

# ASX announcement

25 JUNE 2015

## Exploration Update – Alford, South Australia

Argonaut Resources NL (ASX: ARE) (*Argonaut* or the *Company*) is pleased to announce results of drilling recently undertaken at the Alford tenement by its partner, Sandfire Resources NL.

### Highlights

- Drill hole ALDDH027: 10.4m at 66.6g/t silver and 0.28% copper from 217m
- Drill hole ALDDH027: 3.9m at 1.19% copper from 287m

### Alford, South Australia (Argonaut 100%)

The Alford Project on South Australia's Yorke Peninsula lies 20km north-east of Wallaroo within the geological province known as the Olympic Domain. The tenement is prospective for iron oxide copper-gold mineralisation as found at Prominent Hill, Olympic Dam and Hillside.

Mineralisation at the Netherleigh Park prospect is interpreted to be comparable to skarn-style mineralisation rather than IOCG.

### Exploration Program

Argonaut's partner, Sandfire Resources NL (ASX: SFR), completed a two-hole, 750m diamond drilling program at the Netherleigh Park area on the Alford licence.

Sandfire geophysically modelled the magnetic and gravity from the Netherleigh Park area and sited the drill holes on the basis of these models and existing drill data. Drill hole ALDDH027 targeted a down-dip extension of mineralisation intercepted by Argonaut in drill hole ALDDH04 (Figure 1).

Assays of samples for the drilling completed in April 2015 reported the intercepts shown in Table 1.

**Table 1 Significant drill intercepts.**

Hole	Width down hole (m)	Depth from	Cu (%)	Ag (ppm)	Core recovery (%)	Comment
ALDDH026	5	131	0.11		99	
ALDDH027	10.04	180	0.32	6.69	93	Core loss of 0.7 m between 187 and 189m
ALDDH027	10.37	216.9	0.28	66.64	70	Core loss of 0.4m between 216.9 and 217.6m and 2.3m between 222.3 and 225.7m
ALDDH027	12.3	258.3	0.09	6.67	93	Core loss of 1m between 259.5 and 261.6m
ALDDH027	3.9	287.3	1.19	6.7	87	Core loss of 0.6m between 287.3 and 289.2m

Sampling was hampered by significant core loss in mineralised zones. Core loss occurs when drilling through zones of incompetent rock. The drilling process pulverises weak rock leaving gaps in the core sample. It is not clear whether lost core contained elevated or depleted levels of copper and silver mineralisation.

Argonaut Resources NL  
ABN 97 008 084 848

**Registered Office**  
Suite 4, Level 9  
341 George Street  
Sydney, NSW, 2000, Australia  
T +61 2 9299 9690  
F +61 2 9299 9629  
E sydney@argonautresources.com

**Adelaide Office**  
Level 1  
63 Waymouth Street  
Adelaide, SA, 5000, Australia  
T +61 8 8231 0381  
F +61 8 8231 6092  
E adelaide@argonautresources.com

## Previous Exploration Results

Argonaut previously reported the following drill intercepts from Netherleigh Park:

- ALDDH01: 76m at 0.95% copper from 138m;
- ALDDH04: 20m at 0.75% copper from 131m;
- ALDDH09: 122m at 0.63% copper from 95m including 14m at 2.26% from 111m; and
- ALDDH10: 98m at 0.64% copper from 138m.

These previous drill intercepts relate to both copper oxide and copper sulphide mineralisation and were reported under the JORC Code 2004.

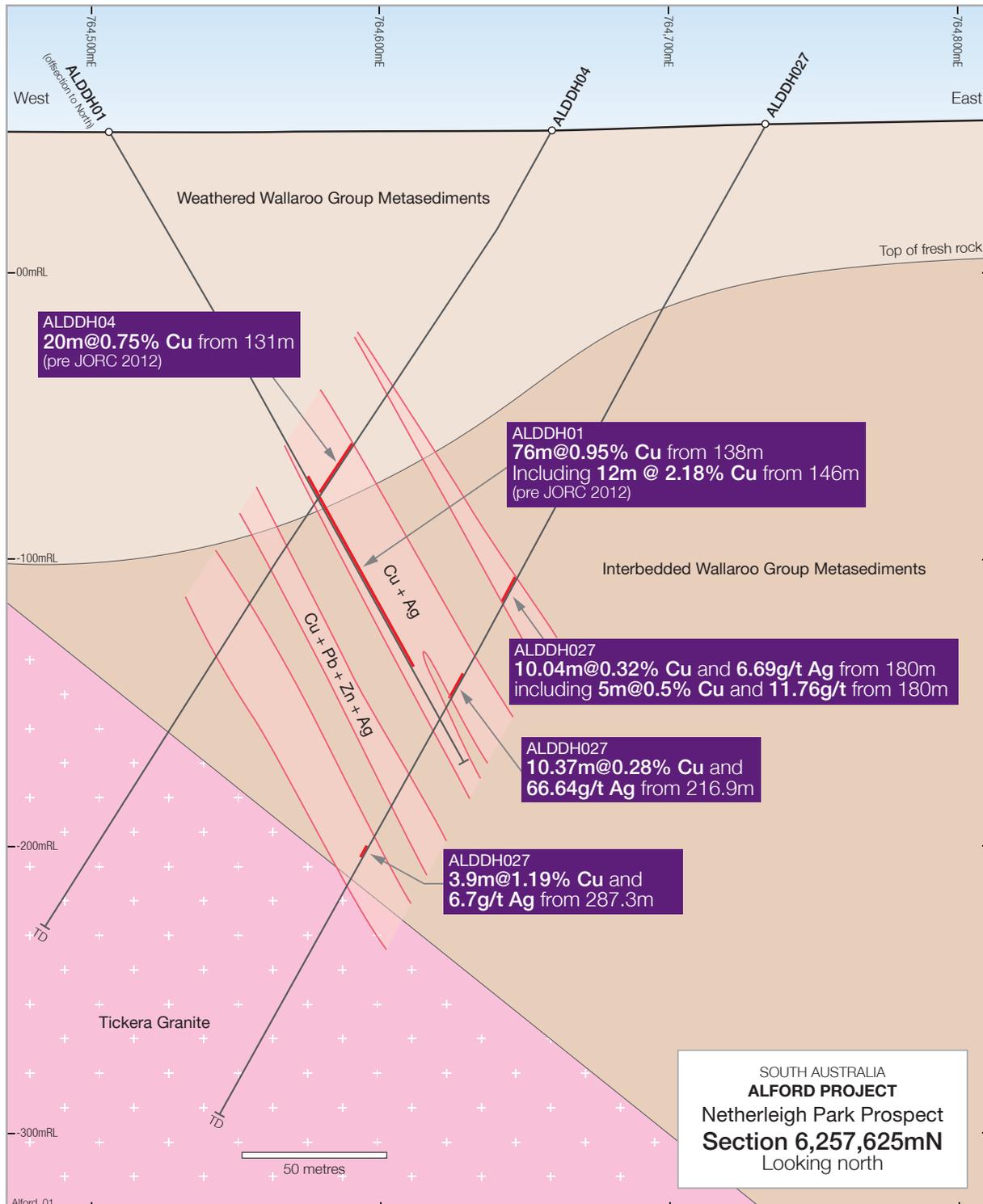


Figure 1 Netherleigh Park cross section.

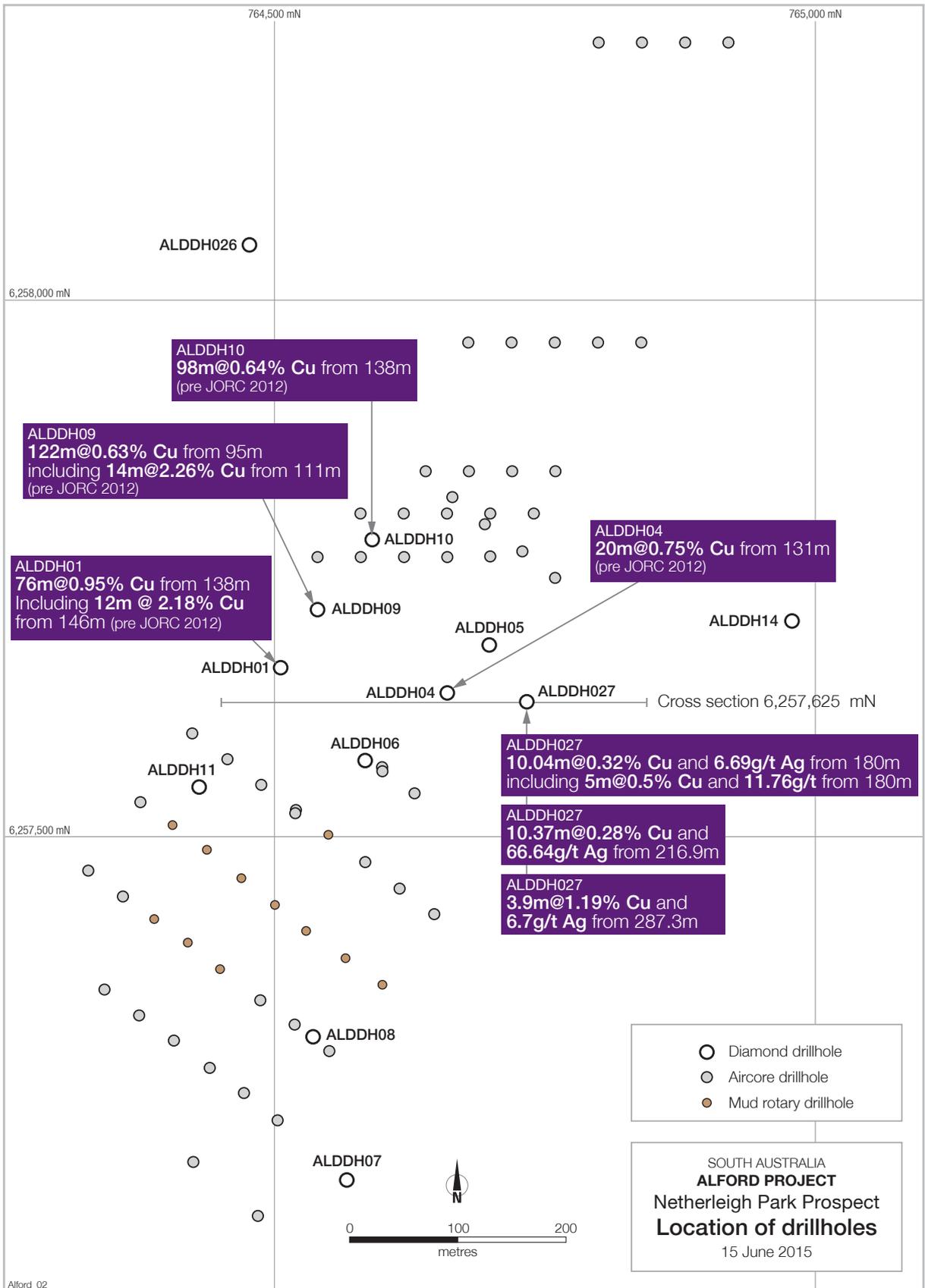


Figure 2 Netherleigh Park prospect drill collar locations.

### Alford Farm-in Joint Venture

On 9 November 2012, Argonaut announced it had signed a farm-in joint venture letter agreement with Sandfire Resources NL for the exploration of the Company's 100% owned exploration licence 5212 (previously EL3969), Alford, on the Yorke Peninsula in South Australia.

Under the terms of the letter agreement, Sandfire may earn a 49% interest in the Alford tenement by sole funding \$4,000,000 of exploration within three years (the First Earn-in).

In the event conditions of the First Earn-in are satisfied, Sandfire has the right to either form a joint venture with Argonaut's subsidiary, Kelaray Pty Ltd, to jointly explore the tenement or to proceed to earn an additional 26% interest in the project by spending a further \$4,000,000 on exploration within an additional three years (the Second Earn-in).

### Lindsay Owler

Director and CEO

Argonaut Resources NL

*Sections of information contained in this report that relate to Exploration Results were compiled or supervised by Mr Lindsay Owler BSc, MAusIMM who is a Member of the Australasian Institute of Mining and Metallurgy and is a full time employee of Argonaut Resources NL. Mr Owler holds shares and options in Argonaut Resources NL, as described on page 9 of the Company's 2014 Annual Report. Mr Owler has sufficient experience which is relevant to the style of mineral deposits 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 Mineral Resources and Ore Reserves". Mr Owler consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.*

*The information regarding previous drilling at Netherleigh Park is extracted from reports entitled 'Significant copper-silver intersections from drilling programme at EL3037, Alford, South Australia' and 'Drilling results for Alford reveal board copper zones' created on 2 May 2003 and 15 March 2011 respectively, and is available to view on [www.asx.com.au](http://www.asx.com.au). The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.*

# Appendix 1

## Alford Project – 2015 drill intercepts.

East	North	Dip	Azimuth	Total Depth	From	To	Interval	Cu (%)	Ag (ppm)	Pb (%)	Zn (%)	U (ppm)
764475.6	6258050	-59	89	304.90	63.40	65.50	2.10		49.20			
					111.00	112.00	1.00	0.21				
					126.00	127.00	1.00	0.13				
					131.00	136.00	5.00	0.11				
					138.00	139.00	1.00	0.13				
					147.65	148.60	0.95					52
					223.00	225.30	2.30	0.14				
					225.30	226.00	0.70					62
					292.06	295.00	2.94					54
					296.57	298.00	1.43					56
					301.95	302.97	1.02					57
764733.4	6257625	-59	269	394.60	108.00	109.00	1.00				0.19	
					123.90	126.50	2.60	0.11				
					175.00	176.00	1.00	0.10				
					178.00	182.00	4.00	0.36	11.19			414
					180.00	190.04	10.04	0.32	6.69			168
					180.00	185.00	5.00	0.50	11.76			321
					200.00	202.00	2.00					53
					210.96	212.01	1.05	0.17				51
					216.90	227.27	10.37	0.28	66.64			
					220.00	228.50	8.50	0.30	32.64			
					240.10	241.47	1.37	1.42	5.86			
					258.30	268.90	10.60	0.09	6.67	0.34	0.22	
					270.60	275.00	4.40				0.17	
					283.30	284.65	1.35	0.14				
					287.30	294.60	7.30	0.73	4.12			
					287.30	291.20	3.90	1.19	6.70			
					298.40	302.50	4.10	0.38				
					317.99	318.97	0.98	0.14				
					332.22	333.20	0.98	0.21				
					341.98	344.00	2.02	0.45				
					383.75	384.99	1.24					

### Notes

Calculated using 0.1% Cu lower cut threshold, no upper cut threshold, maximum 3 metres internal dilution

Analysis by ALS - Methods to check

Coordinate System: MGA94, Zone 53

NSI = No Significant Intercepts

DD = Diamond Core intercept

# JORC Code, 2012 Edition – Table 1

## Section 1 Sampling Techniques and Data – Alford Project

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <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 (e.g. 'reverse circulation drilling was used to obtain 1m samples from which 3kg was pulverised to produce a 30g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>The Netherleigh Park prospect was sampled using diamond drill holes. A total of two drill holes were drilled for a total of 699.50 metres.</li> <li>Diamond drillcore only was sampled. Drillcore was logged for lithology, weathering, alteration, mineralisation and structure. Sampling was conducted as half core (NQ and HQ) for visibly mineralised intervals with an appropriate buffer into the unmineralised country rock. Sampling followed SFR protocols and industry best practice QA/QC procedures.</li> <li>Drillcore sampled on nominal 1 metre intervals which varied with respect to lithological and geological boundaries in mineralised zones. A general 2 metre maximum sample length outside mineralized zones, also varied with respect to lithological and geological boundaries.</li> <li>Samples were dried, crushed (~5mm), split up to 1.2kg, pulverised and pulp taken for four acid digest followed by ICP-AES / ICP-MS (multi-element) or Aqua Regia/AAS (Au) finish.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>Diamond core only, NQ with HQ collars. HQ and NQ drillcore was oriented using an Ezy Mark orientation tool.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <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> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Drillcore recoveries are logged per drilling run, overall core recoveries greater than 90%.</li> <li>Drillcore reconstructed on angle iron for run length measurement against driller's blocks, orientation lines and recording of driller's breaks.</li> <li>Diamond drillcore has moderately high recoveries with some core loss recorded. Zones of core loss noted in the drill hole log.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Drillcore has been logged for geological (lithology, mineralisation, alteration) and geotechnical (alpha/beta angles, RQD, recovery) information, all data is stored in a database and or spreadsheets.</li> <li>All holes are logged and photographed.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <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> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>All drillcore was cut in half using core saws at ALS Pooraka, and half core (HQ and NQ size) collected for sampling, ensuring the same side of the drillcore was consistently sampled.</li> <li>Samples were prepared at and crushed to 85% &lt;5mm with a 1.2kg subsample split (rotary and riffle) for pulverising to 85% &lt;75µm. Regular sizing checks were undertaken and reported.</li> <li>Sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>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.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Samples were submitted to a four acid digest (sulphuric, nitric, perchloric and hydrofluoric) and Inductively Coupled Plasma (ICP) finish.</li> <li>• QA/QC procedures include a chain of custody protocol, systematic submittal of 10 to 20% QA/QC samples including duplicates, field blanks and externally sourced certified reference samples into the flow of samples submitted to the laboratory.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>• <i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li>• <i>The use of twinned holes.</i></li> <li>• <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Significant intersections are reported by ARE and checked by SFR.</li> <li>• No drill holes have been twinned.</li> <li>• Data entry and verification is undertaken by SFR following an established protocol into software, all data is stored in a digital database and regularly backed-up.</li> <li>• No statistical adjustments to data have been applied.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>• <i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drill hole locations have been surveyed by averaged Garmin GPS measurements, down hole surveys were collected every 30 metres using a down hole survey instrument by Ranger Surveys.</li> <li>• Appropriate QC procedures were applied to verify down hole surveys.</li> <li>• The grid system for the Alford Project is UTM GDA94, Zone 53.</li> <li>• All GPS collar locations corrected to SRTM.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Wide spaced exploration drilling.</li> <li>• No resources or reserves reported.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Interpretation undertaken at prospect scale to refine gross structural fabric and thus to drill perpendicular to the structural orientation.</li> <li>• No orientation based bias had been identified in the data to this point.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The chain of custody for sample dispatch was implemented and is as follows: <ul style="list-style-type: none"> <li>– Polywoven bags containing samples, labelled, sealed with cable ties and weighed.</li> <li>– Sample dispatch shipments were delivered to the sample preparation laboratory and the sample dispatch form signed and returned with a confirmation of the cable tie seals in place and the delivery of all samples within each batch.</li> </ul> </li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Visits and review of the laboratory at ALS Pooraka were conducted by senior personnel.</li> </ul>

## Section 2 Reporting of Exploration Results – Alford Project

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Exploration Licence, 5212, Glenrae, approximately 70km south of Port Pirie, South Australia. Current expiry date is 4/11/2015. Prior to expiry an application for renewal of term will be submitted to DSD Tenements. Kelaray Pty Ltd holds 100% of the licence (100% subsidiary of Argonaut Resources NL). Sandfire Resources has an earn in joint venture. Project located on freehold land.</li> <li>No known impediments.</li> </ul>
Exploration done by other parties	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Jododex/St Joe/NBH/Uranerz (1980s) – Regional augering, geophysical surveys, RAB and diamond drilling. Drilling at Netherleigh Park area (Drill hole PB09).</li> <li>MIM (1990s – early 2000s) – geophysical surveys, surface geochemical surveys, RC and diamond drilling. Drilling at Netherleigh Park area (Drill holes MPBD03, MPB05-09).</li> <li>Kelaray (2002 – 2003) – Diamond drilling and ground magnetic survey. Drilling at Netherleigh Park area (Drill holes ALDDH01 and ALDDH04).</li> <li>Hillgrove (2003 – 2009) – Diamond, mud rotary and aircore drilling geophysical surveys, surface geochemical surveys. Drilling at Netherleigh Park area (Drill holes ALDDH05 – 08 plus shallow AC drilling).</li> <li>Kelaray (2010 – 2012) – Diamond and aircore drilling, geophysical surveys. Drilling at Netherleigh Park area (Drill holes ALDDH09 – 11 plus shallow AC drilling).</li> <li>Sandfire (2012 – present) – Diamond and aircore drilling, geophysical surveys. Drilling at Netherleigh Park area (AC drilling).</li> </ul>
Geology	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>Style of mineralisation targeted is IOCG style, Cu +/- Au, Ag, REE and U.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <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: <ul style="list-style-type: none"> <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> </ul> </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 style="list-style-type: none"> <li>See Table – Alford Project Drill holes</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>Length-weighted average grades reported. No upper limit has been applied to copper grades in these exploration results.</li> <li>A cut-off grade of 0.1% Cu and a maximum internal dilution of 3m (down hole width) are used as a guideline when delineating the drilled thickness intervals of mineralisation.</li> <li>All metal grades reported are single element.</li> </ul>

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>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').</i></li> </ul>	<ul style="list-style-type: none"> <li>• Down hole length, true width not known.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Refer to figures within report.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All results reported.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>• <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></li> </ul>	<ul style="list-style-type: none"> <li>• There is no outstanding exploration data considered material that has not been previously reported or is not contained within this report.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Further geological interpretation and structural analysis to be completed on these prospects. Target testing contingent on positive interpretation.</li> <li>• All future exploration work is commercially sensitive and will not be released to the market until results are available.</li> </ul>