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ASX/Media Release **17 April 2014**

SANDFIRE INCREASES HIGH GRADE MINERAL RESOURCE

ADDITION OF 29,000t COPPER AND 41,000oz GOLD NET OF MINING DEPLETION

Mineral Resource	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine	10.2	5.4	2.1	554,000	676,000
Open pit - Stockpiles	2.8	1.2	1.0	33,000	88,000
March 2014 - Total	**13.0**	**4.5**	**1.8**	**588,000**	**764,000**

- **Mineral Resource increase driven by extensions to the C1, C4 and DeGrussa lenses delineated by recent diamond drilling.**
- **The additional high-grade underground Inferred Mineral Resource will be incorporated into the DeGrussa Ore Reserve and Mine Plan in the second half of CY2014.**
- **A total of 93,000 tonnes of copper and 134,000oz of gold has now been added from successful near-mine extensional exploration and underground drilling in 2013 and Q1 of 2014.**

Sandfire Resources NL (ASX**: SFR**: "Sandfire") is pleased to report an increased Mineral Resource for its 1.5Mtpa DeGrussa Copper-Gold Mine in Western Australia.

As at 31 March 2014, the total Mineral Resource at DeGrussa comprised **13.0 million tonnes grading 4.5% Cu and 1.8g/t Au for 588,000 tonnes of contained copper and 764,000oz of contained gold**. This includes a Mineral Resource for the DeGrussa Underground Operations comprising **10.2 million tonnes grading 5.4% Cu and 2.1g/t Au for 554,000 tonnes of contained copper and 676,000oz of contained gold**.

An additional 29,000 tonnes of contained copper and 41,000oz gold has been added to DeGrussa's Underground Mineral Resource (after mining depletion to the end of March 2014), with the additional Mineral Resource to be incorporated into the DeGrussa Ore Reserve and Mine Plan later this year. Depletion totalled 75,000 tonnes of contained copper and 72,000 ounces of gold for the 12 months to 31 March 2014.

The previously published Mineral Resource (In Situ and stockpiles) stated as at 31 March 2013 was 13.4 million tonnes grading 4.7% Cu and 1.9g/t Au for 634,000 tonnes of contained copper and 795,000oz of contained gold, of which 10.2 million tonnes grading 5.7% Cu and 2.1g/t Au for 586,000 tonnes of contained copper and 688,000oz of contained gold related to Underground Operations.

The increase in tonnage and contained metal has come from the successful underground drilling programs targeting extensions to existing mineralisation in the C1, C4 and DeGrussa lenses. Drilling of the C4 lens commenced in the first half of CY2014 as planned, undertaken from underground drilling positions that are more practical and more efficient given the depth of these ore bodies.

50% of the Underground Mineral Resource is classified as Measured and is at a mining ready state. Of the total resource only 25% of the resource tonnes remain as Inferred, with planned in-fill drilling of the C4 and C5 lenses to be completed in the coming year to upgrade the category of these resources.




Ore Reserve and Mine Plan Update

The Ore Reserve and Mine Plan will be updated later this year once drilling is advanced in and around the C4 and C5 lenses.

The Company continues to incorporate the Inferred Mineral Resource from Conductor 4 and 5 into its Mine Plan due to the geological continuity and high copper grade nature of these deposits.

Management Comment

Sandfire's Managing Director, Mr Karl Simich, said the further increase in the high-grade underground Mineral Resource inventory was a significant and pleasing achievement.

"We have added almost 100,000 tonnes of contained copper and over 130,000 ounces of contained gold to our high-grade underground Mineral Resource inventory since underground mining commenced at DeGrussa," he said.

"We are continuing both grade control drilling and exploration drilling targeting near-mine extensions of the deeper deposits – including areas where isolated high-grade intercepts were returned at the time of their discovery which require follow up.

"Established underground drill platforms will enable us to target these highly prospective zones as well as additional prospective areas down-dip and along strike from the known lenses.

"We are looking forward to this next phase of deep exploration at DeGrussa. Together with surface exploration along the broader prospective mine corridor, both on our 100%-owned tenements and under the new joint venture with Talisman Mining, we believe this will unlock the next chapter of growth for Sandfire."

JORC Compliance Statement for Underground Mineral Resources

A summary of the information used in this release is as follows.

The DeGrussa VHMS (volcanic-hosted massive sulphide) copper-gold deposit is located 900 kilometres north of Perth and 150 kilometres north of Meekatharra in the Peak Hill Mineral Field. The system is hosted within a sequence of metasediments and mafic intrusions situated in the Bryah Basin that have been metamorphosed and structurally disrupted.

The sulphide mineralisation consists of massive sulphide and semi-massive sulphide mineralisation. Primary sulphide minerals present are pyrite, chalcopyrite, pyrrhotite and sphalerite, together with magnetite. The sulphide mineralisation is interpreted to be derived from volcanic activity. The deposit shares characteristics with numerous VHMS deposits worldwide.

DeGrussa is located wholly within Mining Lease 52/1046. This tenement is subject to the Yugunga-Nya (WC99/046) and Gingirana Claims (WC06/002). A Land Access Agreement was executed with both claimant groups in November 2010. Sandfire is required to make royalty payments to the State and affected Native Title Claimants on a periodical basis.

Drilling of the DeGrussa massive sulphide lens (of which there are four defined lenses of mineralisation) and surrounding area is by diamond drill holes of NQ2 diameter core and, to a lesser extent, by Reverse Circulation (RC) face sampling hammer drilling. The nominal drill-hole spacing is less than 80m x 40m in the inferred areas of the resource and increases in density as the classification increases to measured where nominal 13m x 20m drill hole spacing is achieved. Drilling has been by conventional diamond drilling with a small number holes aided by the use of navigational drilling tools. RC drilling was completed with a nominal 140mm face sampling hammer and split on a cone or riffle splitter. Drill-hole collar locations were surveyed using RTK GPS, and all holes were down-hole surveyed using high speed gyroscopic survey tools.

Sampling of diamond core was based on geological intervals (standard length 0.5 m to 1.3 m). The core was cut into half or quarter (NQ2) to give sample weights up to 3 kg. RC samples were 1.0m samples down-hole, with sample weights between 3.5kg and 7kg depending on material type. Field quality control procedures involved assay standards, along with blanks and duplicates. These QC samples were inserted at an average rate of 1:15.

The sample preparation of diamond core involved oven drying, coarse crushing of the core sample down to ~10 mm followed by pulverisation of the entire sample to a grind size of 90% passing 75 micron. A pulp sub-sample was collected for analysis by either four acid digest with an ICP/OES, ICP/MS (multi element) finish or formed into fused beads for XRF determination on base metals and a fire assay for Au.

All reported assays have been length weighted. No top-cuts have been applied. A nominal 0.3% Cu lower cut-off is applied. High grade intervals internal to broader zones of sulphide mineralisation are reported as included intervals.

The attitude of the ore bodies at DeGrussa is variable but there is a dominant southerly dip from ~40 to 90 degrees flat-lying and is drilled to grid west with drill holes inclined between -60 and -90 degrees. As such the dominant hole direction is north and with varying intersection angles all results are clearly defined as either down hole or approximate true width.

Density of the massive sulphide orebody ranges from 2.8g/cm^3 to 4.9g/cm^3, with an average density reading of 3.7g/cm^3. Geotechnical and structural readings recorded from diamod drilling include recovery, RQD, structure type, dip, dip direction, alph and beta angles, and descriptive information. All data is stored in the tables Oriented Structure, Geotechnical RQD, Core Recovery, Interval Structure as appropriate.

A suite of multi-element assays are completed on each mineralised sample and include all economic and typical deleterious elements in copper concentrates. This suite includes Cu, Au, Ag, Zn, Pb, S, Fe, Sb, Bi, Cd and As.

Open Pit Mineral Resources are quoted on a historical model and as such are compliant with the JORC 2004 guidelines.

ENDS

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Competent Person's Statement – Mineral Resources
The information in this report that relates to Mineral Resources is based on information compiled by Mr. Ekow Taylor who is a Member of The Australasian Institute of Mining and Metallurgy. Mr. Taylor is a permanent employee of Sandfire Resources and has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Taylor consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Forward-Looking Statements
Certain statements made during or in connection with this statement contain or comprise certain forward-looking statements regarding Sandfire's Mineral Resources and Reserves, exploration operations, project development operations, production rates, life of mine, projected cash flow, capital expenditure, operating costs and other economic performance and financial condition as well as general market outlook. Although Sandfire believes that the expectations reflected in such forward-looking statements are reasonable, such expectations are only predictions and are subject to inherent risks and uncertainties which could cause actual values, results, performance or achievements to differ materially from those expressed, implied or projected in any forward looking statements and no assurance can be given that such expectations will prove to have been correct. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, delays or changes in project development, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in metals prices and exchange rates and business and operational risk management. Except for statutory liability which cannot be excluded, each of Sandfire, its officers, employees and advisors expressly disclaim any responsibility for the accuracy or completeness of the material contained in this statement and excludes all liability whatsoever (including in negligence) for any loss or damage which may be suffered by any person as a consequence of any information in this statement or any error or omission. Sandfire undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events other than required by the Corporations Act and ASX Listing Rules. Accordingly you should not place undue reliance on any forward looking statement.

Exploration and Resource Targets
Any discussion in relation to the potential quantity and grade of Exploration Targets is only conceptual in nature. While Sandfire is confident that it will report additional JORC compliant resources for the DeGrussa Project, there has been insufficient exploration to define mineral resources in addition to the current JORC compliant Mineral Resource inventory and it is uncertain if further exploration will result in the determination of additional JORC compliant Mineral Resources.

Appendix 1 – Mineral Resource

DeGrussa Mine – Underground Mineral Resource		as at 31 March 2014						as at 31 March 2013				
Deposit	**Resource category**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**	**Resourcec ategory**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**
DeGrussa	Measured	1.1	8.0	2.5	89,000	90,000	Measured	1.0	7.4	2.3	73,000	72,000
	Indicated	<0.1	2.2	0.7	1,000	1,000	Indicated	0.4	9.4	2.4	34,000	28,000
Conductor 1	Measured	3.6	5.5	2.0	196,000	233,000	Measured	1.3	6.5	2.2	86,000	92,000
	Indicated	1.4	4.2	1.8	60,000	81,000	Indicated	3.7	5.1	1.9	190,000	231,000
	Inferred	0.2	4.1	1.9	7,000	10,000	Inferred	0.2	4.6	1.8	11,000	14,000
Conductor 4	Measured	0.4	3.9	1.7	15,000	22,000	Measured	-	-	-	-	-
	Indicated	1.0	4.7	1.8	48,000	58,000	Indicated	1.0	5.3	1.8	54,000	59,000
	Inferred	0.9	4.9	1.7	45,000	50,000	Inferred	1.1	4.4	1.7	48,000	60,000
Conductor 5	Inferred	1.4	6.2	2.8	88,000	129,000	Inferred	1.4	6.2	2.8	88,000	129,000
Stockpiles	Measured	0.1	4.2	1.1	5,000	4,000	Measured	<0.1	7.9	3.0	2,000	3,000
	Measured	**5.2**	**5.9**	**2.1**	**305,000**	**348,000**	**Measured**	**2.3**	**6.9**	**2.2**	**161,000**	**167,000**
	Indicated	**2.5**	**4.4**	**1.8**	**109,000**	**139,000**	**Indicated**	**5.1**	**5.4**	**1.9**	**278,000**	**318,000**
	Inferred	**2.5**	**5.6**	**2.3**	**140,000**	**189,000**	**Inferred**	**2.8**	**5.3**	**2.3**	**147,000**	**203,000**
	Total	**10.2**	**5.4**	**2.1**	**554,000**	**676,000**	**Total**	**10.2**	**5.7**	**2.1**	**586,000**	**688,000**

DeGrussa Mine – Open Pit Mineral Resource		as at 31 March 2014						as at 31 March 2013				
Deposit	**Resource category**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**	**Resourcec ategory**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**
Conductor 1	Indicated	-	-	-	-	-	Indicated	0.1	3.9	1.8	2,000	3,000
Stockpiles	Measured	2.8	1.2	1.0	33,000	88,000	Measured	3.1	1.5	1.1	45,000	104,000
	Measured	**2.8**	**1.2**	**1.0**	**33,000**	**88,000**	**Measured**	**3.1**	**1.5**	**1.1**	**45,000**	**104,000**
	Indicated	**-**	**-**	**-**	**-**	**-**	**Indicated**	**0.1**	**3.9**	**1.8**	**2,000**	**3,000**
	Inferred	**-**	**-**	**-**	**-**	**-**	**Inferred**	-	-	-	-	-
	Total	**2.8**	**1.2**	**1.0**	**33,000**	**88,000**	**Total**	**3.1**	**1.5**	**1.1**	**48,000**	**108,000**

Appendix 1 – Mineral Resource (continued)

DeGrussa Mine - Total Mineral Resource	as at 31 March 2014						as at 31 March 2013					
Deposit	**Resourceca tegory**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**	**Resourcec ategory**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**
DeGrussa	Measured	1.1	8.0	2.5	89,000	90,000	Measured	1.0	7.4	2.3	74,000	72,000
	Indicated	<0.1	2.2	0.7	1,000	1,000	Indicated	0.4	9.4	2.4	34,000	28,000
Conductor 1	Measured	3.6	5.5	2.0	196,000	233,000	Measured	1.3	6.5	2.2	86,000	92,000
	Indicated	1.4	4.2	1.8	60,000	81,000	Indicated	3.8	5.1	1.9	192,000	234,000
	Inferred	0.2	4.1	1.9	7,000	10,000	Inferred	0.3	4.6	1.8	12,000	15,000
Conductor 4	Measured	0.4	3.9	1.7	15,000	22,000	Measured	-	-	-	-	-
	Indicated	1.0	4.7	1.8	48,000	58,000	Indicated	1.0	5.3	1.8	54,000	59,000
	Inferred	0.9	4.9	1.7	45,000	50,000	Inferred	1.1	4.4	1.7	48,000	60,000
Conductor 5	Inferred	1.4	6.2	2.8	88,000	129,000	Inferred	1.4	6.2	2.8	88,000	129,000
Stockpiles	Measured	2.9	1.2	1.0	38,000	92,000	Measured	3.1	1.5	1.1	47,000	107,000
	Measured	**8.0**	**4.2**	**1.7**	**338,000**	**436,000**	**Measured**	**5.4**	**3.8**	**1.6**	**206,000**	**271,000**
	Indicated	**2.5**	**4.4**	**1.8**	**109,000**	**139,000**	**Indicated**	**5.2**	**5.4**	**1.9**	**280,000**	**321,000**
	Inferred	**2.5**	**5.6**	**2.3**	**140,000**	**189,000**	**Inferred**	**2.8**	**5.3**	**2.3**	**148,000**	**203,000**
	Total	**13.0**	**4.5**	**1.8**	**588,000**	**764,000**	**Total**	**13.4**	**4.7**	**1.9**	**634,000**	**795,000**

JORC 2012 MINERAL RESOURCE PARAMETERS
DEGRUSSA COPPER MINE

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases 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.*	• The deposit was sampled by a combination of surface and underground diamond drill (DD) and surface reverse circulation (RC) holes. • Sampling is guided by Sandfire DeGrussa protocols and QAQC procedures as per industry standard. • DD samples include both half-core and quarter-core samples of NQ2 core size and RC samples are collected by a cone or riffle splitter using a face sampling hammer with a nominal 140mm hole. • DD sample size reduction is completed through a Jaques jaw crusher to -10mm and all samples Boyd crushed to -4mm and pulverised via LM2 to nominal 90% passing -75µm. Pulp size checks are completed. • Underground drilling is prepared by the onsite Bureau Veritas laboratory that combines and fuses 0.4g of assay sample plus 9.0g flux into a glass bead.

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).*	• The deposit was initially sampled by a combination of surface diamond drill (DD) and reverse circulation (RC) holes totalling 58,622m DD and 22,072m RC used in Definitive Feasibility Study (DFS).
		• Subsequence to the DFS, an additional 93,350m of NQ2 DD drilling have been completed for the Mineral Resource update of Conductor 1, DeGrussa, Conductor 4 and Conductor 5 lodes comprising:
		  o 83,750m of UG NQ2 DD grade control drilling,
		  o 8,400m of UG Resource Definition and Extensional (ResDef) drilling and
		  o 6,200m of Surface ResDef drilling
		• All surface drill collars are surveyed using RTK GPS with downhole surveying, except on shallow RC holes by gyroscopic methods.
		• All underground drill collars are surveyed using Trimble S6 electronic theodolite. Downhole survey is completed by gyroscopic downhole survey.
		• Holes are inclined at varying angles for optimal ore zone intersection.
		• All core where possible is oriented using a Reflex ACT II RD orientation tool with stated accuracy of +/-1% in the range 0 to 88°.

Criteria	JORC Code Explanation	Commentary
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.*	• Diamond core recovery is logged and captured into the database with weighted average core recoveries greater than 98%. Surface RC sampling is good with almost no wet sampling in the mine area. • Core is meter marked and orientation to check against the driller's blocks, ensuring that all core loss is taken into account. • At the RC rig sampling systems are routinely cleaned to minimise the opportunity for contamination and drilling methods are focused on sample quality. • Samples are routinely weighed and captured into the central secured database. • No sample recovery issues have impacted on potential sample bias.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Geological logging is completed for all holes and representative across the ore body. The lithology, alteration, and structural characteristics of core are logged directly to a digital format following standard procedures and using Sandfire DeGrussa geological codes. Data is imported into the central database after validation in LogChief™. • Logging is both qualitative and quantitative depending on field being logged. • All cores are photographed. • All DD and RC drill holes are fully logged.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Core orientation is completed where possible and all are marked prior to sampling. Half core samples are produced using Almonte Core Saw. Samples are weighed and recorded. Some quarter core samples have been used and statistical test work has shown them to be representative. • RC samples are split using a cone or riffle splitter. • A majority of RC samples are dry. On the occasion that wet samples are encountered, they are dried prior to splitting with a riffle splitter. • Underground and open pit sample preparation at the onsite laboratory involves the original sample being dried at 80° for up to 24 hours and weighed on submission to laboratory. Sample is then crushed through Jaques crusher to nominal -10mm (DD samples only). A second stage crushing uses Boyd crusher to nominal -4mm (both RC and DD samples). Sample is split to less than 2kg through linear splitter and excess retained for for metallurgical work. Sample splits are weighed at a frequency of 1/20 and entered into the job results file. Pulverising is completed using LM2 mill to 90% passing 75%µm. Pulp fines test is completed at a minimum of 1 per batch. 1.5kg of rock quartz is pulverised at every 10th sample. Two lots of packets are retained for on-site laboratory services whilst the pulverised residue is shipped to Ultra Trace in Perth for further analysis. • Sample preparation at Ultra Trace involves the sample being dried at 80° for up to 24 hours and weighed. DD samples are then crushed through a Jaques crusher to nominal -10mm. Second stage crushing uses Boyd crusher to a nominal -4mm. All RC

Criteria	JORC Code Explanation	Commentary
		samples are Boyd crushed to -4mm. Samples are then split to less than 2kg through linear splitter and excess retained. Sample splits are weighed at a frequency of 1/20 and entered into the job. Pulverising is completed using LM5 mill to 90% passing 75%µm. Size at a minimum of 1 per batch. 1.5kg of rock quartz is pulverised at every 10th sample. • Sandfire DeGrussa has protocols that cover auditing of sample preparation at the laboratories and the collection and assessment of data to ensure accurate steps in producing representative samples for the analytical process. Key performance indices include contamination index of 90% (that is 90% blanks pass); Crush Size index of P95-10mm; Grind Size index of P90-75µm and Check Samples returning at worse 20% precision at 95% confidence interval and bias of 5% or better. • Duplicate analysis has been completed and identified no issues with sampling representatively. • Test work on half-core versus quarter-core has been completed with results confirming that sampling at either core size is representative of the in situ material. • The sample size is considered appropriate for the Massive Sulphide mineralization style.
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Samples submitted to the onsite laboratory have 0.4g of sample plus 9.0g flux combined and fused into a glass bead. XRF is used to analyse for a suite of elements (including Cu, Fe, SiO2, Al, Ca, MgO, P, Ti, Mn, Co, Ni, Zn, As, and Pb). Pulps are dispatched to Ultra Trace in Perth for ICPOES or ICPMS for extended elements (including Cu, Fe, As, Pb, S, Zn, Fe, Ag, Sb, Bi, Cd, Cl, F, and Hg). Au, Pt, and Pd analysed by Inductively Coupled Plasma (ICP) Optitical Emission Spectrometry on a 40g assay charge (assay charge is variable depending on Sulphur content). • Samples submitted to Ultra Trace in Perth are assayed using Mixed 4 Acid Digest (MAD) 0.3g charge and MAD Hotbox 0.15g charge methods with ICPOES or ICPMS. The samples are digested and refluxed with a mixture of acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric acids and conducted for multi elements including Cu, Pb, Zn, Ag, As, Fe, S, Sb, Bi, Mo, Re, Mn, Co, Cd, Cr, Ni, Se, Te, Ti, Zr, V, Sn, W and Ba. The MAD Hotbox method is an extended digest method that approaches a total digest for many elements however some refractory minerals are not completely attacked. The elements S, Cu, Zn, Co, Fe, Ca, Mg, Mn, Ni, Cr, Ti, K, Na, V are determined by ICPOES, and Ag, Pb, As, Sb, Bi, Cd, Se, Te, Mo, Re, Zr, Ba, Sn, W are determined by ICPMS. Samples are analysed for Au, Pd and Pt by firing a 40g portion of the sample. Au, Pd and Pt are determined by ICPOES. Lower sample weights are employed where samples have very high S contents. • Handheld XRF units are used as grade control tools to delineate ore boundaries and grades in the field and for exploration for alteration minerals. These units are fit for this

Criteria	JORC Code Explanation	Commentary
		purpose. Handheld XRF results are not used in the Mineral Resource estimation. • Sandfire DeGrussa QAQC protocol is considered industry standard with standard reference material (SRM) submitted on regular basis with routine samples. • SRMs and blanks are inserted at a minimum of 5% frequency rate. A minimum of 2% of assays are routinely re-submitted as Check Assays and Check Samples through blind submittals to external and the onsite primary laboratories respectively. Umpire checks are completed on quarterly basis. • QAQC data returned is automatically checked against set pass/fail limits within SQL database and are either passed or failed on import. On import a first pass automatic QAQC report is generated and sent to QAQC Geologists for recommended action.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Significant intersections have been verified by alternative company personnel. • There are no twinned holes drilled for the DeGrussa Mineral Resource. • Primary data are captured on field tough book laptops using Logchief™ Software. The software has validation routines and data is then imported into a secure central database. • The primary data is always kept and is never replaced by adjusted or interpreted data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Sandfire DeGrussa Survey team undertakes survey works under the guidelines of best industry practice. • All surface drill collars are accurately surveyed using RTK GPS system within +/-50mm of accuracy (X, Y, Z) with no coordinate transformation applied to the picked up data. • There is a GPS base station on site that has been located by a static GPS survey from two government standard survey marks (SSM) recommended by Landgate. Downhole survey completed by gyroscopic downhole methods at regular intervals. • Underground drilling collar surveys are carried out using Trimble S6 electronic theodolite and wall station survey control. Re-traverse is carried out every 100 vertical meters within main decline. Downhole surveys are completed by gyroscopic downhole methods at regular intervals. • MGA94 Zone 50 grid coordinate system is used. • A 1m ground resolution DTM with an accuracy of 0.1m was collected by Digital Mapping Australia using LiDAR and a vertical medium format digital camera (Hasselblad). The LiDAR DTM and aerial imagery were used to produce a 0.1m resolution orthophoto that has been used for subsequent planning purposes.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• No Exploration Results included in this release. • Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC 2012 classifications applied. • Samples have been composited to optimal density weighted 1m lengths prior to geostatistical analysis and Mineral Resource estimation.

Criteria	JORC Code Explanation	Commentary
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The majority of the drillholes are orientated to achieve intersection angles as close to perpendicular to the mineralisation as practicable. • No significant sampling bias occurs in the data due to the orientation of drilling with regards to mineralised bodies.
Sample security	• *The measures taken to ensure sample security.*	• All samples are prepared onsite under the supervision of Sandfire Geological staff. • Samples are transported to the Perth Ultra Trace laboratory by Toll IPEC or Nexus transport companies in sealed bulka bags. • The onsite laboratory receipts received samples against the sample dispatch documents and issues a reconciliation report for every sample batch. • Laboratory dumps the excess material (residue) after 30 days unless instructed otherwise. • Laboratory returns all pulp samples within 60 days.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The sampling techniques and data collection processes are of industry standard and have been subjected to multiple internal and external reviews. Cube Consulting Pty completed a review during 18th - 20th February 2014 and found procedures to be consistent with industry standard and appropriate with minor recommendations for enhancement as part of continuous improvement.

Section 2: Not applicable

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code 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.* • *Data validation procedures used.*	• Sandfire employs SQL as the central data storage system using Datashed software front end. User access to the database is regulated by specific user permissions. Only the Database Manager can overwrite data. • Existing protocols maximise data functionality and quality whilst minimising the likelihood of error introduction at primary data collection points and subsequent database upload, storage and retrieval points. • Data templates with lookup tables and fixed formatting are used for collecting primary data on field Toughbook laptops. The software has validation routines and data is subsequently imported into a secure central database. • An IT contracting company is responsible for the daily Server backups of both the source file data on the file server and the SQL Server databases. The selected SQL databases are backed up to disk with "Backup Exec" each day and then transferred to tape for long term storage. This allows for a full recovery in the event of disaster. • The SQL server database is configured for optimal validation through constraints, library tables, triggers and stored procedures. Data that fails these rules on import is rejected or quarantined until it is corrected. • Database is centrally managed by a Database Manager who is responsible for all aspects of data entry, validation, development, quality control and specialist queries. There is a standard suite of vigorous validation checks for all data.
Site Visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Competent Person for this Mineral Resource update undertakes regular site visits.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Interpretation is based on geological knowledge acquired through data acquisition from the open pit and underground workings, including detailed geological core and chip logging, assay data, underground development face mapping of orebody contacts and in-pit mapping. This information increases confidence in the interpretation of the deposit. • Interpretations have been completed using all available geological logging data from diamond core and reverse circulation drilling. • Interpreted fault planes have been used to constrain the wireframes where applicable. • All development drives are mapped and surveyed and interpretation adjusted as per ore contacts mapped. • Wireframes are constructed using cross sectional interpretations based on logged massive sulphides in combination with Cu, Fe and S analyses. • The geological interpretation of minerlised boundaries are considered robust and alternative interpretations do not have the potential to impact significantly on the

Criteria	JORC Code Explanation	Commentary
		Mineral Resources. Ongoing site and coporate peer reviews, and external reviews, ensure that the geological interpretation is robust. • Interpretation has been based on logged massive sulphide in combination with Cu, Fe and S assays. These wireframes models are used as hard boundaries during the Mineral Resource estimation. Wireframes are also terminated at known faults. • The primary sulphide mineralisation consists of very continuous massive sulphide to semi-massive sulphide. Discrete lenses of mineralization external to the massive sulphide occasionally occur within Chlorite Alteration zones which may contain thin lenses of massive sulphides. Gold is associated with the chalcopyrite rich phases and occurs as a high silver electrum. • Orebodies have either pinched out or are truncated by faults. • Conductor 1, Conductor 4 and Conductor 5 were once a continuous unit but subsequently fragmented by the Shiraz and Merlot faults.
Dimensions		• All known DeGrussa deposit mineralisation extends from 733500mE to 734785mE, 7172965mN to 7173590mN and 650m below surface. • The DeGrussa sulphide lode generally strikes towards NE with a strike length of approximately 210m, dipping very steeply towards the south with a SSE subtle plunge and having a vertical extent of about 200m. • The Conductor 1 lode lies north of DeGrussa and generally strikes NE dipping generally at 70° to the SW. It has a strike length of about 400m with a vertical extent of 370m plunging to SE at about 15°. • Conductor 4 lenses lie to the east of DeGrussa and Conductor1 lodes and are stratigraphically deeper. Strike length is up to 510m with dips varying between 35°- 45° to the SE and a vertical extent of 3500m • Conductor 5 lenses are east of Conductor 4 and have strike length up to 280m meter strike length dipping at about 45° to the south-southwest, and a vertical extent of 370m.

Criteria	JORC Code Explanation	Commentary
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 availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Block estimation has been completed within Datamine™ Studio 3 Resource Modelling software. Three dimensional mineralisation wireframes were completed within Surpac™ and Micromine™ software and imported into Datamine™. These wireframes are used as hard boundaries for the interpolation. • Ordinary Kriging using a local dynamic anisotropy search is used for block grade estimates using uniquely coded 1m composite data for respective lodes. • All block estimates are based on interpolation into parent blocks. Parent block estimates are then assigned to sub-blocks. Mineral Resource estimation does not include any form of dilution. • Block model extends from 733,250mE to 735,250mE, 7,172,850mN to 7,173,750mN and vertical from1, 700mRL to 2,800mRL. Elements estimated include Cu, Au, Ag, Fe, S, Pb, and Zn. • Thorough univariate statistical analysis of density weighted, 1m, mineralogy flagged, downhole composites has been completed for all elements and for all lodes and top-cuts established where applicable. • 1m composites are extracted with minimum passing of 70% and best fit such that no residuals are created. • Variogram modelling was completed within Snowden Supervisor™ software and used to define the characterization of the spatial continuity of all elements within all lodes and parameters used for the interpolation process. Variogram model are cross-validated to ensure parameters are accurate. • Quantitative kriging neighborhood analysis (QKNA) using the goodness of fit statistics to optimize estimation parameters has been undertaken. Parameters optimised include block size, search parameters, number of samples (minimum and maximum) and block descritization. • Ordinary krigged Mineral Resource estimates are checked against an alternate inverse distance weighting estimates, reconciled with previous estimates, checked against conditional simulations and reconciled production data. • No assumptions were made regarding recovery of by-products during the Mineral Resource estimates. • Estimates includes deleterious or penalty elements Pb, Bi, Zn, As, MgO as well as Magnetic Susceptibility and Pyrite: Pyrrhotite ratio for metallurgical modelling. • QKNA indicates parent block sizes of X (5m) by Y (5m) by Z (5m) to be suitable for the closed spaced drilling areas where drillhole ore intercept spacing varies from 0.2m to 45m averaging 6m. Within ResDef areas parent block sizes of X (10m) by Y (10m) by Z (10m) were found to be adequate for drillhole intercept spacing varying from 8m to 90m averaging at 30m. Parent blocks were sub-blocked to X (1m) by Y (1m) by Z (1m) ensuring high resolution at ore boundaries when filling wireframes with blocks taking

Criteria	JORC Code Explanation	Commentary
		into consideration orebody geometry. • Directional ranges have been determined from variogram modelling and are used to constrain the search distances used in block interpolation, incorporating geologists' interpretation of ore geometry and continuity. Estimation search strategies implemented have sought to ensure robust estimates while minimising conditional bias. Three search estimation runs are used with initial short-search runs extending the sample influence in later runs. • Grade restriction applied during interpolation is as capping. • No selective mining units were assumed in this estimate • Within the massive sulphides there is a good and consistent correlation between Fe and S and bulk density which has been analysed separately for all lodes using multiple regression to fit the density, Fe and S relationship. The regressed formula is then applied to block model estimated Fe and S to assign the estimated block bulk density value.
		• The geological interpretation wireframes correlate with massive sulphide minerlisation boundaries. The block model has been assigned unique mineralisation zone codes that corresponds with the geological domain as defined by wireframes. Geological interpretations are used as hard boundaries during interpolation where blocks are estimated only with composites having the corresponding zone code. • Standard model validation has been completed using visual and numerical methods and formal peer review sessions by key geology staff. • Mineral Resource Model has been validated visually against the input composite/raw drillhole data with sufficient spot checks carried out on a number of block estimates on sections and plans. • Easting, northing and elevation swath plots have been generated to check input composited assay means for block estimates within swath windows. Ordinary krigged estimates have also been checked against an alternate inverse distance weighting estimates within the same swath windows. • A comparison of block volume weighted mean versus the drillhole cell de-clustered mean grade of the composited data was undertaken. • Efficiency models using block Kriging Efficiencies (KE) and Slope of Regression (ZZ) were used to quantitatively measure estimation quality to ensure the desired level of quality of estimation. • Conditional simulations were tested for Condutor 1 and DeGrussa lodes and used to check on the Mineral Resource estimate. • The Mineral Resource model has been checked against reconciliation data and results are favourable.

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Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• Based upon data review a notional lower cut-offs of 0.3% Cu for Oxides Copper and 1.0% Cu for Massive Sulphides appear to be a natural grade boundary between ore and trace assay values.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining 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.*	• The upper portion of the DeGrussa deposit was mined by open pit completed in two stages. The approximate dimensions of the open pit at completion were 600m length, 500m wide and 140m deep. Mining comprised of conventional backhoe excavator methods with ore being mined in 5m benches on 2.5m flitches. • The underground mining method is long-hole open stoping (both transverse and longitudinal) with minor areas of jumbo cut and fill or uphole benching in some of the narrower areas. The primary method of backfill will be paste fill. The sequence will aim for 100% extraction of the orebody. • Detailed mine plans are in place and mining is occurring.
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 assumptions made.*	• Sulphide mineralisation consists of massive sulphide, semi-massive sulphide and minor stringer zone mineralisation. Distinct iron sulphide mineralogy (and quantity) tends to define metallurgical response. Properties within the different ore types are relatively consistent across the ore bodies and appear to follow similar comminution parameters and flotation responses. The sulphide minerals are amenable to recovery by flotation. The dominant valuable component is copper, which is contained predominantly in chalcopyrite with minor assemblages of chalcocite mineralisation. • Assumptions are based on DFS metallurgical test work and ongoing monitoring of the DeGrussa processing plant ramp up. • Target recovery is 90% of Cu.
Environmental factors or assumptions	• *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 made.*	• The DeGrussa project is constructed with a fully lined Tailings Storage Facility and all Sulphide material mined from the operation will be processed in the concentrator, eliminating any PAF on the waste dumps.

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Bulk density	• *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.* • *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 process of the different materials.*	• Regular and systematic specific gravity measurements are taken on representative number of diamond drill core according to a formal protocol. This data is included in the database. Within the massive sulphides bulk density varies from 2.8 *g/cm^3* to 4.9 *g/cm^3*, with an average density reading of 3.7 *g/cm^3*. Average density of 2.8 is assigned to waste blocks. • Densities vary within the massive sulphides minerlisation and have consistent correlation with Fe and S. Regressed formula of density is used to calculate densities into blocks based on block estimated Fe and S. In areas of the deposit where there are limited Archimedean measurements regressed formula is based on downhole gamma gamma data (Conductor 4 and Conductor 5). The gamma data has been appropriately calibrated with Archimedean data. Archimedean data will replace downhole gamma when more measurements are taken from future drilling. • This is not a bulk project
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie 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).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• Mineral Resources have been classified into Measured, Indicated and Inferred categories 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 are used to control the Mineral Resource categorization. This process allows review of the geological control/confidence on the deposit. • Blocks classified as Measured are within areas having drill hole intercept spacing less than 20m by 20m and estimated with a minimum of 8 samples with no more than 4 samples from any single drillhole. • Indicated Mineral Resources are blocks within areas with drill hole intercept spacing of less than 40m by 40m, estimated with minimum 6 samples with no more than 4 samples from a single drillhole. • Mineral Resource classification has appropriately taken into account data spacing, distribution, reliability, quality and quantity. Confidence in predicting grade continuity, geological confidence and estimation quality have also been taken into account. • The geological model and Mineral Resource estimation reflect the Competent Person's view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Database system has been subjected to an external JORC compliant audit. • The process for geological modelling, estimation and reporting of Mineral Resources is industry standard and has been subject to an independent external review. Cube Consulting Pty undertook a review during 18th - 20th February 2014 and found the process to be industry standard.

Criteria	JORC Code Explanation	Commentary
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 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.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Mineral Resources has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves and reflects the relative accuracy of the Mineral Resources estimates. • The statements relates to global estimates of tonnes and grade. • Conditional Simulations has been used to test the relative accuracy and confidence of the Mineral Resource estimates. • Reconcilled production data verse Mineral Resource estimate is positive. With estimated copper grade and contained metal within 5% variance of production, it is felt that the Mineral Resource estimate is reliable.