

**Adelaide Resources Limited** 

ABN: 75 061 503 375

## Corporate details:

ASX Code:

ADN (ordinary shares)

ADNO (listed options)

Cash: \$0.348 million

(at 30 June 2016)

Issued Capital:

361,326,414 ordinary shares 37,222,104 listed options

#### **Directors:**

#### Colin G Jackson

Non-executive Chairman

## **Chris Drown**

Managing Director

## Nick Harding

Executive Director and Company Secretary

## Jonathan Buckley

Non-executive Director

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Fact: The Challenger Gold Mine, located 375km NW of the Barns prospect in SA, commenced production in 2002 to initially exploit a recoverable gold reserve of 105,060 ounces. Production to date is 1,101,551 ounces of gold, more than 10 times its initial reserve.



# ASX announcement

19 July 2016

# Eyre Peninsula gold project

(100% interest), South Australia

# Maiden 107,000 ounce gold resource estimated for Barns deposit.

# **Summary**

A maiden Mineral Resource estimate for the 100% owned Barns deposit located on the Eyre Peninsula in South Australia declared.

- The Barns Mineral Resource estimate, reported in accordance with the JORC Code 2012, totals 2.11 million tonnes at 1.6g/t gold for 107,000 ounces at a 0.5g/t cut-off grade.
- The Resource is classified into 380,000 tonnes of Indicated and 1,730,000 tonnes of Inferred Resources.
- Gold mineralisation occurs in flat lying supergene zones overlying moderately dipping, quartz vein associated primary gold lodes.
- The Company now plans to complete metallurgical test work to establish gold recoveries, evaluate development options, and conduct exploration to increase the resource inventory.
- The Barns deposit is open to the south and down dip, and excellent potential to increase the resource exists.
   Five nearby gold prospects also show strong potential to deliver additional resources.
- Independent consultant Mining Plus Pty Ltd assisted with the estimation of the Barns resource.

Chris Drown Managing Director

Direct enquiries to Chris Drown. Ph (08) 8271 0600 or 0427 770 653.

## Location

The Barns gold deposit is located 23 km north of the town of Wudinna on South Australia's Eyre Peninsula (Figure 1). The deposit is 100% owned by a subsidiary of Adelaide Resources, with Newcrest Mining Limited retaining a 1.5% NSR royalty.

# Background.

Barns was discovered in 2000 when the final hole of a 50-hole RAB drilling programme completed to test a large calcrete gold geochemical anomaly recorded intersections of 8 metres at 3.0g/t gold and 7 metres at 1.8g/t gold.

Subsequent programmes of reverse circulation, diamond and RAB/aircore drilling outlined a coherent body of gold mineralisation.

In the early 2000's gold traded in a range A\$450 to A\$600 per ounce and economic assessments at that time indicated Barns was sub-economic. Gold is now trading A\$1,700 to A\$1,800 per ounce, prompting a re-evaluation of the deposit including the decision to estimate a maiden Mineral Resource that can be reported in accordance with JORC 2012 guidelines.

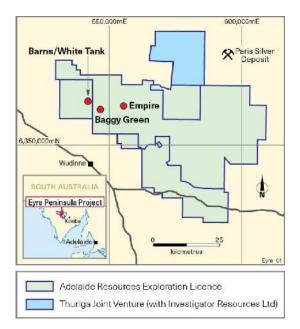


Figure 1: Eyre Peninsula project location plan

# **Deposit description**

Geologically, Barns falls in the Central Gawler Gold Province, a belt of gold-dominant mineralisation which formed about 1590 million years ago during the regionally extensive Hiltaba/GRV tectonothermal event. Gold mineralisation at Barns is hosted in a granodiorite body assigned to the Tunkillia Suite, a group of 1690Ma granitiods that form important mineralisation host rocks in the Central Gawler Gold Province.

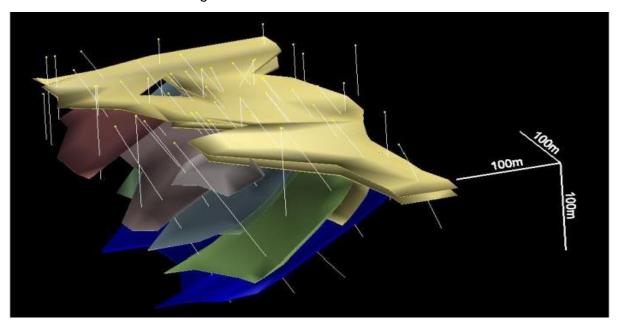


Figure 2: Barns 3-D mineralisation model showing intersecting drill holes.

Primary gold mineralisation at Barns occurs in multiple, moderately west dipping lodes. Native gold is associated with narrow quartz-pyrite veins, and in sericite-pyrite alteration selvedge's surrounding the quartz-pyrite veins.

In the weathered zone, gold has been re-mobilised to form two parallel flat lying supergene zones of mineralisation.

A zone of total gold depletion occurs above the supergene zones, with the shallowest mineralisation commencing approximately 26 metres below surface.

Thin surficial quaternary sediments, dominantly Aeolian sand dunes, blanket the deposit.

In early 2016, the Company completed a detailed assessment of the deposit data resulting in the development of a 3-D mineralisation model (Figure 2).

# **Mineral Resource summary**

Using a 0.5g/t gold cut-off grade, the maiden Mineral Resource estimate for the Barns deposit is estimated to be 2.11 million tonnes at 1.6g/t gold for 107,000 ounces of gold (Table 1).

Figure 3 presents a tonnage-grade graph showing how these two variables change at different cut-off grades.

Part of the supergene lodes is drilled at a sufficient density to allow classification as Indicated Resources, while the primary lodes and remainder of the supergene is classified in the Inferred category.

The Mineral Resource estimate was jointly completed by independent consultant Mining Plus Pty Ltd and Adelaide Resources. Mining Plus assumes responsibility for the block modelling, geostatistical analysis, grade interpolation and estimation classification. Adelaide Resources assumes responsibility for the sampling techniques, integrity of the drill hole data and interpretation of the 3-D mineralisation model.

The drill hole database for Barns comprises 327 drill holes. Further specific commentary is provided below.

# **Next steps at Barns**

An important consideration in progressing Barns towards mine development will be determining the metallurgical behaviour and gold recoveries under a number of potential treatment scenarios.

The simple mineralogy of the gold lodes and the commonly observed presence of native gold are positive metallurgical indicators.

Minamilianian	C O#	Indicated		Inferred		Total				
Mineralisation	Cut-On	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces
Primary	0.5	0=1	18	0.8.1	1,500,000	1.7	80,000	1,500,000	1.7	80,000
Supergene	0.5	380,000	1.4	17,000	230,000	1.3	10,000	610,000	1.4	27,000
Total	0.5	380,000	1.4	17,000	1,730,000	1.6	90,000	2,110,000	1.6	107,000

The preceding statements of Mineral Resources conforms to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) 2012 Edition. All tonnages reported are dry metric tonnes. Minor discrepancies may occur due to rounding to appropriate significant figures.

Table 1: Barns Classified Mineral Resource Figures

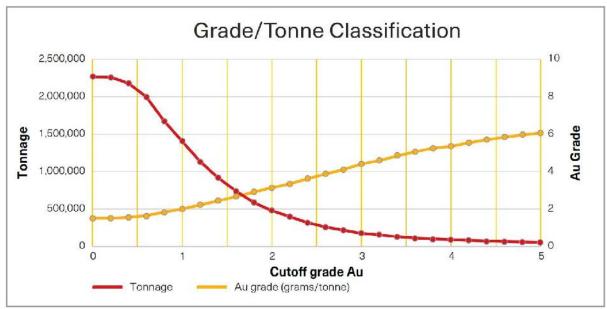


Figure 3: Barns Grade Tonnage Curve for Classified Material

Earlier metallurgical test work is limited to the testing of one composited sample from Barns and two from Baggy Green prospect. Each achieved favourable overall gold recoveries. The design of a comprehensive metallurgical test work programme to better assess gold recoveries is currently underway.

The Company will continue to be guided by an iterative economic assessment of the Barns deposit. The estimation and release of the maiden Mineral Resource at Barns will allow the Company to announce the results of such future economic scoping studies.

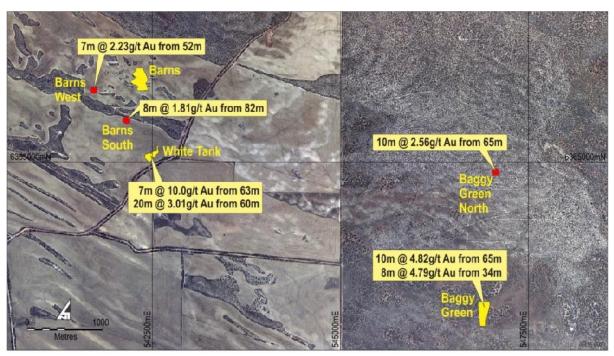


Figure 4: Additional drilled Gold Targets close to Barns.

# Opportunities to grow resource

The Barns deposit remains open both to the south and down-dip, and excellent potential to delineate further resources in these areas of the deposit remains.

Additionally, some of the mineralisation captured within the Barns 3-D model remains unclassified and excluded from the maiden Mineral Resource as a consequence of wide drill spacing, and infill drilling is likely to allow some or all of this mineralisation to be included in a future revised Mineral Resource estimate.

Barns is one of six gold prospects discovered by the Company in the local area, with the other five targets all located within 6 km of Barns (Figure 4). These prospects are not as advanced as Barns in terms of drill hole coverage, however all have recorded significant gold intersections in historical drilling.

At Baggy Green historical drilling has located a gold mineralised structure however the existing drill spacing is too widely spaced to allow estimation of a resource. The Company is planning to complete infill drilling at Baggy Green later in 2016 potentially leading to the estimation of a Mineral Resource.

# **Further commentary on Resource**

The Mineral Resource database has been uniquely flagged with the mineralisation zone codes and then composited into one metre lengths which have been used to estimate the Mineral Resource. The composited data has been analysed for grade distribution with the effect of extreme grade values assessed for each zone and top-cuts applied if required. Variographic analysis has been undertaken on the top-cut composited data with the results of this analysis using in the grade estimation.

Grade estimation was undertaken in Vulcan V10 modelling software using the Ordinary Kriging method. A block model has been created with a parent block size of 5 m (X) by 25 m (Y) by 5 m (Z) and sub-blocks down to 1 m (X) by 5 m (Y) by 1 m (Z), with the sub-blocks estimated inside the parent block. The block size is appropriate for the drill-hole spacing.

The block model has been populated with gold grades using three interpolation passes, with each subsequent run using a larger search ellipse and decreasing minimum numbers of samples required to fill a block. Pass 1 uses a minimum of 6 and a maximum of 16 samples into a search ellipse 50 m x 15 m x 10 m in size for all domains. A maximum of two samples per drill-hole has been used as an additional constraint.

The Mineral Resource estimate has been validated using visual and statistical methods, including the checking of the block model grades against the de-clustered input composite grades, use of swath plots on northings, easting and RL's and visual comparison of the block model grades versus the drill-hole grades.

The Mineral Resources has been classified into Indicated and Inferred categories following the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). The classification is based on drill hole intercept spacing, geological confidence, grade continuity and estimation quality. A combination of these factors guides the manual digitising of strings on drill sections to construct envelopes that were utilised to control the Mineral Resource categorisation. This process allows review of the geological control/confidence on the deposit. The results reflect the Competent Persons' view of the deposit.

#### **Competent Person Statement**

#### Exploration:

The information in this release that relates to sampling techniques and data, exploration results, geological interpretation and Exploration Targets has been compiled by Mr. David Adams BSc (Hons), MAusIMM, an employee of the Company. Mr. Adams is a Member of the Australian Institute of Mining and Metallurgy and he has sufficient experience with the style of mineralisation and types of deposits under consideration, and to the activities undertaken, to qualify as a competent person as defined in the 2012 Edition of the "Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code) for reporting the exploration results. Mr. Adams consents to the inclusion in this report of the contained technical information in the form and context in which it appears.

#### Resource Estimation:

The information in this release that relates to the Estimation and Reporting of Mineral Resources has been compiled by Mr. Richard Buerger BSc. Mr. Buerger is a full-time employee of Mining Plus Pty Ltd and has acted as an independent consultant on the Barns Deposit Mineral Resource estimation. Mr. Buerger is a Member of the Australian Institute of Geoscientists and has sufficient experience with the style of mineralisation, deposit type under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code). Mr. Buerger consents to the inclusion in this report of the contained technical information relating the Mineral Resource Estimation in the form and context in which it appears.

#### **Cautionary Statement**

Readers should use caution when reviewing the exploration and historical production results presented and ensure that the Modifying Factors described in the 2012 edition of the JORC Code are considered before making an investment decision

## **Caution Regarding Forward Looking Information**

This document contains forward looking statements concerning Adelaide Resources Limited. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of, the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and potential title disputes. Forward looking statements in this document are based on Adelaide Resources beliefs, opinions and estimates of Adelaide Resources as of the dates the forward looking statements are made, and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future development.

# JORC table 1; 2012 Edition.

Section 1 Sampling Techniques and Data -

Criteria	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 hand held XRF instruments, etc) These examples should not be taken as limiting the broad meaning of sampling.  Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.  Aspects of the determination of mineralisation that are Material to the Public Report.  In cases where 'industry standard' work has been done this would be relatively simple (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.	Aircore, RAB, RC and Diamond drilling has been used to obtain 6 m composite and 1 m samples which have been pulverised to produce sub samples for lab assay (nominal 50 g or 30 g charge for gold fire assay with AA finish). Some samples have also been assayed for a suite of other elements using multi-acid digest of small weight charges finished with ICP-OES and ICP-MS).  Some screen fire assays have been completed where coarse gold was suspected to be present.  RC and many of the aircore and RAB samples have been riffle split if dry. Wet samples have been sub-sampled using trowels.  Diamond core has been sawn in half, with half core submitted for assay.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	Drill methods include aircore and RAB in unconsolidated regolith, and aircore hammer (slimline RC) in hard rock. Some shallow RC holes have been drilled in place of aircore and RAB

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		Hole diameter for aircore was 90 mm. RC hole diameters were
		generally 5 to 5.5 inch with face sampling hammers employed.
		Diamond core was NQ2 diameter. Efforts to orient the drill core have been made using ori extension tools.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.  Measures taken to maximise sample recovery and ensure representative nature of the samples.  Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Qualitative assessment of sample recovery and moisture content of all drill samples has been recorded.  Sample system cyclone cleaned at end of each hole and as required to minimise down-hole and cross-hole contamination.  Core recovery has not been calculated in early diamond holes, but was very high. Core recovery has been recorded in the 2015 diamond drilling and was very high.  No relationship is known to exist between sample recovery and grade.  Results of three twinned RC-diamond hole pairs indicates that RC
		samples may be under-sampling gold, as the diamond holes returned between 30% and 70% higher grades for equivalent intervals.
	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.	All holes have been geologically logged by on-site geologist, with lithological, mineralogical, weathering, alteration, mineralisation and veining information recorded. The holes have not been geotechnically logged.
Logging	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Geological logging is qualitative.  Chip trays containing 2 m geological sub-samples of aircore, RAB and RC holes have been collected and photographed at the completion of the drilling programme.
	The total length and percentage of the relevant intersections logged.	100% of any reported intersections (and of all metres drilled) have

		been geologically logged.
	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond core has been sawn in half to present a 1/2 core assay sample. Duplicates have been ¼ core sawn.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Samples from Aircore, RAB and "bedrock" RC holes have been collected initially as 6 m composites followed by 1 m resplits. Many of the 1 m resplits have been collected by riffle splitting. RC samples have been collected by riffle splitting if dry, or by trowel if wet.
Sub-sampling	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Laboratory sample preparation included drying, crushing if ½ core, and pulverising of submitted sample to target of P80 at 75 um.  Pulverised samples have been routinely checked for size after pulverising.
techniques and sample preparation	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Laboratory sample preparation included drying, crushing if ½ core, and pulverising of submitted sample to target of P80 at 75 um.  Pulverised samples have been routinely checked for size after pulverising.
	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.	Laboratory analytical charge size included 30 g and 50 g standard sizes which are considered adequate for the material being assayed, although the presence of coarse gold was suspected in some samples based on variability in grade of multiply assayed samples.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Yes samples sizes are appropriate and representative of the material being sampled.

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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.  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.  Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Standard laboratory analyses completed for gold (fire assay).  The laboratory analytical methods used are considered to be total.  For laboratory samples the Company introduced QA/QC samples (standards and duplicates) at a ratio of one QA/QC sample for every 24 drill samples. The laboratory additionally introduced QA/QC samples (blanks, standards, checks).  Both the Company introduced and laboratory introduced QA/QC samples indicate acceptable levels of accuracy and precision have been established.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.  The use of twinned holes.	The company has submitted a substantial number of significant intersection as well as QAQC Standard and Blanks to a third Party "Umpire" laboratory. The competent person and another company geologist has checked the results as well.  Three RC holes have been twinned with diamond holes at Barns, Results showed that grades were on average higher than the RC holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.  Discuss any adjustment to assay data.	The company uses a Maxwells Datashed database to store and validate its drilling data.  No adjustments have been made to the laboratory assay data.
Location of data points	Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Drillhole collars have normally been pegged using DGPS with an accuracy of +/-0.5 m.  Downhole surveys have been completed for deeper RC and diamond holes.
	Specification of the grid system used.	The co-ordinate system used during the historic exploration

		program was AMG84 Zone 53.
		Since this time the coordinates have been converted into MGA94/ Zone 53 datum and all the tables and plans presented in the report use MGA94 Zone 53 co-ordinates.
	Quality and adequacy of topographic control.	Collar RLs have been created from a high resolution DTM, acquired from a geophysical survey.
	Data spacing for reporting of Exploration Results.	
Data spacing and distribution	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.	Drill lines at Barns have been drilled mainly on a 50 m section spacing with some sections having been drilled 2 5m apart. Hole spacing's on section vary but on average are in the order of 20 m apart. Drillhole spacing is considered appropriate to allow geological and grade continuity.
	Whether sample compositing has been applied.	The assay data has been composited for Resource Estimation purposes.
Orientation of data in	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Drill lines oriented east-west across N-S trending mineralised zones at Barns.
relation to geological structure	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.	It remains unknown if there exists internal mineralised structures at different orientations to the overall strike of mineralisation.
Sample security	The measures taken to ensure sample security.	Company staff collected or supervised the collection of all laboratory samples.  Samples submitted to the laboratory samples have been transported by a local freight contractor.

		There exists no suspicion that the historic samples have been tampered with at any stage.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Three twinned holes (RC-diamond pairs) have been drilled at the Barns prospect. Assay results show that the grade of diamond holes is significantly higher than the grade of equivalent intervals in the adjacent RC holes.

# Section 2 Reporting of Exploration Results-

Criteria	Explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Barns prospect falls in EL 5092 and is owned 100% by Peninsula Resources limited, a wholly owned subsidiary of Adelaide Resources Limited.  Newcrest Mining Limited retains a 1.5% NSR royalty over future mineral production from both licences.  The Barns prospect falls on Perpetual leasehold land used for cereal cropping  Native Title is extinguished on Perpetual Leasehold land (Barns). A Native Title Agreement has been negotiated with the NT Claimant and has been registered with the SA Govt.  Aboriginal heritage surveys have been completed over the Barns prospect with no sites located in the immediate vicinity of the prospects.
	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.	A Compensation Agreement is in place with the relevant agricultural landowner.  EL 5092 is in good standing.

Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	On-ground exploration completed prior to Adelaide Resources' work was limited to 400 m spaced soil geochemistry completed by Newcrest Mining Limited over the Barns prospect.
Geology	Deposit type, geological setting and style of mineralisation.	The Barns prospect is considered to be either a lode gold or intrusion related gold deposit related to the 1590Ma Hiltaba/GRV tectonothermal event. Gold mineralisation is structurally controlled and associated with significant alteration of host rocks.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: $\tilde{\mathbb{N}}$ easting and northing of the drill hole collar $\tilde{\mathbb{N}}$ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar $\tilde{\mathbb{N}}$ dip and azimuth of the hole $\tilde{\mathbb{N}}$ down hole length and interception depth $\tilde{\mathbb{N}}$ hole length.	No new exploration results are announced within this report.
	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No new exploration results are announced within this report.
Data aggregation methods	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No new exploration results are announced within this report.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No new exploration results are announced within this report.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	The relevant sections within the report illustrate the orientation of drilling with respect to interpreted mineralisation orientation, while the interpreted orientation of the mineralisation is also discussed in the report.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being	Refer to Figures in body of text

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	reported These should include, but not be limited to a plan view of drill	
	hole collar locations and appropriate sectional views.	
	Where comprehensive reporting of all Exploration Results is not	
Balanced reporting	practicable, representative reporting of both low and high grades	No new exploration results are announced within this report.
bulanced reporting	and/or widths should be practiced to avoid misleading reporting of	
	Exploration Results.	
	Other exploration data, if meaningful and material, should be reported	
	including (but not limited to): geological observations; geophysical	
Other substantive	survey results; geochemical survey results; bulk samples – size and	No new exploration results are announced within this report.
exploration data	method of treatment; metallurgical test results; bulk density,	·
	groundwater, geotechnical and rock characteristics; potential	
	deleterious or contaminating substances.	
	The nature and scale of planned further work (e.g. tests for lateral	
	extensions or depth extensions or large-scale step-out drilling).	
Further work	Diagrams clearly highlighting the areas of possible extensions, including	No new exploration results are announced within this report.
	the main geological interpretations and future drilling areas, provided	
	this information is not commercially sensitive.	

# Section 3 Estimation and Reporting of Mineral Resources

Criteria	Explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	The Drillhole database is managed in-house by company geologists using Maxwell's Datashed Data Management System.  It has been validated by several company geologists and database administrators and believed to be correct at the time of this report.  Data has been imported from Current and Historical data files. Source data for historical drilling has been verified as being drilled by Adelaide Resources Limited and imported directly

		into Datashed.
	Data validation procedures used.	Datashed has in-built validation routines which validates geological and analytical data before being accepted into the database. It has also been validated by several company geologists and database administrators and believed to be correct at the time of this report.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	All competent persons mentioned within this report employed by Adelaide Resources Limited have been closely involved in recent drilling programs including supervision and as such have visited the site on numerous occasions.
	If no site visits have been undertaken indicate why this is the case.	N/A
	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The weathering interpretation and surfaces have been based on logged weathering and are considered satisfactory for the purposes of this MRE. No specific geological interpretation or model has been provided by ADR for review, although this is not considered to be material given the mineralisation is interpreted to be structurally controlled.
Geological interpretation	Nature of the data used and of any assumptions made.	Logging of weathered state has been used to generate weathering surfaces.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	MP briefly reviewed the applicability of a shallower dip to the mineralisation. Although this was equally as valid as the current model in places, the continuity was not as robust. The volumetric differences between the two models on each section have been deemed to not be material.
	The use of geology in guiding and controlling Mineral Resource estimation.	The weathering interpretation has been used to guide the

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	The factors affecting continuity both of grade and geology.	segregation of the mineralisation into primary and supergene zones, which have been treated separately in the estimation.  As the host lithology is relatively homogenous, this has not been used to guide the primary mineralisation interpretation.  The mineralisation at Barns is controlled by a North-South striking structural dilation zone along the main footwall fault.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource	The Barns Resource has an extent of 500 m (north), 250 m (east) and 250 m (RL).
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	The resource database has been flagged with unique mineralisation domain codes as defined by the mineralisation wireframes and then composited into 1 m lengths using the best fit algorithm in Vulcan. The composites have been analysed in Snowden's Supervisor software for the internal grade distribution and the existence of extreme values and if present, top-cuts by domain have been applied.  Variography has been undertaken on grouped domains, by oxidation position, ie Primary and Supergene lodes.  Variogram orientations have been largely controlled by the strike and dip of the mineralisation. Primary mineralisation has been split between a steep zone (-70) and a flat zone (-40), with the variograms rotated to account for these changes in dip.  The estimation of gold has been undertaken using the Ordinary Kriging method in three interpolation passes with each subsequent pass using an increased search ellipse size and a decreased minimum number of samples required to populate a block with grade.  Final grade estimates have been validated by statistical

	analysis and visual comparison to the input de-clustered composite data.
The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No previous MRE's had been completed at the Barns deposit.
The assumptions made regarding recovery of by-products.	No assumptions have been made regarding recovery of any by-products.
Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements have been estimated.
In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The drillhole spacing varies from 25 m (northing) by 25 m (easting) to 50 m (northing) by 50 m (easting).  A block model has been created in Vulcan V10 modelling Software with a parent block size of 5 m (X) by 25 m (Y) by 5 m (Z) and sub-blocks down to 1 m (X) by 5 m (Y) by 1 m (Z), with the sub-blocks estimated inside the parent block. The block size is considered appropriate for the drill-hole spacing.  Pass 1 estimations have been undertaken using a minimum of 6 and a maximum of 16 samples into a search ellipse 50 m x 15 m x 10 m (direction 1, direction 2, direction 3) in size for all domains. A maximum of two samples per drill-hole has been used as an additional constraint.  Pass 2 estimations have been undertaken using a minimum of 4 and a maximum of 16 samples into a search ellipse 100 m x 30 m x 20 m (direction 1, direction 2, direction 3) in size for all domains. A maximum of two samples per drill-hole has been used as an additional constraint.  Pass 3 estimations have been undertaken using a minimum of 2 and a maximum of 16 samples into a search ellipse 200 m x 60 m x 40 m (direction 1, direction 2, direction 3) in size for all domains.

	Any assumptions behind modelling of selective mining units.	No selective mining units are assumed in this estimate.
	Any assumptions about correlation between variables	No assumptions about correlations between variables have
		been made.
	Description of how the geological interpretation was used to control the	Drillhole sample data have been flagged using domain codes
	resource estimates.	generated from three dimensional mineralisation domains.
		Sample data has been composited to a one metre downhole
		length using a best fit-method. Intervals with no assays have
		been excluded from the compositing routine.
	Discussion of basis for using or not using grade cutting or capping.	The influence of extreme sample distribution outliers has been
		reduced by top-cutting where required. The top-cut levels
		have been determined on a domain by domain basis using a
		combination of top-cut analysis tools (grade histograms, log
		probability plots and CVs).
	The process of validation, the checking process used the comparison of	Final grade estimates have been validated by statistical
	model data to drillhole data, and use of reconciliation data if available.	analysis and visual comparison to the input de-clustered
		composite data. This validation has been completed on a
		global scale and through the use of swath plots on 10
		increments in the X, Y and Z direction.
Moisture	Whether the tonnages are estimated on a dry basis or with natural	The tonnes are estimated on a dry basis.
woisture	moisture, and the method of determination of the moisture content.	
	The basis of the adopted cut-off grade(s) or quality parameters applied	The Barns Deposit MRE has been reported at a cut-off grade of
Cut-off parameters		0.5 g/t gold, which is considered appropriate for the likely
		open pit mining method.
	Assumptions made regarding possible mining methods, minimum mining	It has been assumed that open pit mining methods will be
	dimensions and internal (or, if applicable, external) mining dilution. It is	employed to exploit the Barns Deposit.
	always necessary as part of the process of determining reasonable	No assumptions have been made on mining widths, dilution or
Mining factors or	prospects for eventual economic extraction to consider potential mining	recoveries have been made during the MRE process.
assumptions	methods, but the assumptions made regarding mining methods and	
·	parameters when estimating Mineral Resources may not always be	
	rigorous. Where this is the case, this should be reported with an	
	explanation of the basis of the mining assumptions made.	

Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical	No metallurgical factors or assumptions have been made during the MRE process.
Environmental factors or assumptions	should be reported with an explanation of the basis of the metallurgical assumptions made.  Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions	No environmental factors or assumptions have been made during the MRE process.
Bulk density	made  Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	A total of 255 bulk density determinations have been undertaken at Barns on either historical or recent drillholes. Average values have been calculated from the complete dataset and coded to the MR block model based on the oxidation/weathering state and lithologies in the area
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit,  Discuss assumptions for bulk density estimates used in the evaluation	Bulk density measurements were calculated by water displacement method and provided by ADR for the purpose of the MRE.  Not applicable.
Classification	process of the different materials.  The basis for the classification of the Mineral Resources into varying confidence categories	Classification of the Mineral Resource estimate is based primarily on drill density along with the kriging variance and slope of regression for estimated blocks.
	Whether appropriate account has been taken of all relevant factors (i.e.	The classification takes into account the relative contributions

	relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	of geological and data quality and confidence, as well as grade confidence and continuity.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The classification reflects the view of the Competent Person.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This Mineral Resource estimate for Barns has not been audited by an external party.
Discussion of relative accuracy/confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used	The statement relates to global estimates of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available	No production data exists for the Barns deposit.