
  outstanding results received:
- **High grade results from near surface portion of G2 lens** confirm early production potential in this area adjacent to the planned decline:
  - 9.8m @ 28% ZnEq<sup>1</sup> from 107m (8.7% Zn, 0.5% Cu, 5.2% Pb, 4.0g/t Au, 326g/t Ag) in WNDD0110

(Incl. 3.7m @ 56% ZnEq (18.7% Zn, 1.2% Cu, 10.0% Pb, 6.9g/t Au, 650g/t Ag) in WNDD0110)

- B Lens extension confirmed to the north-west with an Exploration Target<sup>2</sup> of approximately 0.6Mt 1.1Mt with grades of 7.0% ZnEq – 14% ZnEq estimated; results include:
  - 11m @ 8.43% ZnEq from 569m (3.4% Zn, 0.9% Cu, 1.5% Pb, 0.12g/t Au, 18g/t Ag) WNDD0108

(Incl. 5.7m @ 14.3% ZnEq from 575m (6.1% Zn, 1.4% Cu, 3.2% Pb, 0.18g/t Au, 35g/t Ag)

• 2.5m @ 19.5% ZnEq from 552m (7.7% Zn, 1.3% Cu, 3.9% Pb, 1.8g/t Au, 100g/t Ag) WNDD0108

#### **Ardea Resources**

- On 29 September Heron Shareholders approved the spin-off of non-Woodlawn related exploration and early stage development assets into a new listed entity, Ardea Resources Limited
- Upon listing of Ardea on the ASX (subject to certain conditions precedent), Heron shareholders will be entitled to receive an approximate 1 for 10 in-specie distribution of Ardea shares at no cost

#### Corporate

- Cash: Heron held A\$19.8M in cash (including A\$0.2M in bonds) and A\$1.75M in investments as at 30 September 2016
- o Commodity market fundamentals continue to strengthen for zinc, with zinc prices hitting a 12 month high in July

<sup>&</sup>lt;sup>1</sup> ZnEq% used in this release refers to the calculated Zn equivalent grade based on the Zn, Cu, Pb, Au and Ag grades, the formula for which is provided at the end of this report.

<sup>&</sup>lt;sup>2</sup> An Exploration Target is a term used within the JORC2012 Code for an estimate of the exploration potential of a mineral deposit. As used in this release the stated exploration target is based upon the parameters described in the text, however the potential quantity and grade is conceptual in nature and there is insufficient information to estimate a Mineral Resource and it remains uncertain if further exploration will result in the estimation of a Mineral Resource in this area of recent drilling.

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Heron Resources Ltd ("Heron" or the "Company") is pleased to provide its report for the September 2016 quarter. During this reporting period the Company has principally focused on the advancement of the Woodlawn Zinc-Copper project and the spin-off of Ardea Resources Ltd.

#### WOODLAWN ZINC-COPPER PROJECT

Heron holds a direct 100% ownership of the mineral rights at the Woodlawn Mine site situated 40km south of Goulburn and 250km south-west of Sydney, in southern NSW, Australia (Figure 1). It is Heron's aim to create a profitable, long-life, low-cost mining operation producing base metal concentrates.

Heron also holds a portfolio of advanced stage exploration tenements adjacent to and contiguous with the Woodlawn site covering the prospective felsic volcanic units that host the Woodlawn Volcanogenic Massive Sulphide (VMS) deposit.

The last 24 months have seen Heron directing its efforts to developing the Woodlawn Zinc-Copper Project with the successful completion of a Preliminary Economic Assessment (PEA) in 2015 followed by the successful completion of the Feasibility Study (FS) in June 2016. This has been done in a market environment that continues to indicate a strengthening zinc price over the next several years driven by a significant and growing supply shortfall.



#### Figure 1: Woodlawn Project Location Plan

#### September 2016 Woodlawn Project – Development Progress

Following the completion of the FS in June, a number of opportunities were identified to enhance project outcomes. As well a number of tasks were commenced that position the project for development. These include:

- <u>Mine plan</u> The underground mine plan was reviewed resulting in improvements to the production profile and significant capital and operating cost reductions, mainly through optimising the use of existing development;
- <u>Personnel appointments</u> On the 4th of October the Company announced the appointment of two senior site management roles. Mr Brian Hearne and Mr Des O'Sullivan will join the team as Woodlawn General Manager and Process Manager commencing in late October. These new roles will add to the owners team in readiness for project construction;
- <u>Project EPC Contract</u> Submissions for a plant and construction EPC contract were received and are undergoing
  review in anticipation to award after project financing. Earlier work will commence via a FEED study that will
  expedite the development schedule. The award of the FEED work program will be made in the next month;
- <u>Water treatment</u> Water treatment test work is underway to maximise the use of in excess of 2,000ML currently stored in site dams; and
- <u>EPL Licence</u> An environment protection licence (EPL) application was lodged with the NSW Environment Protection Authority (EPA). This licence is expected to be granted in the next few weeks.

**Project Finance** – The Company is in advanced discussions with potential debt and equity providers for the project development funding. These discussions are proceeding well and in accordance with the Company's expectations, although it is noted that there can be no certainty that these discussions will be concluded successfully. The Company will provide an update to the market in due course as it is able to do so with the current expectation that the financing process will require a further 2-4 months to reach a point of execution.

**Concentrate Offtake** – Discussions with off-takers for the zinc, copper and lead concentrates are also proceeding well. Demand for the Woodlawn concentrates was shown to be exceedingly strong when expressions of interest were sought during the FS process, and since that time the Company has continued to progress discussions with a smaller number of parties who are keen to refine and improve upon the detailed terms of the off-take agreements. The Company is progressing these discussions in parallel with the financing process and expects to conclude one or more agreements within a similar timeframe.

#### Woodlawn Mine Exploration

A program of eight diamond holes for 2,527m was completed in early September 2016, targeting extensions to the B Lens at depth and a number of positions around the shallow portion of G2 Lens to add to the early mine inventory. Final assay results for this drilling were received in mid-October.

#### **B Lens North Drilling**

Two drill holes, for 1,268m, were drilled to test the concept of an extension to the B Lens mineralisation to the north-west (Figure 2). Significant intercepts were returned from both drill holes:

- o 4.5m @ 5.8% ZnEq from 538m (2.3% Zn, 0.8% Cu, 0.5% Pb, 0.2g/t Au, 13g/t Ag) WNDD0105
- o 11m @ 8.4% ZnEq from 569m (3.4% Zn, 0.9% Cu, 1.5% Pb, 0.12g/t Au, 18g/t Ag) WNDD0108

(Incl 5.7m @ 14.3% ZnEq from 575m (6.1% Zn, 1.4% Cu, 3.2% Pb, 0.18g/t Au, 35g/t Ag)

o 2.5m @ 19.5% ZnEq from 552m (7.7% Zn, 1.3% Cu, 3.9% Pb, 1.8g/t Au, 100g/t Ag) WNDD0108

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The drill holes were surveyed with down hole electro-magnetics (DHEM) and the modelled responses of the results ("plates") indicate potential for a mineralised zone of dimensions 250m x 150m and extending out to the mineralisation limits as identified in hole WNDD0105. Based on these DHEM plates and the existing intercepts an Exploration Target<sup>2</sup> can be defined of approximately 0.6Mt to 1.1Mt with grades of 7.0%ZnEq – 14%ZnEq.

These latest results confirm the north western extension to the B Lens system at Woodlawn with new high-grade mineralisation that has the potential to substantially add to the mining inventory. Underground access to this new zone would utilise the same development infrastructure as the main B Lens, enhancing the economics and timing of Woodlawn mining.

## Figure 2: Oblique long-section (looking east) - northern end of the B Lens position, showing location of WNDD0108, DHEM plates and earlier drilling piercements.

#### **G2 Lens Drilling**

The G2 Lens is located to the south of the Kate Lens and adjacent to the planned route of the decline between 100-200m below the surface (Figure 3). Five holes for 1,020m targeted this area to test for possible additions to resources mined early in underground mine production. Key results for this area include the following shallow depth intercepts:

- o 11m @ 11% ZnEq from 133m (6.3% Zn, 0.5% Cu, 3.3% Pb, 0.1g/t Au, 10g/t Ag) in WNDD0106
- o 9.8m @ 28% ZnEq from 107m (8.7% Zn, 0.5% Cu, 5.2% Pb, 4.0g/t Au, 326g/t Ag) in WNDD0110

(Incl 3.7m @ 56% ZnEq% (18.7% Zn, 1.2% Cu, 10.0% Pb, 6.9g/t Au, 650g/t Ag) in WNDD0110

- o 6.0m @ 10% ZnEq from 140m (7.9% Zn, 0.2% Cu, 0.7% Pb, 0.2g/t Au, 13g/t Ag) in WNDD0110
- o 2.9m @ 9% ZnEq from 160m (5.1% Zn, 0.3% Cu, 2.8% Pb, 0.5g/t Au, 11g/t Ag) in WNDD0111

The G2 mineralisation typically consists of stringer zinc sulphides (sphalerite) with lesser lead and copper sulphides. However, the high grade up-hole intercept in WNDD0110 above is of more typical high-grade polymetallic sulphides within a broad shallow dipping mineralised envelope which contains the other intercepts.

This represents a new zone of high-grade mineralisation and demonstrates yet again the discovery potential of the Woodlawn system.

Due to the high sphalerite content of the high-grade zones, this material returns a characteristic weak DHEM response (sphalerite has very low conductivity) and so at this stage without further drilling the size of this high-grade zone is poorly constrained and very prospective. This high-grade sphalerite occurrence with weak DHEM response may have implications for other areas of prior work. Interestingly, the intercept has some of the highest gold and silver grades recorded at Woodlawn and is representative of a zone of consistent and distinctive precious metal enrichment at the G2 Lens hanging-wall contact.





Figure 3: G2 Lens cross-section showing location of DHEM modelled plates.

#### Interpretation of B Lens and shallow G2 Lens Results

The drilling program has expanded the strike extent of the Woodlawn mineral system both north-west under un-drilled evaporation dams and south under un-drilled mullock dumps. This is significant in expanding the lateral footprint from which to make further discoveries and potentially source additional, possibly early, mine production. Both the B Lens north and G2 Lens positions can be serviced by existing planned capital development as contemplated in the FS providing areas for leveraged additions to the mine inventory. The Company is continuing to work on defining the next phase of work to follow-up these results.

#### **Cowley Hills**

The Cowley Hills prospect is located 2.5km north of Woodlawn and consists of a Woodlawn-style VMS deposit that was partially mined from underground in 1990 (approximately 35,000t extracted). A single historical hole drilled in 1985, W158, was surveyed as part of the current program with high powered DHEM and resulted in the modelling of a 60m x 80m sized plate located in the down-dip position of the known mineralisation. A single hole was drilled to test this lower zone of mineralisation and provide a sample for metallurgical test work. A zone of massive and semi-massive sulphides was intersected close to the plane of the DHEM plate (Figure 4). The assays for the intercept are:

• 5.2m @ 5.5% ZnEq from 200m (2.0% Zn, 0.5% Cu, 0.6% Pb, 0.6g/t Au, 29g/t Ag) in CHDD0001

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This intercept indicates the continuation of the sulphide lens at depth, albeit at a lower grade than what was previously mined (the intercept is typical stringer mineralisation as normally seen at the contact of high grade lenses). Further drilling is warranted to better define the mineralisation, focussing on the zones both above the CHDD001 intercept where grades are expected to improve, and to the south down-plunge.



Figure 4: Cowley Hills Prospect, long-section looking east showing existing mine workings, drilling and modelled DHEM plate.

#### WOODLAWN REGIONAL PROSPECTS

Heron continues to maintain and explore a strategic, 620km<sup>2</sup> tenement package over the prospective Silurian volcanic rocks around the Woodlawn Mine (Figure 5). The key regional prospects beyond Cowley Hills include:

1. Currawang Mine: 10km to the NW of the Woodlawn Mine is the former Currawang Mine where approximately 0.5Mt of ore, at similar grades to the Woodlawn deposit, was mined from underground and trucked to the Woodlawn processing plant in the early 1990s. Two promising targets exist to the north and south of known mineralisation. The southern target is related to re-modelling of a DHEM conductor detected from down-hole surveys of drilling completed in the early 1990s, whilst the northern target relates to a drill hole which intersected a broad zone of chlorite+sericite+talc alteration containing minor massive sulphides. No drilling has been done on this prospect since the early 1990s and an excellent opportunity exists to find additional high-grade lenses within the Currawang structural corridor. The Company received confirmation that it was successful in receiving 50% drill-cost funding for

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a 3 hole, 2,150m program from the NSW Cooperative Drilling Program. This drilling is planned to commence in the first half of 2017.

- Montrose Prospect: 6km WNW of Woodlawn, broad zones of intense pyrite-sericite alteration in Woodlawn Volcanics are present and limited drilling in the 1980s and 1990s intercepted zones of modest grade mineralisation which received only limited follow-up work. Remodelling of the numerous fixed- and moving-loop EM geophysical anomalies has provided clear targets for follow-up testing.
- 3. Other Prospects: The Allianoyonyiga and Kalua prospects are both grassroots prospects defined by pre-Heron moving loop EM surveys along strike, west and east respectively, from the Cowley Hill deposit. Moderate silica/pyrite alteration in rhyolitic volcanic rocks has been mapped at Kalua along strike from the EM anomalies, whereas the Allianoyonyiga prospect is wholly covered by alluvium of the Allianoyonyiga Creek and will require drilling to test further. At Hickory's Paddock a recent soil program has defined a 300m long Zn/Cu/Pb anomaly associated with a gossanous black shale horizon. A follow-up moving loop EM survey is planned to better define a potentially mineralised zone for future drill testing.



Figure 5: Woodlawn Exploration Project – Key Targets

#### **EXPLORATION PROJECTS – NEW SOUTH WALES AND WESTERN AUSTRALIA**

Heron maintains a significant tenement holding in the Lachlan Fold Belt of NSW and the Eastern Goldfields of Western Australia. Apart for the joint venture properties described below that will remain with the Company, Heron intends to spin-off the non-Woodlawn properties into a new ASX listed company Ardea Resources Ltd (**Ardea**). This is in keeping with the Company's strategy to focus on developing the Woodlawn Mine while creating shareholder value from the substantial remaining portfolio of exploration tenements.

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#### Joint Venture Projects

#### Alchemy Farm-In and JV (Overflow, Girilambone, Eurow and Yellow Mountain)

Heron entered into a Farm-In Agreement with Alchemy Resources Limited (**Alchemy**) (ASX:ALY) covering a portfolio of Heron's NSW exploration tenements in May 2016. The Farm-In Agreement covers 674 km<sup>2</sup> of the central Lachlan Orogen in NSW, including the following exploration tenements: EL5878 Overflow, EL7941 Overflow, EL8267 Overflow, EL8192 Eurow, EL8318 Girilambone and EL8356 Yellow Mountain.

Alchemy will spend A\$1M over 3 years to earn 51% and a further A\$1M within the 2 subsequent years to earn an additional 29% interest in the tenements. Once Alchemy reaches the 80% interest in the tenements, a Joint Venture (JV) will be formed with Heron free carried to completion of a Prefeasibility Study. During the term of the JV, should Heron's interest reduce to less than 5%, Heron's interest will revert to a 1.5% NSR. In addition, Alchemy has issued 2 million Alchemy shares (escrowed for 12 months) and 2.5 million, 3 year, 10c options to Heron as initial consideration.

A priority RC-diamond drilling program is being planned by Alchemy, targeting up and down-plunge positions of the mineralisation zones at the Overflow mining centre, commencing in the December 2016 quarter and subject to completion of landholder access agreements and statutory approvals.

#### Rocky Gully Nickel-Copper JV (10% Heron, 90% Metalicity Ltd)

Metalicity Ltd (ASX:MCT) have acquired a 90% interest in the Rocky Gully Project comprising the three tenements: E70/2801, E70/4543 and E70/4437. Heron retains a 10% interest in the tenements free carried through to the completion of a pre-feasibility study. In consideration for the 90% interest MCT has issued Heron 14,375,000 MCT shares (3.3% of total issued capital). These shares came out of escrow in September 2016.

Ongoing gold exploration work at Rocky Gully has identified priority targets from a significant volume of geological and geophysical data compiled by MCT and previous explorers. The priority gold targets identified are based on coincident anomalism in geochemical and geophysical datasets. MCT is currently planning further geochemical sampling to better define these anomalies prior to drilling. Drilling is planned to coincide with the cessation of grain cropping activities towards the end of the December quarter.

#### Bulong Gold JV (Heron 20%, Southern Gold Ltd 80%; Heron 100% nickel laterite rights Bulong East)

The Bulong Gold Project is located 30km east of Kalgoorlie with Southern Gold (ASX:SAU) managing the joint venture as part of their exploration efforts around the producing Cannon Gold Mine. Work completed by SAU during the quarter and the forward plan includes:

- Planning is well advanced for a program to explore the magnetite alteration zone around the granodiorite Intrusion on E25/0250. This will consist of infill auger geochemistry and trial biogeochemical surveys next quarter. This will be followed by rotary air blast (RAB)/aircore drilling program early in 2017.
- Regional re-interpretation of the geology on E25/0250 has highlighted the potential for gold mineralisation along a 5.5 km trend between the Tooting Bec and Railway South gold prospects. Planning is underway for a regional RAB/aircore drilling program.

### ARDEA RESOURCES LTD

#### ARDEA SPIN-OFF

Following the positive Woodlawn Project Feasibility Study, Heron's primary focus has been to bring the Woodlawn Project into development. This has left limited funding available for allocation to Heron's extensive portfolio of non-Woodlawn exploration and development projects, which are of sufficient high quality to warrant further activity and funding in their own right. Accordingly, Heron has decided to spin-off the non-Woodlawn assets into the new company Ardea Resources Limited, with the objective of ensuring that the underlying value of these assets has every opportunity of being realised by Ardea to

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the benefit of existing and new shareholders. Through the spin-off, Ardea will have a separate board of directors and management team.

On 29 September Heron Shareholders approved the proposed spin-off of Ardea and will seek to raise up to A\$6 million through the issue of up to 30 million new shares under a Public Offer. The Public Offer is expected to open in November 2016 and complete in December 2016 at which point Ardea will list on the ASX and begin to operate as a separate listed company. Heron will make further announcements regarding the Ardea spin-off as it achieves the various approval milestones toward listing.

Ardea's development focus will be the Lewis Ponds Gold-Zinc project in central NSW and Kalgoorlie Nickel Project in WA. Its exploration focus will be the Mt Zephyr (gold and nickel) and Taurus (gold) projects in the Eastern Goldfields of WA. Ardea will have a 100% interest in all of these projects.





#### Development

At Lewis Ponds, the initial Ardea focus will be two-fold:

- Development to complete an initial diamond drilling program to obtain metallurgical test material as a precursor to an updated mineral resource estimate. Additionally, shallow RC drilling for oxide gold targets is required up-dip of the known resource.
- Exploration the McPhillamys 2.2 million ounce gold deposit is located 20km southeast from the southern tenement boundary along the regional Godolphin Fault. Ardea controls some 50km of this structural target northwest to Copper Hill East, representing a premium quality gold exploration target.

At the Kalgoorlie Nickel Project (**KNP**), the focus is to update the mining study and metallurgical flowsheet from the 2014 Scoping Study to a pre-feasibility level of study. In particular, Ardea will be assessing the cobalt development potential of the cobalt-rich segments of the KNP tenement portfolio.

#### Exploration

The Mt Zephyr project is particularly exciting, being a close geological analogy of Dacian Gold's Mt Morgans gold project located 50km southeast along strike. Soil and RAB gold anomalies associated with syenite granitoid intrusions and "donut" magnetic anomalies will be drilled.

Ardea plans to spend up to A\$5 million on exploration over the two years following listing, including in excess of 20,000m of drilling.

#### **New South Wales Projects - Ardea**

Ardea will explore a significant tenement holding in the Lachlan Fold Belt with some 1,421km<sup>2</sup> under current tenure and some 450km<sup>2</sup> of new applications.

#### Lewis Ponds Gold-Zinc Project (EL5583, 8323, ELA5337) – Ardea 100%

Lewis Ponds is located 15km east of Orange, in central NSW (Figure 6) and contains the Lewis Ponds VMS deposit which is made up of **Main Zone** and **Tom's Zone** and occurs in a sequence of deformed Silurian felsic to intermediate volcanic and sedimentary rocks.

The Mineral Resource was reviewed during the quarter and now reported against the JORC 2012 Code, although the actual tonnages and grades have remained the same as tabulated below in Table 1:

#### Table 1: Lewis Ponds Mineral Resource 2016

Reported at	u ove Eneq ic	Shor out on g	rado, migoa	ootimato				
Deposit	Resource Category	Quantity (Mt)	ZnEq(%)	Zn(%)	Cu(%)	Pb(%)	Au(g/t)	Ag(g/t)
Main	Indicated	5.8	5.9	2.1	0.14	1.1	1.5	59
Tom's	Indicated	0.54	14	5.5	0.25	3.8	1.6	171
Sub-Total	Indicated	6.3	6.6	2.4	0.15	1.4	1.5	68
Main	Inferred	0.17	5.9	2.4	0.18	1.4	1.4	62
Tom's	Inferred	0.10	14	5.0	0.24	3.6	1.4	174
Sub-Total	Inferred	0.27	6.6	3.0	0.17	1.9	1.1	96
Total	IND+INF	6.6	6.6	2.4	0.15	1.38	1.5	69

#### Reported at a 3% ZnEq lower cut-off grade, kriged estimate

Notes: 1) First published by TriAusMin Ltd within a news release dated the 6<sup>th</sup> October 2005. It was reviewed in the September 2016 Quarter and found to have no material changes, however, the resource was upgraded to be reported in compliance with the JORC 2012 Code through a process of verification of the 2005 estimate and compiling the JORC 2012 Table 1, provided at the end of this release. 2) Competent person's statement, and zinc equivalent parameters are provided at the end of this report.

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As part of the Ardea Prospectus preparation, a significant gold prospect has been generated for the Lewis Ponds project around the Godolphin Fault, a domain boundary structure separating the Ordovician Macquarie Arc in the west from the Silurian Hill End Trough in the east. From southeast to northwest, the structure hosts gold mining centres and targets from McPhillamys, Springfield, Mt Shorter, Calula and Copper Hill East, being a 50km strike of continuous tenure for Ardea.



Figure 6: Lewis Ponds – Tenement and Key Prospects Map

#### Calarie Copper-Gold Project (ML739, EL7023, ELA5338) - Ardea 100%

Calarie is located 25km south-southwest of Parkes in central Lachlan Fold Belt of NSW. The area is prospective for gold mineralisation associated with the old Lachlan gold workings where several encouraging drill intercepts have been returned in recent years.

#### Western Australian Projects – Ardea

Ardea intends to consolidate and retain a substantial portfolio of tenements in the Eastern Goldfields of Western Australia that are prospective for Archean-style nickel and gold mineralisation.

#### Mt Zephyr Gold-Nickel Project - Ardea 100%

Mt Zephyr is a section of greenstone belt localised on the Celia Lineament and located 60km NNE of Leonora.





Figure 7: Mt Zephyr – Tenement and Key Prospects Map

#### Gale Gold Prospect

Gale is a 273ppb Au soil anomaly which Aurora Gold RAB drilled in the 1990s and intersected consistent >0.25g/t Au from surface to RAB refusal with intercepts of 6-18m at 0.5g/t Au and peak 6m at 1.3g/t Au. Heron's geologists believe the anomaly is clearly of a flat geometry and not the narrow sub-vertical interpretation of previous explorers. This re-interpretation identifies additional, high potential untested targets.

The Gale RAB gold anomaly at a 0.25g/t Au cut-off grade defines an open horizontal sheet with 700m N-S strike, 100m E-W width with up to 18m thick RAB refusal thickness.

A site visit confirmed the anomaly has not been followed up with RC drilling, apart from a very limited program at the extreme northwest corner of the soil anomaly. Old RAB chips mixed with aeolian sand located at the old RAB collars returned consistent 0.1-0.4g/t Au. RAB chips included silica-pyrite-sericite alteration, which have the appearance of a "late stage mineralizer". The geological expression of Gale is felt to be closely analogous to the Dacian Gold Jupiter syenite-hosted gold discovery, located 50km SE along strike on the Celia Lineament.

The RAB chip anomalism is supported by up to 1.4g/t Au in an "unaltered" granite float composite south of drilled area, and 1.2-1.5g/t Au in gossanous limonite-white quartz vein float at the east of the drilled area (a new target termed "Eagle Nest").

The observed RAB litho-geochemistry is a primary protolith attribute, since very clear-cut sharp barren RAB assays occur at the east and west contacts (if solely supergene blanket enrichment, diffuse contacts with wider and more gradual dispersion would be expected).

Ardea plans to follow up the Gale RAB anomaly with RC drill traverses, including the Eagle Nest target.

#### Jones Area A and B Nickel Sulphide Prospects

Olivine adcumulate komatiite channel facies have been identified within a stratigraphic horizon which is believed to correlate with the Mt Windarra nickel sulphide mine stratigraphy. There has been no previous RC drill testing of the targets.



#### Bardoc Tectonic Zone Gold Project - Ardea 100%

#### Ghost Rocks Gold Prospect

The Lady Isobel group of workings trend NNW over an area of 170m x 70m. The workings include a substantial underlay shaft dipping approximately 45° towards azimuth 120° (discordant to the overall trend of workings), with smaller subsidiary workings distributed over the full area on multiple structural orientations. Mullock consists of white quartz vein stockworks within an amphibolite host.

Random mullock sampling on the main shaft assayed up to 5.3g/t Au. There appears to be a deficiency of mullock when considering the depth of the shaft, suggesting part of the excavated material has been milled.

#### Big Four Gold Prospect



The Big Four Prospect is being evaluated as a potential open cut. The main lode has excellent visual control, being a subvertical quartz lode within claylimonite altered dioritic porphyry. Strong visual grade control would be possible in any open pit mining.

Reconnaissance during the Quarter was aimed at assessing additional exploration targets along strike, notably soil geochemical anomalies to the south.

The target concept at Big Four is an open pit developed over the historic workings. Elsewhere in the Bardoc Tectonic Zone (BTZ), such occurrences were drilled and mined in the various "gold booms" of the 1990-2000s. With Heron's historical focus on the KNP nickel laterite within the BTZ tenure, gold exploration was minimal.

#### Figure 8: Big Four workings, facing north

#### Kalgoorlie Nickel Project - Ardea 100%

The KNP provides significant potential exposure to long-term, low cost nickel production in a highly stable and miningorientated jurisdiction. The project is located in the Eastern Goldfields of Western Australia, 50-100km north and east from Kalgoorlie with a tenement holding covering 850km<sup>2</sup>. The nickel laterite rights are currently 100% held by Heron on unencumbered tenure however will be transferred to Ardea upon the successful listing on the ASX.

With the combination of a large resource base and screen beneficiation of siliceous material, a potential Leach Feed Grade of 1.1-1.5% Ni is possible over a long mine life. The project is also well supported by gas, road and rail infrastructure that is suitably located to support the development of the KNP plant site. To date more than A\$50 million has been spent on the resource drill-out (mainly by Vale Inco between 2005-2009), with the most recent scoping studies focused on the use of Simulus' Carbon Friendly Nickel Production process, which demonstrated that the KNP has the potential to provide a source of long-term, low capital intensity nickel concentrates to the market.

#### Black Range Prospect

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The Black Range prospect cobalt-nickel-PGM mineralisation has been re-evaluated with a focus on evaluating potential cobalt production.

The initial research has included detailed geometallurgical analysis. The cobalt-rich mineralisation at a 0.1% Co cutoff grade occurs at the Magnesia Discontinuity within the mineralised regolith profile. Previous resource estimation was done at a 0.5% Ni cut-off, with the result that the cobaltiferous material has been "smeared out" across multiple generally lower grade geomet types.

From site visits, the host rock is an olivine-pyroxene cumulate phase of the Ora Banda Sill, at the maficultramafic interface. Rock chip sampling confirmed base metal anomalism at 0.2% Ni and 0.02% Co in pyrolusitic material, with 100ppb Pt and 150ppb Pd.

The Black Range historic data base from the 1990s has been revalidated ahead of resource estimation as part of the Ardea KNP PFS.

#### **NEW PROJECTS - ARDEA**

Ardea has applied for a number of new tenements in New South Wales and Western Australia, subsequent to the Ardea Prospectus "Technical Assessment Report". The following sections describe the geology and prospectivity of these project areas.

#### New Projects, NSW

#### Yeoval Porphyry Copper-Gold-Molybdenum-Rhenium Project (ELA5368) - Ardea 100%

Yeoval (ELA 5368) is located within the Macquarie Arc, 60km northeast of the Northparkes copper-gold mine. The tenement application covers an area of 138km<sup>2</sup> and is intensely mineralized with more than 60 historic copper workings trending in a north-easterly direction, along a 20km strike. The project area encompasses the eastern section of the Early Devonian Yeoval Complex, with the major host being the Devonian-aged Naringla Granodiorite including gabbro-diorite and quartz monzo-diorites. The co-magmatic Canowindra Volcanics of the Cudal group occur to the east and south. The exploration target is a large tonnage porphyry copper-gold-molybdenum-rhenium system.

The known Yeoval deposit comprises two main near-surface zones of bornite-chalcopyrite mineralisation. Initial drilling in 1972 produced best intercepts of 42.7m at 0.93% Cu and 18m at 0.8 g/t Au. Drilling in 2008 by ASX-listed Augur Resources produced best intercepts of 90m at 0.90% Cu and 0.14 g/t Au and 50m at 0.54% Cu and 0.48 g/t Au. Augur Resources reported in 2008 an Inferred Mineral Resource in compliance with JORC 2004 guidelines and based on this an Exploration Target<sup>2</sup> of approximately 10Mt – 13Mt at grades of approximately 0.38% Cu and 0.14 g/t Au is considered achievable based on the Company's review of the available data.

Hole ID	grid E	grid N	EOH metres	Declin / azimuth	From metres	To metres	Width metres	Cu %	g/t Au
YZ-04	654 137	6 377 651	385.9	-55/102.5	182.7	266.2	19.1	0.6	0.66

Table 2: Augur Resources Ltd announcement of drill hole YZ-04, 17 October 2012

Table 2 represents historic 2012 data from an Augur Resources announcement on 17 September 2012 to the ASX. The background details of the data have yet to be ascertained and application has been made by Ardea to the NSW Department regarding release of the relevant comprehensive data-set to open file. The above information is included to validate that the Yeoval deposit is significantly copper-gold endowed and so warrants further investigation.

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#### Mt Aubrey Epithermal Gold-Silver Project (ELA5369)

Mt Aubrey (ELA 5369) is located at the east contact of the Macquarie Arc Ordovician andesites some 30km NE of Parkes and 30km SE of Peak Hill.

The property was acquired by Ardea as an epithermal gold system hosted in Upper Silurian to Lower Devonian-aged Dulladerry Volcanics, a bimodal subaerial suite of quartz eye porphyry with rhyolitic ash-flow lapilli tuff, pyroclastic and breccia and amygdaloidal basalt. Gold mineralisation is hosted by 0.5-3m thick chalcedonic epithermal quartz veins and stockworks. All assays reported below are from open file reports and are not able to be verified by the Company.

Hole ID	grid E	grid N	EOH	Declin /	From	То	Width	g/t Au
	_	_	metres	azimuth	metres	metres	metres	_
MAR016	5161	10136	71	-60/018	38	44	6	6.65
MAR025	5201	10135	56	-60/024	30	32	2	6.04
MAR030	5291	10066	61	-60/018	45	49	4	2.17
					52	59	7	1.33
MAR034	5743	10111	61	-60/355	49	55	6	6.21
MAR038	5774	10142	56	-60/355	6	11	5	3.18
					16	25	9	1.26
MAR046	5161	10116	121	-60/018	64	73	9	4.12
MAR051	4881	10249	76	-60/018	26	29	3	7.99
MAR065	5201	10145	25	-60/018	14	17	3	7.68
MAR066	5739	10152	51	-69/175	4	11	7	3.10
					24	27	3	1.85
					32	40	8	1.85
MAR070	5140	10160	69	-60/017	15	27	7	17.78
MAR072	5180	10151	33	-60/019	6	16	10	8.52
MAR077	4923	10251	33	-60/018	5	10	5	8.10
MAR079	5694	10120	55	-60/355	6	14	8	2.87
MAR083	5821	10157	51	-60/019	23	24	1	6.10
					37	48	11	2.95
MAR084	5821	10172	51	-60/018	17	20	3	4.57
MAR085	5862	10179	75	-60/018	12	16	5	3.97
MAR086	5861	10160	75	-60/020	18	27	9	2.45
MAR089	5662	10173	60	-60/018	18	21	3	5.66

Table 3: Mt Aubrey historic RC drill results.

It is yet to be determined through historic pit surveys which of the above intercepts have been extracted in previous mining operations. Anecdotal reporting suggests very shallow open pits, being some 20-30m deep as determined by stripping ratios. Their inclusion in this Report is solely to demonstrate that the Mt Aubrey system is gold-endowed and warrants further evaluation.

Although epithermal-style gold mineralisation, the Mt Aubrey mineralisation isn't refractory, with the published run-of-mine grade (3.73g/t Au) returning 95.7% recovery in historic test work.

Gold mineralisation at the Mt Aubrey vein system remains open at depth and along strike, as the historical drilling done by BHP Gold was only designed to define a shallow oxide resource. The Mount Aubrey deposit was mined by BHP Gold in 1990 and 1991 as a shallow open-cut satellite operation to the Parkes Gold Mine. It is estimated that up to 120,000 tonnes of ore at 3.3g/t Au was trucked to Parkes for processing. As part of the operating agreement with the landowner all three of the small open pits were back filled.

It is presumed that shallower of the drill intercepts as reported above were mined in the BHP open cuts. Historic pit pick-ups will be sought to quantify ore positions beneath the pit floors.

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In 2007, Aurelia Metals Limited completed three diamond core holes beneath the former Mt Aubrey Gold Mine for a total of 916.6m. The holes were designed to test the down dip extension of high grade epithermal quartz veining mined in the Mt Aubrey open pits. Holes MAD002 and MAD003 each intersected broad zones of epithermal quartz-carbonate vein stockworks associated with epidote, sericite and bleaching alteration and minor sulphides.

Hole MAD004 intersected a broad zone hosting abundant mineralised crustiform textured quartz-carbonate-pyrite veining with a gold intersection of 88m at 0.22g/t Au from 2m. The gold mineralisation in MAD004 represents a new gold bearing structure to the south of the main Mt Aubrey vein system.

The **Blue Hills prospect** is an area of outcropping, gold bearing veins and minor workings 2km along strike to the north west of Mount Aubrey. Rock chip samples of up to 13.4g/t Au have been recorded and two costeans returned results of 2m at 1.35g/t Au and 6.5m at 1.40g/t Au. The area between Mt Aubrey and Blue Hills is covered by modern alluvium and is also thought to contain quartz veining.

The **Emu Swamp prospect** is located 3km to the east of Mt Aubrey and contains outcropping veining with rock chip gold values to 3.3g/t Au and pyritic alteration. The 6km Blue Hills – Mt Aubrey – Emu Swamp trend represents a significant epithermal vein system.

Mt Aubrey along with the adjoining Yeoval tenure is interpreted by Ardea as the manifestation of a major NE-trending zoned porphyry copper-gold-molybdenum-rhenium to epithermal gold-silver intrusive centre.

#### Wiseman's Creek Gold-Copper Project (ELA5378)

The **Black Bullock prospect** is located at Wiseman's Creek, 35km southeast of Bathurst, NSW. Epithermal gold mineralisation within the tenure is hosted largely within Late-Silurian – Early Devonian-aged slates, shales and sediments of the Kildrummie and Campbell's Groups, with geology through the centre of the tenure comprising the andesitic Rockley Volcanics.

Mineralisation has been reported as predominantly associated with silicified zones with epithermal textures such as openspace filling in quartz veins, quartz vein breccias, chalcedonic silicification and colloform banding. The units strike NNW and dip steeply eastwards. The area was held as EL2098 by Windsor Resources during the 1980s and was part of a JV arrangement, which saw a total of 80 RC and three diamond holes drilled between the years 1985 - 1989. In Windsor's 1988 Annual Operations report, the major gold mine production was noted as being from Black Bullock Mine, reporting production of some 40,000oz of silver and 2,098oz of gold from 4,700 tonnes of ore (at an average grade of 14g/t gold). Three main areas of interest were identified, some within State Forest and some on freehold land.

At the gold prices of the day, the deposit was not considered economic, however gold intercepts at shallow depths were reported that warrant further investigation. The table below lists only some of the significant gold intercepts recorded in the Windsor Annual Report. An additional 23 RC, and 3 diamond drill holes (not listed below) contained significant intercepts at or above 0.5g/t Au. In 2006 Central West Gold completed an IP survey and drilled follow up RC holes based on modelling of the earlier historic drilling and which reportedly contained a best result of 3m at 0.36g/t Au from 9m.

Hole ID	Local N	Local E	Declin /	EOH	From	То	Width	g/t Au
			azimuth	metres	metres	metres	metres	
PWC-6	2100	1957	-60/270	96	86	92	6	0.52
PWC-11	2100	1160	-60/270	93	0	16	16	0.62
PWC-14	2789	2200	-60/270	99	16	50	34	1.00
incl.					30	44	14	2.25
incl.					36	42	6	3.60
incl.					60	66	6	0.64
PWC-15	2791	2248	-60/270	99	2	10	8	0.20
PWC-17	2673.5	2174	-60/090	87	10	30	20	0.22
PWC-18	2482	2070	-60/270	105	8	34	26	0.20
PWC-19	2437	2170	-60/270	105	6	16	10	0.25

#### Table 4: Black Bullock prospect historic drill results.



September 2016

Incl.					22	28	6	0.48
PWC-21	2604	1276	-60/270	104	74	100	26	1.56
incl.					74	86	12	3.10
PWC-25	2597	1387	-60/175	82	60	76	16	0.48
aincl.					60	62	2	1.04
PWC-28	2900	2128	-60/090	82	66	82	16	0.3
PWC-29	1950	1990	-60/090	51	6	18	12	0.6
PWC-33	2650	1269	-60/270	45	16	28	12	1.5
PWC-34	2755	2195	-60/270	75	30	42	12	0.7

The above table represents historic data from GS1988\_277 Windsor Resources report, recorded as a statutory requirement, for the NSW government department. The quality of the data has yet to be ascertained as historic QAQC work was poorly reported, but is included to establish that Wiseman's Creek deposit is gold endowed and warrants further investigation.

#### Duckmaloi Tungsten prospect

From 2012 to 2014 part of the tenement area now held by Ardea was held by Resmetco Ltd who explored for tungsten within a prospect known as "Duckmaloi" hosted within skarn style mineralisation. The prospect itself was estimated in an open file report (Randell, 2010) to have an Exploration Target<sup>2</sup> of approximately 375,000t at 0.2% WO<sub>3</sub> The existence of this deposit style as well as the nearby epithermal occurrences does suggest evidence for a larger mineralising system and also warrants further investigation.

#### **New Projects, WA**

#### Bedonia West

E63/1827 and E63/1828 covering 358km<sup>2</sup> complete Ardea's coverage of the Jimberlana Dyke west of the existing Bedonia prospect. Recent Ardea work has confirmed the anomalous Ni-Cu-PGE soil auger geochemistry previously identified by Heron is coincident with a specific intrusive phase of the Jimberlana Dyke lopolith. The new applications consolidate Ardea's coverage of the favourable lopolith setting.

#### Perrinvale

E29/1006 covers 175km<sup>2</sup> along the eastern strike continuation of the "Cathedrals" Proterozoic Dyke complex. The application was predicated on Ardea's recognition of lopolith mineralisation controls at its Bedonia Project, and aim to secure similarly endowed geological settings.

#### CORPORATE

**Cash -** At the end of the Quarter (30 September 2016) Heron held A\$19.8M in cash (including A\$0.2M in bonds) and A\$1.75M in investments.



September 2016 Compliance Statements (JORC 2012 and NI43-101)

#### WOODLAWN

The technical information in this report relating to the exploration results is based on information compiled by Mr. David von Perger, who is a Member of the Australian Institute of Mining and Metallurgy (Chartered Professional – Geology). Mr. von Perger is a full time employee of Heron 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 and "qualified person" as this term is defined in Canadian National Instrument 43-101 ("NI 43-101"). Mr. von Perger has reviewed this report and approves the scientific and technical disclosure within. He consents to the inclusion in this report of the information in the form and context in which it appears.

#### Zinc Equivalent Formula - Woodlawn

The zinc equivalent ZnEq calculation takes into account, mining costs, milling costs, recoveries, payability (including transport and refining charges) and metal prices in generating a Zinc equivalent value for Au, Ag, Cu, Pb and Zn. ZnEq = Zn%+Cu%\*3.12+Pb%\*0.81+\*Au g/t\*0.86+Ag g/t\*0.03. Metal prices used in the calculation are: Zn US\$2,300/t, Pb US\$ 2,050/t, Cu US\$6,600/t, Au US\$1,250/oz and Ag US\$18/oz. It is Heron's view that all the metals within this formula are expected to be recovered and sold.

#### **LEWIS PONDS**

The information in this report that relates to Mineral Resources for the Lewis Ponds Project has been reviewed, and verified by Mr Robert Cotton who is a full time employee of Mineral Appraisals Pty Ltd. Mr Cotton who is a Fellow of the AusIMM, takes responsibility for the integrity of Data that have been used to prepare the resource estimates, and for the Geological Model. Mr Cotton has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the JORC Code: Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Cotton 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.

#### Zinc Equivalent Formula – Lewis Ponds

The zinc equivalent formula is based on the metal prices of: Zn: US\$1,240/t, Cu: US\$2,860/t, Pb: US\$900/t, Au: \$US 430/oz, Ag: \$6.75/oz. While lower than prevailing prices, they were considered not to make a material change to the overall resource calculation. Because Lewis Ponds is an early stage project, no allowances were made for metallurgical recoveries in the formula, however all the metals listed are expected to be recovered.

#### KALGOORLIE NICKEL PROJECT, BIG FOUR-GOONGARRIE

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, 27 August 2015, 2015 Heron Annual Report;
- 2. Big Four-Goongarrie on 13 March 2012, 26 June 2012 and 24 July 2012.

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 exploration results for Yeoval, Mt Aubrey, Wiseman's Creek, Mt Zephyr, BTZ, KNP, Bedonia West and Perrinvale (including table 1) are based on information reviewed by Mr. Ian Buchhorn, who is a Member of the Australian Institute of Mining and Metallurgy. Mr. Buchhorn is a full time employee of Heron 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 and "qualified person" as this term is defined in Canadian National Instrument 43-101 ("NI 43-101"). 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.

## Heron Resources Limited Quarterly Report September 2016

#### CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This news release contains forward-looking statements and forward-looking information within the meaning of applicable Australian and Canadian securities laws, which are based on expectations, estimates and projections as of the date of this news release. This forwardlooking 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-off, 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-off on the basis of the proposed terms and timing or at all, the ability to complete the Woodlawn Zinc-Copper Project Feasibility Study on time or at all, and whether the feasibility study is positive and otherwise consistent with the business plans of the 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 Canada. 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.

September 2016

#### Corporate Directory

Directors	Issued Share Capital				Registered Office and Address for		
Stephen Dennis*+ Chairman	As at the date of this report, Heron Resources Limited had 415,009,381				Sydney		
Borden Putnam III*+							
Fiona Robertson	ordinary sha	ares, 23,9	134,021 Op	Duons.	Suite 702, 191 Clarence Street		
Wayne Taylor	The options	have exp	piry dates	ranging from	Telephone +61 2 9119 8111		
Mark Sawyer*∗	16 January	2017 to	4 Decemi ranging fr	ber 2020 and $com \Delta$ \$0.09 to	Perth		
* Denotes Non-executive	A\$0.31	se prices	ranging ii		Level 1, 7 Havelock Street		
+ Denotes Independent	Horon trada	a on the	ASX as '	UDD' and on	West Perth, WA 6005		
	the TSX as	HER'.	AON do	TIRE and on			
Executive Management	ManthlyCh	ono Duio	A		Email heron@heronresources.com.au		
Wayne Taylor	wonthly Sh	are Price	Activity		In Canada		
Managing Director & Chief Executive Officer	(A\$ per share - ASX)				Telephone + 1 647 862 1157 Email CMuir@heronresources.com.au		
Ian Buchhorn	Month	High	Low	Close	Website www.heronresources.com.au		
Executive Director	Oct 15	0.105	0.090	0.092			
Simon Smith	Nov 15	0.100	0.092	0.097			
General Manager – Finance &	Dec 15	0.101	0.090	0.092	Chans Danistma (Assatualia)		
Administration & Company Secretary.	Jan 16	0.097	0.084	0.090	Snare Registry (Australia)		
David von Perger	Feb 16	0.105	0.083	0.090	770 Canning Highway		
General Manager Exploration	Mar 16	0.098	0.086	0.089	Applecross 6153 WA		
Charlie Kompoon	Apr 16	0.110	0.089	0.105	Telephone +61 8 9315 2333		
General Manager Strategy & Business	Way 10	0.120	0.100	0.110	Facsimile +61 8 9315 2233		
Development	Jul 16	0.105	0.120	0.150	Email registrar@securitytransfer.com.au		
Androw Lower	Δια 16	0.17	0.14	0.155			
Chief Operating Officer	Sept 16	0.16	0.143	0.1455	Please direct enquiries regarding Australian		
	(( Month	CA\$ per s	share - TS	SX) Class			
	wonun	підп	LOW	01050	Transfer Agent (Canada)		
	Oct 15	0.090	0.075	0.080	TSX Trust Transfer Services Inc		
	Nov 15	0.090	0.080	0.080	200 University Avenue, Suite 300		
	Dec 15	0.090	0.080	0.085	Toronto ON M5H 4H1		
	Jan 16	0.095	0.070	0.080	Toll Free: 1 (866) 393-4891		
	Feb 16	0.100	0.070	0.080	Tel: (416) 361-0930		
	Mar 16	0.095	0.075	0.085	Email: I MXEINVestorservices@tmx.com		
	Apr 16	0.115	0.095	0.100	Please direct enquiries regarding North American		
	May 16	0.125	0.100	0.110	snareholdings to the Transfer Agent.		
	Jun 16	0.160	0.115	0.135			
	Jul 16	0.170	0.135	0.140			
	Aug 16	0.170	0.140	0.165			
	Sept 16	0.150	0.13	0.13			



Appendix 5B

#### MINING EXPLORATION ENTITY QUARTERLY REPORT

Name of entity

HERON RESOURCES LIMITED

ABN

30 068 263 098

Quarter ended

30 September 2016

Consolidated statement of cash flows

Cash flows related to operating activities	Current Qtr \$A'000	Year to Date (3 months) \$A'000
<ul> <li>1.1 Receipts from product sales and related debtors</li> <li>1.2 Payments for: (a) production</li> <li>(b) development</li> </ul>		
(c) administration	(497)	(497)
1.4 Interest and other items of similar nature received	73	73
<ul><li>1.6 Taxes (paid)/refunded (R&amp;D)</li><li>1.7 Other –GST</li></ul>	-	-
Net Operating Cash Flows	(424)	(424)
Cash flows related to investing activities		
<ul> <li>1.8 Payment for purchases of: (a) prospects</li> <li>(b) equity investment</li> <li>(c) other fixed assets</li> <li>(d) exploration activities</li> </ul>	- - (2,904) -	- - (2,904) -
(b) equity investment (c) other fixed assets	248	248
<ul><li>1.10 Loans to other entities</li><li>1.11 Loans repaid by other entities</li></ul>		
Net Investing Cash Flows	(2,657)	(2,657)
1.12 Total operating and investing cash flows (carried forward)	(3,080)	(3,080)

September 2016

1.12 Total operating and investing cash flows (brought forward)	(3,080)	(3,080)
Cash flows related to financing activities		
<ul> <li>1.13 Proceeds from the issue of shares, options, etc.</li> <li>1.14 Proceeds from the sale of forfeited shares</li> <li>1.15 Proceeds from borrowings</li> <li>1.16 Repayment of borrowings</li> <li>1.17 Dividends paid</li> <li>1.18 Payment of Share issue costs</li> </ul>	-	-
Net financing cash flows	(3,080)	(3,080)
Net increase (decrease) in cash held	(3,080)	(3,080)
1.19 Cash at beginning of quarter/year 1.20 Other	22,891 -	22,891 -
1.21 Cash at end of quarter	19.811	19.811

Payments to directors of the entity and associates of the directors, payments to related entities of the entity and associates of the related entities

	Current Qtr \$A'000
1.22 Aggregate amount of payments to the parties included in item 1.2 and 1.8	317,008
1.23 Aggregate amount of loans to the parties included in item 1.10	

1.24 Explanation necessary for an understanding of the transactions

Director's fees, salaries and superannuation (A\$308,675).	
Provision of office accommodation by director related entity (A\$8,333)	

#### Non-cash financing and investing activities

2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows

2.2 Details of outlays made by other entities to establish or increase their share in projects in which the reporting entity has an interest

See attached schedule

#### September 2016 Financing facilities available

Add notes as necessary for an understanding of the position

3.1 Loan facilities	Amount available \$A'000	Amount used \$A'000
3.2 Credit standby arrangements		

#### Estimated cash outflows for next quarter

	\$A'000
4.1 Exploration and evaluation	500
4.2 Development	-
4.3 Production	-
4.4 Administration	1,500
Total	2,000

#### **Reconciliation of cash**

Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to related items in the accounts as follows.

5.1 Cash on hand and at bank5.2 Deposits at call

5.3 Bank Overdraft

5.4 Other (provide details) Property Rental bond Environmental bonds

Total: cash at end of quarter (Item 1.21)

5	Current Quarter \$A'000	Previous Quarter \$A'000
	811	191
	19,000	22,700
	19,811	22,891



#### September 2016

#### 6.1 Interests in Mining Tenements transferred, relinquished, withdrawn, reduced or lapsed.

#### Changes in interests in mining tenements

Tenement	Location	Nature of Interest	% Beginning of Quarter	% At end of Quarter
E59/02166	180km E of Geraldton	Pending	100	0
ELA5202	74km NW of Orange	Pending	100	0
M25/00207	40km E of Kalgoorlie	Live	100 Ni Lat	0
M25/00220	40km E of Kalgoorlie	Live	100 Ni Lat	0
E25/00361	30km E of Kalgoorlie	Live	20	0
P26/03481	14km N of Kalgoorlie	Live	Royalty	0

#### Interests in Mining Tenements acquired or increased

Tenement	Location	Nature of Interest	% Beginning of Quarter	% At end of Quarter
ELA5337	19km NE of Orange	Pending Application	0	100
ELA5338	5km N of Forbes	Pending Application	0	100
ELA5323	5km N of Gundagai	Pending Application	0	100
ELA5335	62km W of West Wyalong	Pending Application	0	100
ELA5365	22km SW of Wellington	Pending Application	0	100
ELA5369	30km NE of Parkes	Pending Application	0	100
ELA5374	27km SE of Bathurst	Pending Application	0	100
E39/01985	60km NW of Laverton	Pending Application	0	100
E37/01271	60km NW of Laverton	Pending Application	0	100
E37/01272	100km N of Leonora	Pending Application	0	100
E37/01273	100km N of Leonora	Pending Application	0	100
E37/01274	75km NW of Laverton	Pending Application	0	100

#### Heron Resources Ltd Tenement Schedule for September 2016 Quarterly Report

Tenement	Location	Heron Interest (%)	Status	Note
WA Tenements				
KALGOORLE NICK	EL PROJECT			
North Kalgoorlie Nickel	- Siberia Project			
E29/00889	78km NW of Kalgoorlie	100	Live	Ardea
M24/00634	78km NW of Kalgoorlie	100	Live	Ardea
M24/00660	75km NW of Kalgoorlie	100	Live	Ardea
M24/00663	75km NW of Kalgoorlie	100	Live	Ardea
M24/00664	75km NW of Kalgoorlie	100	Live	Ardea
M24/00686	75km NW of Kalgoorlie	100	Live	Ardea
M24/00915	78km NW of Kalgoorlie	100	Live	Ardea
M24/00916	78km NW of Kalgoorlie	100	Live	Ardea
North Kalgoorlie Nickel	- SMC Siberia Project			
M24/00683	78km NW of Kalgoorlie	100	Live	Ardea
M24/00772	71km NW of Kalgoorlie	100	Live	Ardea
M24/00797	78km NW of Kalgoorlie	100	Live	Ardea
North Kalgoorlie Nickel	- Black Range Project			
M24/00757	63km NW of Kalgoorlie	100	Live	Ardea
P24/04395	70km NW of Kalgoorlie	100	Live	Ardea
P24/04396	70km NW of Kalgoorlie	100	Live	Ardea
P24/04400	70km NW of Kalgoorlie	100	Live	Ardea
P24/04401	70km NW of Kalgoorlie	100	Live	Ardea
P24/04402	70km NW of Kalgoorlie	100	Live	Ardea
P24/04403	70km NW of Kalgoorlie	100	Live	Ardea
North Kalgoorlie Nickel	- Siberia Tank Project			
M24/00665	75km NW of Kalgoorlie	90	Live	2

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Tenement	Location	Heron Interest (%)	Status	Note
North Kalgoorlie Nickel	- Ghost Rocks Project			
E29/00941	140km NNW of Kalgoorlie	100	Live	Ardea
North Kalgoorlie Nickel	- Goongarrie Project			
M24/00541	67km NNW of Kalgoorlie	100	Live	Ardea
M24/00744	75km NNW of Kalgoorlie	100	Live	Ardea
M29/00167	86km NNW of Kalgoorlie	100	Live	Ardea
M29/00202	86km NNW of Kalgoorlie	100	Live	Ardea
M29/00272	77km NNW of Kalgoorlie	100	Live	Ardea
M29/00278	74km NNW of Kalgoorlie	100	Live	Ardea
M29/00423	76km NNW of Kalgoorlie	100	Live	Ardea
P29/02265	86km NNW of Kalgoorlie	100	Live	Ardea
E29/00934	67km NNW of Kalgoorlie		Pending	Ardea
North Kalgoorlie Nickel	- Placer Big Four			
M24/00731	70km NNW of Kalgoorlie	100	Live	4,Ardea
M24/00732	70km NNW of Kalgoorlie	100	Live	4,Ardea
M24/00778	70km NNW of Kalgoorlie	100	Live	4,Ardea
North Kalgoorlie Nickel	- Highway Project			
M29/00214	100km NNW of Kalgoorlie	100	Live	Ardea
Yerilla Nickel Province		•		
E31/01092	140km NNE of Kalgoorlie	100	Live	
M31/00483	146km NNE of Kalgoorlie	100	Live	
M31/00475	129km NE of Kalgoorlie	100	Live	
M31/00477	129km NE of Kalgoorlie	100	Live	
M31/00479	129km NE of Kalgoorlie	100	Live	
E39/01954	170km NNE of Kalgoorlie	100	Pending	
Lake Rebecca Project -	Lake Rebecca Project			
P31/02038	113km NE of Kalgoorlie	100	Live	
P31/02039	113km NE of Kalgoorlie	100	Live	
P31/02040	113km NE of Kalgoorlie	100	Live	
Hampton Nickel Province	ce - Kalpini Project			
E28/01224	63km NE of Kalgoorlie	100	Live	Ardea
M28/00199	65km NE of Kalgoorlie	100	Live	Ardea
M28/00201	65km NE of Kalgoorlie	100	Live	Ardea
M28/00205	66km NE of Kalgoorlie	100	Live	Ardea
M27/00395	68km NE of Kalgoorlie	100	Live	Ardea
E27/00524	67km NE of Kalgoorlie	100	Live	Ardea
Hampton Nickel Province	- Bulong Project	1		
M25/00187	40km E of Kalgoorlie	100	Live	Ardea
M25/00151	38km E of Kalgoorlie	100	Live	Ardea
NON HERON RESP	ONSIBILITY KNP TENEMENTS			
JOINT VENTURES				
Hampton Nickel Provin	ce - Bulong Project			
Southern Gold Farm In	Project - Southern Gold Ltd 80%, HR	R 20%		<b></b>
E25/00250	32km ESE of Kalgoorlie	20	Live	6
M25/00059	34km East of Kalgoorlie	20	Live	6
M25/00134	40km E of Kalgoorlie	20	Live	6

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Tenement	Location	Heron Interest (%)	Status	Note
M25/00145	40km E of Kalgoorlie	20	Live	6
M25/00161	40km E of Kalgoorlie	20	Live	6
M25/00171	40km E of Kalgoorlie	20	Live	6
M25/00209	40km E of Kalgoorlie	20	Live	6
M25/00210	40km E of Kalgoorlie	20	Live	6
P25/02062	40km E of Kalgoorlie	20	Live	6
P25/02252	40km E of Kalgoorlie	20	Live	6
P25/02253	40km E of Kalgoorlie	20	Live	6
P25/02254	40km E of Kalgoorlie	20	Live	6
P25/02255	40km E of Kalgoorlie	20	Live	6
P25/02256	40km E of Kalgoorlie	20	Live	6
P25/02257	40km E of Kalgoorlie	20	Live	6
P25/02258	40km E of Kalgoorlie	20	Live	6
North Kalgoorlie Nickel	- EGS Siberia			
M24/00845	71km NW of Kalgoorlie	100 of Ni lat	Live	3
M24/00846	71km NW of Kalgoorlie	100 of Ni lat	Live	3
M24/00847	71km NW of Kalgoorlie	100 of Ni lat	Live	3
M24/00848	71km NW of Kalgoorlie	100 of Ni lat	Live	3
E16/00332	62km NW of Kalgoorlie	100 of Ni lat	Live	3
Kalgoorlie Gold Project	- MKO Goongarrie			
M24/00919	63km NNW of Kalgoorlie	100% Ni only	Live	7
P24/04199	55km NNW of Kalgoorlie	100% Ni only	Live	7
HERON RESPONSI	BILITY NON KNP TENEMENTS			
Mt Zephyr Project - Mt Z	Zephyr			
E39/01706	75km NE of Leonora	100	Live	Ardea
E39/01757	75km NE of Leonora	100	Live	Ardea
E39/01854	75km NE of Leonora	100	Pending	Ardea
E39/01985	75km NE of Leonora	100	Pending	Ardea
E37/01271	75km NE of Leonora	100	Pending	Ardea
E37/01272	75km NE of Leonora	100	Pending	Ardea
E37/01273	110km NNE of Leonora	100	Pending	Ardea
E37/01274	110km NNE of Leonora	100	Pending	Ardea
Bedonia Project - Bedo	nia			
E63/01787	70km ENE of Norseman	100	Pending	Ardea
Donnelly River				
E70/04804	18km W of Manjimup	100	Pending	Ardea
NON HERON RESP	ONSIBILITY TENEMENTS			
Albany-Fraser Project -	MCT Rocky Gully Project			
E70/02801	85km NW of Albany	10	Live	
E70/04543	105km NW of Albany	10	Live	
E70/04437	120km NW of Albany	10	Live	
JOINT VENTURES				
Pioneer Tenements - Pl	O Kalpini Project			
E27/00548	61km NE of Kalgoorlie	Ni Lat 100	Live	
E28/01746	62m NE of Kalgoorlie	Ni Lat 100	Live	

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Tenement	Location	Heron Interest (%)	Status	Note
E28/02483	62km NE of Kalgoorlie	Ni Lat 100	Live	
Kalgoorlie Nickel Provin	nce - RMS Coolgardie Project			
M15/01101	65km S of Kalgoorlie	Ni Lat 100 p/mpt	Live	
M15/01264	65km S of Kalgoorlie	Ni Lat 100 p/mpt	Live	
M15/01263	65km S of Kalgoorlie	Ni Lat 100 p/mpt	Live	
M15/01323	65km S of Kalgoorlie	Ni Lat 100 p/mpt	Live	
M15/01338	65km S of Kalgoorlie	Ni Lat 100 p/mpt	Live	
E27/00300	48km N of Kalgoorlie	Ni Lat 100 p/mpt	Live	
St Ives Project - Goldfie	Ids St Ives Project			
E15/00927	68km SE of Kalgoorlie	Royalty & other	Live	
E15/01005	70km SE of Kalgoorlie	Royalty & other	Live	
E15/01010	60km SSE of Kalgoorlie	Royalty & other	Live	
E15/01040	68km SE of Kalgoorlie	Royalty & other	Live	
Yarri Project - Yarri Gol	d Project			
E31/00887	160km NE of Kalgoorlie	Royalty rights	Live	
E31/00859	170km NE of Kalgoorlie	Rovalty rights	Live	
KCGM Gidai Project - K	CGM Kalgoorlie Gold Project			
E26/00124	14km N of Kalgoorlie	Rovalty rights	Live	5
Kanowa Gold Projects	5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
M27/00272	22km NE of Kalgoorlie	HRR retain certain	Live	
New South Wales	Projects			
Heron Tenements				
Woodlawn Project				
EL7257	40km SSW of Goulburn	100	Live	
EL7468	5km E of Collector	100	Live	
EL7469	15km E of Bungendore	100	Live	
EL7954	25km W of Goulburn	78.9	Live	
EL8325	60km ENE of Canberra	100	Live	
EL8353	7.5km SE of Woodlawn	100	Live	
S(C&PL)L0020	40km SSW of Goulburn	100	Live	
EL8400	27km NNE of Yass	100	Live	
Ardea Tenements				
Restdown				
ELA5335	70km W of West Wyalong	100	Live	Ardea
Lewis Ponds				
EL5583	15km E of Orange	100	Live	Ardea
EL8323	10km NE of Orange	100	Live	Ardea
ELA5337	20km N of Orange	100	Live	Ardea
Calarie				
EL7023	10km N of Forbes	100	Live	Ardea
ML0739	10km N of Forbes	100	Live	Ardea
ELA5338	5km N of Forbes	100	Live	Ardea

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Tenement	Location	Heron Interest (%)	Status	Note
Gundagai				
EL8061	Gundagai	100	Live	Ardea
ELA5323	Gundagai	100	Live	Ardea
Alchemy Farm in & JV Tenements				
Girilambone				
EL8318	27km NW of Nyngan	100	Live	Alchemy
Overflow/Eurow/Parkes				
EL5878	100km NW of Condobolin	100	Live	Alchemy
EL7941	100km NW of Condobolin	100	Live	Alchemy
EL8267	70km SE of Cobar	100	Live	Alchemy
EL8356	59km WSW of Tottenham	100	Live	Alchemy
EL8192	23km SE of Parkes	100	Live	Alchemy

Notes:

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1. Britannia Gold Ltd retains precious metal rights.

2. Beach Energy Ltd has a 10% equity free-carried interest to a decision to mine.

3. Eastern Goldfields Limited holds the tenement, Heron retains nickel laterite rights

4. Norton Goldfields retains a royalty on gold production

5. KCGM Gidgi Project, Heron retains a royalty on gold production

6. Subject to Farm In agreement with Southern Gold Ltd (who have earned an 80% interest). Heron retains 100% of nickel laterite.

7. Metalliko Reources Ltd holds the tenement, Heron retains nickel rights.

Ardea. Proposed Ardea Resources Limited Tenement

Alchemy. Subject to Farm-in and Joint Venture with Alchemy Resources Ltd

#### Issued and quoted securities at end of current quarter

Description includes rate of interest and any redemption or conversion rights together with prices and dates.

	Total number	Number quoted	Issue price per security (see note 3) (\$)	Amount paid up per security (see note 3) (\$)
7.1 Preference securities (description)				
<ul> <li>7.2 Changes during Quarter <ul> <li>(a) Increases through share</li> <li>issues</li> </ul> </li> <li>(b) Decreases through returns of capital, buybacks, redemptions</li> </ul>				
Ordinary securities	415,009,381	415,009,381		
7.3 Changes during Quarter *				
<ul> <li>(a) Increases through share issues</li> </ul>				-
<ul> <li>(b) Decreases through returns of capital, buybacks</li> </ul>				
7.4 Convertible debt securities (description)				

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7.5	Changes during Quarter		
	(a) Increases through issues		
	(b) Decreases through		
	securities matured,		
	converted		

7.6 Options			Exercise Price	Expiry Date
(description and conversion factor)	20,300,000	Nil	\$0.092	4/12/2020
	333,334	Nil	\$0.31	16/01/2017
	1,000,000	Nil	\$0.27	5/03/2017
	1,000,000	Nil	\$0.31	5/03/2018
	21,459	Nil	\$0.14	23/10/2017
	21,459	Nil	\$0.27	4/02/2017
	858,369	Nil	\$0.09	20/11/2018
7.7 Issued during Quarter	400,000	Nil	\$0.154	1/09/2021
7.8 Exercised during Quarter				
_				
7.9 Expired during Quarter	5,000,000	Nil	\$0.6864	7/9/2016
	400,000	Nil	\$0.092	27/06/2016
7.10 Debentures				
(totals only)				
7.11 Unsecured notes				
(totals only)				

Details of outlays made by other entities to establish or increase their share in projects in which the Compliance 2.2 reporting entity has an interest.

Nothing to report



#### **Compliance Statement**

- 1. This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Act or other standards acceptable to ASX (see note 4).
- 2. This statement does give a true and fair view of the matters disclosed.

- fite

Company Secretary

Simon Smith

Date:

31 October 2016

Sign here:

Print name:

#### Notes

- 1. The Quarterly Report is to provide a basis for informing the market how the entity's activities have been financed for the past Quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report.
- 2. The "Nature of Interest" (items 6.1 and 6.2) includes options in respect of interests in mining tenements acquired, exercised or lapsed during the reporting period. If the entity is involved in a joint venture agreement and there are conditions precedent which will change its percentage interest in a mining tenement, it should disclose the change of percentage interest and conditions precedent in the list required for items 6.1 and 6.2.
- 3. Issued and quoted securities The issue price and amount paid up is not required in items 7.1 and 7.3 for fully paid securities.
- 4. The definitions in, and provisions of, AASB 1022: Accounting for Extractive Industries and AASB 1026: Statement of Cash Flows apply to this report.
- 5. Accounting Standards ASX will accept, for example, the use of International Accounting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complied with.

## Heron Resources Limited Quarterly Report September 2016

#### Lewis Ponds Mineral Resource Estimate JORC (2012) TABLE 1

#### Section 1 Sampling Techniques and Data

(Criteria in this section applies to all succeeding sections)

Criteria	Commentary
Sampling techniques	<ul> <li>Both Reverse Circulation Percussion drilling (RCP) and Diamond core drilling (DD) have contributed to the Lewis Ponds resource database. RCP totals 2190 samples representing 2566 metres of mineralisation drilling, and DD totals 4832 samples for 5048 metres. Total drilling to the date of this report was 54516 metres compris:</li> </ul>
	117 primary diamond holes for 41776 metres
	32 wedged diamond holes for 7159 metres
	7 diamond tails to RCP holes for 159 metres
	62 RCP holes for 5421 metres
	4 Open Holes (Percussion/Rotary drilling) for 276 metres
	The last hole drilled was the diamond tail to TLPRC04010
	<ul> <li>The Resource is based on sub-surface samples obtained by the above drilling. Earliest drilling was successful testing of geochemical and/or geophysical anomalism adjacent to historic small mining. This progressed into drilling on grid sections to test the discovered mineralisation at intervals appropriate for good confidence in continuity.</li> <li>The earliest was diamond drilling by Amax commencing 25 October, 1971. The Longyear 44 rig used was top industry standard for the time. Similarly, the first single shot gyro instruments were being used for downhole surveys. Handheld GPS became practical for sub-5m accuracy collar positioning in year 2000 (removal of Selective Availability). The most recent programs after and including 2004 used Trimble GPS for collar positioning. The first hole to have (Differential) GPS collar positioning was TLPD-55 which commenced 3 Nov 1995. About 40 percent of the total metreage drilled was GPS located.</li> </ul>
Drilling techniques	<ul> <li>Two main types of drilling have been used since the first drill testing at Lewis Ponds in 1971: Reverse Circulation Percussion (RCP) and Diamond Core Drilling (DD). Open hole techniques including Tricone, Blade and Hammer have been used to pre-collar holes through overburden and barren ground to place casing to facilitate deeper RC and/or DD.</li> <li>Prior to 1980, HQ core size was used only to seat the casing to enable NQ coring to start. Most of these holes at some stage reduced to BQ core size when rotation became an issue with NQ. In DD programs subsequent to 1980 HQ core size was used to refusal then reduction to NQ and possibly BQ. After 1990 triple tube barrels were used to good effect minimising core loss, and reduction to NQ became the norm with no further use of BQ coring.</li> <li>Diamond tails, as distinct from precollars, were used to extend RCP holes in the 2004 programs. These totalled 152 m in five holes.</li> <li>No use of oriented core was made until 2004 where drillers marks on core assisted determination of vergence in folding adjacent to mineralisation.</li> </ul>
Drill sample recovery	<ul> <li>Core recoveries at Lewis Ponds have not in every case been recorded on a sample by sample basis, however a good recovery database is provided by recoveries recorded in the Geological Logs. These show that significant core loss is a comparatively rare event once the hole enters competent rock, and in most cases is due to local faulting and/or shearing. Recovery of core has been measured by restoring the core, fitting individual pieces end to end where possible. Lengths of the assembled core were measured to compare with the intervals between drillers' downhole markers. The ratio between the measured length and the marker interval length was recorded as core recovery percent. Percussion chip samples.</li> </ul>

Criteria	Comme	entary					
	•	at least in the more recent RC drilling, were weighed and the weight recorded. Any noticeably low weight recorded became a recovery factor in the sampling record. Core loss was minimised by maintaining a satisfactory balance between core diameter and drilling cost. For the TOA, TRO and TriAusMin programs between 1992 and 2004, also the Shell/Aquitaine 1981 program, the standard core size was HQ reducing to NQ. This was the most significant factor in minimising core loss, to the extent that contract controlled drilling provisions were not called for. Tests of the database for sensitivity of core recovery to grade yielded the following results for diamond drill cores:					
	Metal Zn% Zn% Zn% Zn% Zn% Zn%	Downhole Cutoff range 0-1 1-2 2-3 3-4 4-5 >5%	Total Metreage 3811 532 242 113 70 181	Average Core Recovery % 98.3 97.2 99.2 99.7 97.7 99.1	Mean R Zn% 0.21 1.42 2.41 3.46 4.47 8.36	ecovered Au gpt 0.17 0.56 0.99 1.08 1.47 3.47	
		There seems to similarly with incre	be no evidence easing gold:	for reduced core recover	ies with increasi	ng zinc grades,	
	Metal Au g Au g Au g Au g	Downhole Cutoff range 0.0 - 0.5 0.5 - 1.0 1.0 - 1.5 1.5 - 2.0 >2.0 Results in the hig Noticeably poorer time when most r 36.5 mm) in part systematically for database.	Mean Rec Au gpt 0.09 0.69 1.22 1.73 5.63 and Ag also. g in 1972 by Amax had to accept BC gnificant Au assa s is a low proportion	covered Zn% 0.49 1.82 3.20 3.84 4.92 c. This was at a core (diameter y (not sampled on of the overall			
Logging	•	Logging of core a the 1992 - 2004 proformas then e well as the digita mineralisation, an interpretive purpo estimation and su photography, is of Where needed to used to describe be reflected in th chips. Visual est drilling. Core pho obtained betweet of TLPD12. This core photography Lewis Ponds.	and chips has been programs, logs of intered digitally. I logs. The first of and oxidation recor- poses. This has ta ubsequent studies considered to be a erms such as 'mas- the aspect of the e assay results for imation of sulphic potography has been in TLPD33 and TL represents appro- y to be a proxy for	en maintained throughout t downhole geology were g n most cases scans of the bjective has been to enable ds to appear on screen to ken place to the standard is . The geological logging of adequate for mineral resources sive', semi-massive' 'strin metal sulphides. These q r the same intervals. This le percentages has not been en carried out over the mir .PD72 (Oct 1994 to April 1 pximately 50% of the total of geotechnical logging in the	he Lewis Ponds p enerally prepared hand logs have b e the lithology, all gether with grade required for miner done, together with tree studies. ager' or 'dissemina ualitative terms a applies to logging en systematic three heralised intervals 997) and the miner drilling, thus there he event of a scop	orograms. In on paper been made as teration and s for geological ral resource th available ated' have been re expected to g both core and bughout the eralised section is insufficient bing study for	

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Criteria	Commentary
	<ul> <li>Geological logs exist for 95 percent of total RC plus DD drilling. Geotechnical logging appears to have been limited to two holes in the 2004 TRO program, TLPDD04001 and 04002, totalling 643 m (approx 1% of all core) Basically, unless additional records come to light, for scoping study purposes geotechnical logging would have to be extended over stored core or further geotechnical drilling done.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>After core logging, generally routine 1m intervals to be assayed were split using a diamond saw and half-core samples bagged for assay. This was industry standard procedure. Paying for HQ coring was to achieve maximum representivity through higher volume samples.</li> <li>RC sampling, generally dry, was carried out on a metre by metre basis, collected directly into a plastic bulk bag from the rig cyclone. A 3-5kg sub-sample was taken by the spear method, bagged and submitted to the laboratory. Wet samples were mixed and quartered manually, but this was a rare necessity. The large volume of the sample and the use of the Reverse Circulation method was industry standard to achieve representivity. Normal quality control procedures were in place in the RCP drilling, in particular cleaning the hole with air between each sampling run, and casing through overburden to avoid uphole contamination.</li> <li>With both RCP and DD drill sampling, a replicate sample was taken every 20m for quality control and submitted without special identification with other samples to the laboratory. It was rare for replicate sample assays, when compared with the original, to fall outside normal variability within the sampling/assay process. On some occasions a triplicate sample was taken for an umpire Au assay.</li> <li>The Lewis Ponds sulphides, whether massive or disseminated, have not raised problems of representivity with the RCP and DD sampling employed. Gold is a significant element of the Lewis Ponds metal value and could have representivity issues. Preliminary metallurgical study indicates that gold is largely refractory within sulphides. "Nugget" gold is therefore unlikely to be a problem in fresh rock at Lewis Ponds with attendant representivity issues. This may have to be reviewed if mineralisation in the oxide zone becomes a drilling target.</li> <li>No problems of ultra-fine grain size exist at Lewis Ponds and the sample sizes are considered adequate.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>For DD in the 2004 drilling, entire half core samples were crushed to &gt;70 percent passing - 6mm mesh and weighed. For gold, 30g were taken for fire assay and AA finish. Sub- samples for Ag, Cu, Pb and Zn received aqua regia digestion followed by AA. The procedures were industry standard with a reputable laboratory. Procedures followed are considered to have built a good quality database for Lewis Ponds.</li> <li>Field analysers have not contributed to the Lewis Ponds mineral resources assay database.</li> <li>QC Certificates of Analysis are held from the laboratory in respect of regular internal check assays of Standards, Blanks and Internal Duplicates from pulps of the original samples. Random checks give evidence of satisfactory procedures. Accuracy and Precision stats could be run for a marginally higher level of comfort.</li> </ul>
Verification of sampling and assaying	<ul> <li>All significant intersections (TRO, TOA and prior) have been independently verified by a senior consultant to the extent of re-logging to become familiar with the detailed characteristics. This was carried out in two phases and a full report has been presented describing each phase.</li> <li>The drill intercept spacing is perhaps surprisingly regular given the number of drilling campaigns that have contributed. One significant intersection twinned is:</li> <li>Drill hole East North Interval Au Ag Cu Pb Zn m. m. m. gpt gpt pct pct pct SLP-2 -0.4 760 2.10 13.5 486 2.73 3.44 5.21 SLP-2W 2.10 761 2.10 3.90 370 0.32 5.30 5.80 This is indicative of Cu and Au variability between two intersections two metres apart.</li> </ul>

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Criteria	Commentary						
	Another example approaches the twinnir	ng situation with a se	eparation of 22 m	n. Comparable intercepts			
	Drill hole East North Interval A m. m. m. g TLPDD04001 -169 1323 5.90 1	u Ag Cu pt gpt pc .67 89 0.1	u Pb ct pct 22 3.37	Zn pct 5.08			
	<ul> <li>TLPDD36 -168 1301 15.00 3.97 246 0.27 3.44 5.28</li> <li>In 2004 a Database Verification exercise was carried out for Lewis Ponds. This was recorded on a master spreadsheet which listed all drill holes, one sample per record. The data as had been entered was checked individually against source Assay Certificates and Sample Submission information. 289 errors were identified, listed and corrected. Of these 16 were significant errors. 9 of the 16 from early drilling could not be reconstructed and had to be deleted from the database. In those cases original Assay Certificates were not available and checks could only be made against scanned tables of assays or in some cases scans of assay results on drill cross sections.</li> </ul>						
	From this exercise procedures were developed for the 2004 drilling: digitising sample submission (order numbers vs sample numbers vs intercepts), receiving digital Assay Certificates, and the critical 'synchronising' of assays and corresponding sample intercepts on spreadsheet. The new results were incorporated into the exploration software database and viewed on screen to see that there was geological sense in the results The entire technical database was backed up daily on the server, together with corporate records. One backup tape was taken out of the building each evening and returned the following day.						
	One error which necessitated co having moved one line in the file	prrection in the assay relative to intercept.	records came fro	m a small block of assays			
Location of data points	<ul> <li>Collar positions have been set accuracy. Collars of TOA and instrument since mid-1995. Pr tape and compass grid with sig collars appear to have been ide coordinates are used to locate checks were made of surviving results when compared with da</li> <li>The Lewis Ponds grid was esta degrees magnetic. The Grid no MGA.</li> </ul>	in using a Trimble GF TRO holes have been or to that, holes may nificant inaccuracies. entified and surveyed any item of drill data early hole collars (pr tabase. blished in 1992 using orth orientation of 315	PS instrument wi in picked up usin / have been sited However in 199 I by DGPS. No t in the current da re-1995) using D g a local grid nor 5 degrees (Mag)	th a sub-5 metre level of g a DGPS Sub-1 metre I relative to a pegged 95 all previous hole ape and compass tabase. In 2004 limited GPS with satisfactory th reference of 315 equates to 329 degrees			
	To convert local grid bearing to mag	netic subtract 45 deg	grees.				
	To convert local grid bearings to MO	A subtract 31 degree	es.				
	A number of points along the local grid baseline have been surveyed using real time DGPS with sub-metre accuracy.						
	To allow for transformation into MG/	To allow for transformation into MGA coordinates two corresponding surveyed points are:					
	Local converting to MGA(55): Local grid 000East 1100North 000East -370North	MGA(55) gri 709679.3Ea 710436.0Ea	id ast 6316506.4No ast 6315245.4No	orth orth			
	It is considered that all issues with t	ne location of data po	oints have been i	dentified and remedied			

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Criteria	Commentary
	prior to the start of 2004 drilling.
Data spacing and distribution	<ul> <li>Where drilling density is greatest the Lewis Ponds mineralisation is seen to consist of simple lenses at all downhole Zinc Equivalent (ZnE) cutoffs up to 8 to 9 % ZnE. Cross sections are 20 m apart. On any one cross section three or more drill holes are sufficient to characterise the lenses. The drill intersections are usually about 50 to 80m apart down dip.</li> <li>For the thickest part of the Main Lenses this criterion applies on six contiguous cross sections, that is 120m of strike length. From this base, at the low 1% ZnE cutoff, one or two intersections per cross section are sufficient to carry the lens interpretation a further 40m north and 300m up plunge to the south. At this point there is a second interval of 100m strike length near surface with 3 intercepts per cross section. At the plus 7% ZnE cutoff, the lenses are limited to the 120m interval. It is considered that this data distribution permits estimation of resources in the Indicated category.</li> <li>Lens interpretation has used Grade Composites based on (a) a 1% ZnE downhole cutoff, effectively quantifying stringer and disseminated mineralisation, and (b) a 7% ZnE downhole cutoff</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>As the lenses dip variably to the east, and the difficult topography is to the west, there has been little problem in siting holes to optimise the drill to mineralisation intersection angles. The strongest mineralisation dips about 50° east with vertical tails up to the west and down to the east, i.e. sigmoid. This has resulted in intersection angles effectively normal to the thicker parts of the mineralisation. Where the lenses tail up to the west and down to the east, the angles reduce to 40° to 60°.</li> <li>No significant bias is likely as a result of the pattern of intersection angles.</li> </ul>
Sample security	<ul> <li>For all programs care has been taken to have standard procedures for sample processing, and each past drilling program has recorded its procedures. These have been simple and industry standard to avoid sample bias. There is need to avoid classification bias in spear sampling of RCP chips by thorough pre-mixing. This method needs to remain consistent.</li> <li>Perhaps the best security against potential sample tampering for a situation such as Lewis Ponds has been not to have to store the samples. Site processing of samples was by Company employees and when complete samples were less than an hour from the laboratory by company vehicle. Satisfactory internal security was maintained routinely by the Laboratory.</li> </ul>
Audits or reviews	<ul> <li>A total review and audit of the Lewis Ponds database was carried out following the public float of Tri Origin Minerals Limited on 9 Jan 2004. Areas were: Grids and Collars, Downhole Surveys, Assays, Geology. Apart from this Review, previous resource estimates were studied for factors likely to introduce bias, up or down.</li> </ul>

#### Section 2 **Reporting of Exploration Results**

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

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>The Lewis Ponds project is 14km east-northeast of the city of Orange, central New South Wales, Australia. Local relief at the site is between 700 and 900m above sea level.</li> <li>The mineral rights to the project are 100 percent owned by Heron Resources Limited (Heron) through the granted Exploration Licence 5583. A capped (A\$2M) royalty and finders fee is payable to a private third party if the project is sold or commences production.</li> <li>xxxxxx Security Bond ???</li> <li>The project is on partly cleared private land, most of which is owned by Heron. 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. At this stage security can only be enhanced by continued engagement with stakeholders and maintaining profile in the city of Orange in particular.</li> </ul>

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Criteria	Commentary
Exploration done by other parties	<ul> <li>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.</li> <li>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.</li> <li>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 Resource estimate.</li> <li>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.</li> <li>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.</li> </ul>
Geology	<ul> <li>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:</li> <li>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</li> <li>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</li> <li>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 polymic threcia-volcaniclastic-siltstone package. Mineralising fl</li></ul>
Drill hole Information	• As the database now carries 211 holes totalling 54,516 metres, the listing is better studied in Appendices 3 and 4 in the main body of the resource report.

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Criteria		Comment	ary					
Data aggregation methods	•	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.						
		Hole	From	То	Int	7nF	7% 7nF	1% 7nF
		No. TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41 TLPD-41	m. 233.0 234.0 235.0 236.0 237.0 238.0 239.0 240.0 241.0 242.0 244.0 245.0 244.0 245.0 247.0	m. 234.0 235.0 236.0 237.0 238.0 249.0 241.0 242.0 244.0 244.0 245.0 244.0 245.0 246.0 247.0 248.0	<b>m.</b> 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	%           0.25           1.39           0.13           4.40           9.97           17.76           23.17           12.12           5.04           0.71           1.58           1.83           11.62           4.56           0.97	4m x 15.76% ZnE 1m x 11.62% ZnF	13m x 7.2% ZnE
	•	TLPDD04002 TLPDD04002 TLPDD04002 TLPDD04002 TLPDD04002 TLPDD04002 Metal Equivalent: E contribution of five r block) cutoff was re unit (gram, ounce, p metal equivalent was grams per tonne wo For 2016 purposes appreciable change used to define the g equivalents and cor the 7% ZnE cutoff: between 7 and 8% average ZnE grade carried by the higher changes in ZnE sug somewhat larger m this report it is suffice	269.5 270.7 271.9 272.4 273.4 Being a metals, quired. bercent) as used build have the que to the geometr npariso the nur ZnE); th of inter er Au int ggests t ineralisa cient to	270.7 271.9 272.4 273.4 274.4 multi-ec Au, Ag The s b, addir , in this ve serv estima y of the n with mber on esum cepts i tercept hat if the ation cl say that	1.2 1.2 0.5 1.0 1.0 1.0 elemee J, Cu, tanda ang the s case ed th arises ted R e min the 2 f inter o f in ncreases, the ne sail ould k	6.32 19.27 3.07 7.73 1.03 Int depos Pb and J rd techn dollar c e Zn Equ e same p : would t esource eralised 005 figur cepts ind tercept le ses mar gold pri me cutof pe interpire is no 2	2.7m x 12.00% ZnE sit in terms of Zn to the app ique of conve ontributions to ivalent perce purpose. he use of cur figure via ch lenses? Re- res give inter creases by 2 engths increating reginally, about ce having inc fs are retained reted at a sin ZnE penalty in	extends up and down
Relationship between mineralisation widths and intercept lengths	•	Within the Main zor the west and down normal to the thicke Where the lens tails with much reduced In Toms zone to the the upper levels, an	te the s to the e or parts or up to t true wid south ogles be	tronges ast, ie of the he wes dths in of Main	st mir sigm miner st anc the th the th n zon hole	eralisation oid. This alisation down to ninnest p e, dips o and mine	on dips abou has resulted making true to the east, the arts of the m f mineralisati eralisation ar	t 50° east with vertical tails up to l in intersection angles effectively widths equal to downhole widths. e angles reduce to 40° to 60° ineralised lenses. on are vertical or sub-vertical. In e around 50° but at deeper levels

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Criteria	Commentary
	can be as low as 30° or 20°, substantially reducing true widths. Interpretation of mineralised lenses honours the true widths.
Balanced reporting	<ul> <li>Appendix 6 of the Resource Report shows all intercepts used in modelling the higher grade mineralised lenses (+7% ZnE shoots).</li> <li>For other opinions regarding appropriate cutoff, the Resource is reported at block cutoffs lower and higher than the 3% ZnE presented. For example, at the 4% ZnE block cutoff the Resource becomes 3M tonnes at 8.3% ZnE instead of 5.98Mt at 5.9% ZnE.</li> </ul>
Other substantive exploration data	<ul> <li>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 <i>as though it were</i> a continuous or semi-continuous bed.</li> <li>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 could need to a gravity are disputed as to Cll, as here.</li> </ul>
Further work	<ul> <li>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).</li> <li>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 reestimate a block model.</li> <li>Also the LPRC34-LPRC41 drilling done in 2011, which had some intersections of interest, with 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.</li> </ul>

#### Section 3

#### **Estimation and Reporting of Mineral Resources**

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	Commentary
Preamble and responsible people.	<ul> <li>The report for this Lewis Ponds resource estimate replaces the first April 2005 resource report for the silver-gold-copper-lead-zinc mineralisation at the Lewis Ponds Project prepared for Tri Origin Minerals Ltd (TRO). The purpose of that Resource estimate was to enable a scoping study to assess the economics of an underground mining operation. The current Report was initiated by David von Perger, Exploration Manager, Heron Resources Limited. The original April 2005 Resource was prepared in compliance with guidelines published by the Joint Ore Reserves Committee (JORC) of the Aus IMM in 2004. In 2012 the Committee presented revised guidelines including the comprehensive Table 1. This (2016) Report presents the 2005 Resource in the context of the 2012 JORC Guidelines. The author of this report, Robert Cotton was also the author of the 2005 report.</li> </ul>

Criteria	Commentary
Database integrity	<ul> <li>In 2004 a Database Verification exercise was carried out for Lewis Ponds. This was recorded on a master spreadsheet which listed all drill holes, one sample per record. The data as had been entered was checked individually against source Assay Certificates and Sample Submission information. 289 errors were identified, listed and corrected. Of these 16 were significant errors. 9 of the 16 from early drilling could not be reconstructed and had to be deleted from the database. In those cases original Assay Certificates were not available and checks could only be made against scanned tables of assays or in some cases scans of assay results on drill cross sections.</li> <li>Database logic errors were corrected within the Micromine Exploration &amp; Mine Design package: integrity of hole names and intercepts across the Collar, Assay, Downhole Survey and Geology files.</li> </ul>
Site visits	<ul> <li>Site visits were made by the Competent Person prior to the 2004 drilling programs in connection with correcting collar coordinates for prior holes sited on the tape and compass field grid. This was combined with seeing outcrop characteristics of the volcanic footwall and siltstone hangingwall rocks. Periodic visits were made during the course of drilling to familiarise with factors affecting continuity, positively or negatively.</li> </ul>
Geological interpretation	<ul> <li>Geological confidence in the interpretation of the 1% ZnE cutoff mineralisation is high. Basically there are two broad intercepts in the material drill holes locating lenses in Main Zone, hangingwall (1b) and footwall (1a). These are projectable up and down dip and along strike. With these established, the interpretation of four higher grade shoots within the 1% envelope is made with more confidence than without the surrounding dissemination. The sigmoidal structure is apparent at the 1% cutoff and the projectability of this pattern up and down plunge adds confidence. The Toms structure is a simple sub-vertical sheet, again projectable in both dimensions.</li> <li>In order to have a consistent basis, two sets of grade composites were prepared at the 1% and 7% downhole cutoffs. The algorithm was permitted to violate cutoff for no more than 3 metres, compositing using weighted averaging of assay file intervals. These intercepts displayed on cross section became the framework for the interpretation seems to be the better, and more conservative.</li> <li>Grade at Lewis Ponds is a feature of a distinctive host unit involving fragmentals and alteration. Basically the sulphides share the geometry of the host unit.</li> <li>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 possibility of a massive sulphide 'bed' being disrupted into a series of "rafts" generally parallel to the axis of the dissemination. 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.</li> </ul>
Dimensions	<ul> <li>The +1% ZnE lenses are continuous over a horizontal strike length of 700 metres. Measured over the arc of the double plunge the extent is closer to 1000 metres. Lens 1a develops its maximum thickness of 60 metres around 400, RL. Lens 1b is more consistent in thickness at about 15 metres. Both lenses have a plan section length of 300 metres. The lenses plunge from about 750m RL to 280m RL over 500 metres.</li> <li>The +7% ZnE shoots within the dissemination are interpreted over 500 metres horizontally or 700 metres over the double plunge. The shoots at this high cutoff are narrow, ranging less than 1 metre to about 3 metres in horizontal width. They have a similar vertical range to the dissemination but have less horizontal length. One, two or three shoots are present at all levels.</li> </ul>

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Criteria	Comme	ntary
Estimation a modelling techniques	ind •	Computer based block modelling was selected for its fidelity to the geological interpretation and flexibility for any subsequent mining studies. As the data showed adequate geostalistical structure through variography, Ordinary Kriging was selected as the estimation procedure. The grades in the Assay file were composited to a uniform two metre length as feed to Log Probability plots metal by metal. Ag Cu Pb and Zn values required no cutting. Gold values required no cutting up to 10-12gpt, above 15gpt about 15 values required some level of cutting to bring all values back to the population line. A log probability test of the cut kriging input file showed a near straight line plot. As all ore zones have folded outlines, the strategy of using spherical searches was adopted. This gave good modelling along strike and down dip but has the effect of reducing grade variability across the structures. Search distances related to the ranges derived from the adopted spherical semivariograms for the individual elements. In general these were approximately 50m for the massive sulphide bodies and 80m for the more disseminated mineralisation. Block size used was 10m N-S, 5m vertical and 1.5m E-W. Previous estimations were made in 1995, 1996, 2000, and 2002 prior to the 2004 drilling by Tri Origin Minerals. All these estimates resulted in lower tonages and higher grades. All were Polygonal so used one assay average per large block rather than multiple assay contributions per small block, resulting in optimistic grades. The modelling philosophy used in this 2005 Resource quarantined the highest grades within the shoots, so these grades have not been permitted to spread to the +1% ZnE estimates. Regarding tonage difference, the TRO 2004 drilling added significant tonnage to the resources. Potentially deleterious elements such as sulphur, iron and arsenic have in general not been assayed for and would require a campaign of resampling of core and/or check drilling. It is assumed that lenses 1a and 1b would be mined with headings 5
Moisture	•	All tonnages have been calculated from Dry Bulk Densities. Moisture content would be a significant parameter at the scoping study stage.
Cut-off parameters	•	The selection of 3 percent ZnE cutoff for the 2005 statement of Resources is currently (01 Sept 2016) equivalent to US\$70 or A\$93 in situ value. Allowing for metallurgical losses to tails in the process of making three concentrates, Cu Pb and Zn, this reduces to \$80 Australian per tonne recovered value. The assumptions for metallurgical losses are: Au:35% Ag:20% Cu:20-30% Pb:15-25% and Zn 10-15% as suggested by R W Nice (2006). Tonnes and grade at other cutoffs can be read from Figs 2 and 3 in the main report.
Mining factors assumptions	or •	It has been assumed that Lewis Ponds would be mined entirely from underground. This assumption was influenced by the fact that the bulk of the ore and in situ metal value lies between 350 and 600 m RL, that is between approximately 150m and 400m vertical depth.

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Criteria	Commentary						
Metallurgical factors or assumptions	<ul> <li>Given 25% of gold reporting to gravity circuit and the balance to flotation feed, the assumptions for tailings losses are: Au:35% Ag:18% Cu:17% Pb:16% and Zn 9%, from three concentrates, Cu, Pb and Zn. These losses are from a 2006 review of previous Lewis Ponds metallurgical testing by RW Nice, Metallurgical Engineer. The high tailings loss for Au reflects refractory Au in pyrite and one recommendation was for a pyrite concentrate. In the 10 years since the Nice report, advances have been made which could improve Au recovery, desirable to maximise the gold contribution to a recoverable resource. Making a Cu concentrate maximises the Ag value of the resource.</li> </ul>						
Environmental factors or assumptions	<ul> <li>Topographically and logistically the Lewis Ponds site is ideal to construct a mine. However as always, the plant location and tailings dam could raise community and/or adjacent landholder issues. The site options need to be identified in order of suitability, including environmental impact, then engagement with potential stakeholders started early.</li> <li>Baseline flora and fauna studies have been done (GHD) with respect to proposed drilling and sensitive species in this respect have been identified. In summary: "under the Commonwealth guidelines for significance of actions, it is unlikely that the proposed drilling programme would have a significant impact on the area, particularly in relation to the listed sensitive species. This statement is also applicable to the state legislation."</li> <li>If gold sales are via concentrates, CIL/CIP issues are bypassed. Metallurgical advice on this aspect will be important in maximising the receiver.</li> </ul>						
Bulk density	<ul> <li>Lewis Ponds has an unusually extensive measured Dry Bulk density database. A high percentage of holes between TLPD-12 and TLPD-41 were systematically sampled and core densities determined, from footwall rocks through mineralisation to hangingwall. For the 2005 Resource Report this database was used to determine a regression formula linking measured densities with (chalcopyrite+galena+sphalerite)% for each sample based on assays and atomic weights. The regression was 2.817 + 0.0265 x (cpy%+gal%+sph%). For the current report this was checked by applying flat average densities from the 1995 Density report. These were: 2.9 for the +1% ZnE dissemination lenses and 3.1 for +7% ZnE shoots.</li> </ul>						
	Resources	Cut-off %ZnE	Volume m. cu. metres	Resource m. Tonnes (regression)	DBDs (flat)	Resource m. Tonnes (flat DBDs)	
	Main Zone Lenses 1a and 1b Shoots 7a,7a2,7a3,7b	3.0 3.0	1.41 0.62	4.11 1.88	2.9 3.1	4.10 1.92	
	Toms zone 7t shoot	3.0	0.20	0.64	3.1	0.63	
	Main and Toms	3.0	2.24	6.62		6.65	
	<ul> <li>(Rounding affects additions)</li> <li>The two methods of applying DBD conversion of volumes to tonnes show satisfactory agreement. The method, which utilises the whole DBD database for the conversion, is preferred to the standard application of averages or an assumed DBD figure</li> </ul>						
Classification	<ul> <li>preferred to the standard application of averages, or an assumed DBD figure.</li> <li>The average separation between drillholes of 50 to 80 metres needs to be reduced by in-fill drilling on 4 to 5 cross-sections 40m apart before the Measured category can be allocated in the Main Zone. Maximum interval separation would then reduce to 40 metres or less. Some minor uncertainties in the database, namely a few volumes with insufficient core recovery measurements and others with insufficient dry bulk density measurements, require addressing.</li> <li>At this stage of drilling, the resource volumes are reasonably well defined and sufficient twinning of holes has been done via wedging in particular, to merit the allocation of Indicated Resources. However the geometries of the volumes interacting with the searches and kriging parameters as applied have produced a limited percentage of blocks with higher kriging variances and show as outliers in probability plots of the kriging variance populations.</li> </ul>						

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Criteria	Commentary
	<ul> <li>Blocks with kriging variances above 7 for the massive sulphide volumes and above 5 for the disseminated volumes have been allocated the Inferred category. Blocks less than or equal to these values have received the Indicated Category.</li> <li>It is considered that appropriate account has been taken of confidence factors in the block grade estimation. The fact that semivariograms have been obtainable testifies to the quality of input data, continuity of geology and metal values, quality, quantity and distribution of data. It confirms impressions gained in handling and checking the data, modelling the mineralised volumes, and assessing aspects of the block model apart from kriging variance and grade, for example distances from data to block centres and number of data points in block estimates.</li> </ul>
Audits or reviews	<ul> <li>The 2005 block models have now passed through the hands of a number of industry professionals for the purposes of stope design, preliminary mine design and mining recovery. This process has verified that the models are free of internal inconsistencies and any examples of grade distribution at odds with the data.</li> </ul>
Discussion of relative accuracy confidence	<ul> <li>As Kriging variance is lower when data points are closer to a block centre, it can be used as a proxy for uncertainty in the block estimate</li> <li>Average kriging variances are: Lens 1a: 4.43 Shoot 7a: 6.63 7a2: 7.42 7a3: 6.96 Main Zone</li> </ul>
	Lens 1b: 1.845 Shoot 7b: 7.01 Main Zone
	Shoot 7t: 8.20 Toms Zone
	These are global numbers and have been useful to identify blocks which are near the limits of data availability, and necessitate Inferred categorisation.
	<ul> <li>As a check on the Kriged Resource an earlier Polygonal estimate was re-worked to a similar density basis. The Tonnage against cutoff curve resembles the kriged curve sufficient to show that the same deposit is being estimated. However grades in the Grade against cutoff are exaggerated 20 to 25 percent in the Polygonal, which demonstrates the basic weakness of the method, but serves to show the Kriged estimate is in the right tonnage/grade position.</li> <li>As yet there is no opportunity to compare with production data.</li> </ul>

## JORC Code, 2012 Edition – Table 1 (Yeoval, Mt Aubrey, Wiseman's Creek, Mt Zephyr, BTZ, KNP, Bedonia West and Perrinvale prospects)

#### Section 1 Sampling Techniques and Data

#### (Criteria in this section apply 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.	<ul> <li>Mt Zephyr, Nord Resources (Pacific) Pty Ltd, 1982, open hole percussion drilling, decline 60 degrees west, only sample BIF, panned to detect gold, and if gold noted, submitted to Analabs, accordingly very poor assay coverage, assay technique not known</li> <li>Mt Zephyr, Aurora Gold Limited, 1993,</li> </ul>



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Criteria	JORC Code explanation	Со	mmentary
	<ul> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	•	RAB drilling, decline 60 degrees west, 6m composites (two rod lengths), assay by AMDEL, 0.01g/t Au detection limit, QAQC replicate assay for each sample, acceptable precision Mt Zephyr, Newcrest Mining Limited, 2008, assay by Genalysis, 50gm FA with AAS finish, 0.01g/t Au detection limit, presume QAQC but not detailed in available report, 1m RC chips
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).	•	Refer above, insufficient detail in historic NSWGS and GSWA-held reports, reputable international explorer using standard industry practice of the time
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> </ul>	•	Not known
	•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.		
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.	•	Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time Geotechnical logging most unlikely
	•Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.		
	•The total length and percentage of the relevant intersections logged.		



Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> </ul>	<ul> <li>Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time</li> <li>Subsampling most unlikely</li> </ul>
	•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.	
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. • Refer above reports, repu using standa	<ul> <li>Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time</li> <li>QAQC likely for Newcrest phase of Mt</li> </ul>	
	•For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Zephyr exploration, but not known
	•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.	
Verification of sampling and assaying	•The verification of significant intersections by either independent or alternative company personnel.	Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time
	•The use of twinned holes.	<ul> <li>Verification likely for Newcrest phase of</li> </ul>
	•Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	exploration at Mt Zephyr, but not known
	•Discuss any adjustment to assay data.	
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other</li> </ul>	<ul> <li>Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time</li> <li>Local grids used, require field validation</li> </ul>

Criteria	JORC Code explanation	Commentary
	Iocations used in Mineral Resource estimation. •Specification of the grid system used. •Quality and adequacy of topographic control.	<ul> <li>but minimal drill hole artefacts remain</li> <li>Georeferenced using surveyed gold mining lease corner pegs</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time</li> <li>Insufficient sample points in previous work to establish continuity, Nord and Aurora work not appropriate for Mineral Resource estimates</li> <li>Essentially "wildcat" exploration holes, not suited to resource estimation</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	Not known
Sample security	•The measures taken to ensure sample security.	Not known
Audits or reviews	•The results of any audits or reviews of sampling techniques and data.	Not known



## 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.	Heron granted Exploration Licence tenure and Ardea EL applications
	•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.	No known impediments
Exploration done by other parties	•Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Refer above, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time</li> <li>Desk top appraisal, requires re-drill by Ardea</li> </ul>
Geology	•Deposit type, geological setting and style of mineralisation.	<ul> <li>Syenite hosted gold associated with Celia Lineament, northwest continuation of Red October-Sunrise Dam-Wallaby-Jupiter trend, granitoid intrusives defined by circular magnetic anomalies (as per Mt Zephyr magnetic feature)</li> </ul>
Drill hole Information	<ul> <li>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:</li> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>Refer above, local grids used, GIS registered but accuracy not quantified, insufficient detail in historic reports, reputable international explorer using standard industry practice of the time</li> </ul>

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Criteria	JORC Code explanation	Commentary
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.	Not done in historic data
	•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.	
Relationship between mineralisation widths and intercept lengths	•These relationships are particularly important in the reporting of Exploration Results.	Not applicable
	•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 (eg 'down hole length, true width not known').	
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.	Not available
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 available
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;	Not available

Criteria	JORC Code explanation	Commentary
	potential deleterious or contaminating substances.	
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Yeoval, Mt Aubrey and Wiseman's Creek, compile all available open file data into georeferenced data set, structural mapping, channel sample exposed mineralized faces as a basis for historic data validation, mineralized domaining to generate a geological model based on all available data ahead of drilling to validate geological models, establish QAQC regimen by field duplicate replicate assays where historic material is available and in suitable condition of preservation.</li> <li>Mt Zephyr, ground magnetics to define syenite intrusives and contacts, gravity survey to define structures, aircore drill to quantify host geology, then RC sections for mineralisation continuity (200x40m initial pattern)</li> <li>BTZ, structural mapping, channel sample exposed mineralized faces as a basis for data base validation, mineralized domaining to generate a geological model based on all available data ahead of resource drill-out.</li> <li>Evaluate available historic Vale Inco data for geo-metallurgical evaluation, focus on cobalt geo-metallurgy.</li> <li>Bedonia West, Perrinvale, 400x200m soil auger multi-element ICP geochem along E-W Proterozoic lopolith orientation, ground EM of all Ni-Cu-PGM soil anomalism, RAB traverse all geochem/EM targets ahead of RC traverses (Nova exploration model).</li> </ul>