ASX Announcement **14 April 2016**

DEGRUSSA MINE PLAN, MINERAL RESOURCE AND ORE RESERVE UPDATE

Maiden C5 ore reserve and updated mine plan cements mine life to 2021

Highlights

- **Updated DeGrussa Mine Plan to 2021:**
  - 8.1Mt grading 4.4% Cu and 1.7g/t Au for 357,000t of contained copper and 443,000oz of contained gold;
  - Mine production maintained at 1.6Mtpa rates; and
  - Mine development reducing.
- **Updated DeGrussa Underground Mineral Resource:**
  - 7.8Mt grading 5.7% Cu and 2.1g/t Au for 443,000t of contained copper and 536,000oz of contained gold; and
  - Updated based on mining depletion, sterilisation and resource definition drilling.
- **Maiden Ore Reserve reported for the Conductor 5 deposit:**
  - 1.8Mt grading 4.5% Cu and 2.1g/t Au for 83,000t of contained copper and 123,000oz of contained gold.
- **DeGrussa Ore Reserve update based on mining depletion and sterilisation as at 31 December 2015 – 10.8Mt grading 3.6% Cu and 1.5g/t Au for 388,000t of contained copper and 525,000oz of contained gold:**
  - Underground Ore Reserve (including UG ore on surface stockpiles) – 8.0Mt grading 4.4% Cu and 1.7g/t Au for 353,000t of contained copper and 441,000oz of contained gold; and
  - Open Pit Ore Reserve (stockpiled at surface) – 2.8Mt grading 1.2% Cu and 1.0g/t Au for 35,000t of contained copper and 84,000oz of contained gold.

Sandfire Resources NL (ASX**: SFR**, "Sandfire") is pleased to announce an updated Mine Plan, Mineral Resource and Ore Reserve as at 31 December 2015 for the 1.6 Mtpa DeGrussa Copper-Gold Mine.

The updated DeGrussa Mine Plan, Mineral Resource and Ore Reserve includes the DeGrussa, Conductor 1, Conductor 4 and Conductor 5 lenses, underpinning the mine life of the DeGrussa operation through until 2021. The updated Mineral Resource statement excludes the recently discovered Monty deposit, for which a maiden Indicated and Inferred Mineral Resource of 1.05Mt grading 9.4% Cu and 1.6g/t Au for 99,000t of contained copper and 55,000oz of contained gold was announced yesterday (*see ASX Announcement of 13 April 2016*).

Mine Plan

The Mine Plan is Sandfire's internal plan which schedules forecasted production parameters, operating and capital works programs. It is developed with the assistance of both internal Sandfire employees and external consultants and includes both Mineral Resources and Ore Reserves.

Table 1 below compares the DeGrussa Mine Plan to the stated Mineral Resource and Ore Reserve by key output and mining tonnes (refer Appendix 1 for full details of the Mineral Resource and Ore Reserve).

The Company continues to incorporate Inferred Mineral Resources from portions of Conductor 1 and Conductor 5 into its Mine Plan process due to the geological continuity and high copper grade tenor of these deposits.

A zone of mineralisation associated with Conductor 5 adjacent to the Shiraz and Merlot Faults and the water-bearing dolomite unit has not been included in the Mineral Resource, Ore Reserve or Mine Plan. Further diamond drilling is required to assess the extent and nature of this mineralisation and the potential for mining. It is planned for this drilling to occur in early 2017 following commissioning of the Conductor 5 pump station.

Table 1 – December 2015 Comparison of the Underground Mine Plan, Mineral Resource and Ore Reserve

DeGrussa Underground Mine	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Mine Plan	8.1	4.4	1.7	357,000	443,000
Ore Reserve	8.0	4.4	1.7	353,000	441,000
Mineral Resource	7.8	5.7	2.1	443,000	536,000

DeGrussa Underground Mine by Orebody	Tonnes (Mt)	Stockpiles (Mt)	DG (Mt)	C1 (Mt)	C4 (Mt)	C5 (Mt)
Mine Plan	8.1	0.1	0.9	3.1	2.2	1.8
Ore Reserve	8.0	0.1	0.9	3.0	2.2	1.8
Mineral Resource	7.8	0.1	0.9	3.0	2.1	1.7

* Mine Plan and Ore Reserve include mining dilution and mining recovery.

Production has commenced from Conductor 4 with production rates planned to increase to the planned full rate of around 0.45Mtpa. Production from Conductor 5 is planned to commence in Q4 FY2016 with production rates increasing in FY2017.

The Mine Plan confirms underground mine production continuing at the current rate of 1.6 Mtpa. Mine development continues at around 6000m for FY2017, around 3000m for FY2018, and reduces to less than 1000m per year for the remainder of the Mine Plan.

FY2017 production is expected to be broadly in line with guidance previously provided for FY2016. Further guidance for FY2017 will be provided around the end of the June 2016 Quarter.

Mineral Resource Update

The DeGrussa Mineral Resource has been updated as at 31 December 2015 based on mining depletions, sterilisation and resource definition drilling, as set out in Table 2.

Table 2 – December 2015 Mineral Resource

DeGrussa Mineral Resource	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine	7.8	5.7	2.1	443,000	536,000
Stockpiles (Open Cut)	2.9	1.2	1.0	35,000	89,000
December 2015 – Total	**10.7**	**4.5**	**1.8**	**478,000**	**625,000**

Ore Reserve Update

Diamond drilling and mine planning work has progressed sufficiently for the maiden Conductor 5 Ore Reserve to be reported as part of the DeGrussa Ore Reserve. The Conductor 5 Ore Reserve is 1.8Mt grading 4.5% Cu and 2.1g/t Au for 83,000t of contained copper and 123,000oz of contained gold.

Ore Reserves have been updated based on the December 2015 Mineral Resource model and depletions as at 31 December 2015, as set out in Table 3.

Table 3 – December 2015 Ore Reserve

DeGrussa Mine Ore Reserve	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine	8.0	4.4	1.7	353,000	441,000
Stockpiles (Open Cut)	2.8	1.2	1.0	35,000	84,000
December 2015 – Total	**10.8**	**3.6**	**1.5**	**388,000**	**525,000**

JORC Compliance Statement for Underground Mineral Resources and Ore Reserves

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 Mineral 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/cm3 to 4.9g/cm3, with an average density reading of 3.7g/cm3. Geotechnical and structural readings recorded from diamond drilling include recovery, RQD, structure type, dip, dip direction, alpha 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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Appendix 1 – Ore Reserve and Mineral Resource

DeGrussa Mine - Underground As at 31 December 2015	Ore Reserve						Mineral Resource*					
Deposit	Reserve category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)	Resource category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
DeGrussa	Proved	0.9	5.8	2.0	54,000	58,000	Measured	0.8	7.2	2.3	59,000	61,000
	Probable	-	-	-	-	-	Indicated	<0.1	1.8	1.9	<1,000	1,000
							Inferred	<0.1	6.2	3.0	<1,000	<1,000
Conductor 1	Proved	2.8	3.9	1.5	108,000	136,000	Measured	2.7	5.0	1.9	135,000	164,000
	Probable	0.2	4.8	1.0	8,000	6,000	Indicated	0.2	5.7	1.6	10,000	10,000
							Inferred	0.1	4.3	0.7	5,000	2,000
Conductor 4	Proved	0.9	3.7	1.7	33,000	49,000	Measured	1.7	5.8	2.0	100,000	112,000
	Probable	1.3	4.9	1.6	61,000	64,000	Indicated	0.4	5.2	2.0	20,000	24,000
							Inferred	<0.1	4.5	1.7	1,000	2,000
Conductor 5	Proved	-	-	-	-	-	Measured	1.0	6.4	2.9	66,000	97,000
	Probable	1.8	4.5	2.1	83,000	123,000	Indicated	0.6	6.1	2.7	37,000	53,000
							Inferred	0.1	7.4	2.9	4,000	5,000
Stockpiles	Proved	0.1	4.4	1.3	6,000	5,000	Measured	0.1	4.4	1.3	5,000	5,000
	Proved	**4.7**	**4.2**	**1.6**	**201,000**	**248,000**	**Measured**	**6.4**	**5.7**	**2.1**	**366,000**	**439,000**
	Probable	**3.3**	**4.7**	**1.8**	**152,000**	**193,000**	**Indicated**	**1.2**	**5.6**	**2.3**	**67,000**	**88,000**
							Inferred	**0.2**	**5.1**	**1.5**	**10,000**	**9,000**
	Total	**8.0**	**4.4**	**1.7**	**353,000**	**441,000**	**Total**	**7.8**	**5.7**	**2.1**	**443,000**	**536,000**

DeGrussa Mine – Open Pit As at 31 December 2015	Ore Reserve						Mineral Resource*					
Deposit	**Reserve category**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**	**Resource category**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**
Stockpiles	**Proved**	2.8	1.2	1.0	35,000	84,000	**Measured**	2.8	1.2	1.0	35,000	84,000
	Probable						**Indicated**	0.2	0.2	1.1	<1,000	5,000
							Inferred	-	-	-	-	-
	Total	**2.8**	**1.2**	**1.0**	**35,000**	**84,000**	**Total**	**2.9**	**1.2**	**1.0**	**35,000**	**89,000**

DeGrussa Mine - Total As at 31 December 2015	Ore Reserve						Mineral Resource*					
Deposit	**Reserve category**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**	**Resource category**	**Tonnes (Mt)**	**Copper (%)**	**Gold (g/t)**	**Contained Copper (t)**	**Contained Gold (oz)**
DeGrussa	Proved	0.9	5.8	2.0	54,000	58,000	Measured	0.8	7.2	2.3	59,000	61,000
	Probable	-	-	-	-	-	Indicated	<0.1	1.8	1.9	<1,000	1,000
							Inferred	<0.1	6.2	3.0	<1,000	<1,000
Conductor 1	Proved	2.8	3.9	1.5	108,000	136,000	Measured	2.7	5.0	1.9	135,000	164,000
	Probable	0.2	4.8	1.0	8,000	6,000	Indicated	0.2	5.7	1.6	10,000	10,000
							Inferred	0.1	4.3	0.7	5,000	2,000
Conductor 4	Proved	0.9	3.7	1.7	33,000	49,000	Measured	1.7	5.8	2.0	100,000	112,000
	Probable	1.3	4.9	1.6	61,000	64,000	Indicated	0.4	5.2	2.0	20,000	24,000
							Inferred	<0.1	4.5	1.7	1,000	2,000
Conductor 5	Proved	-	-	-	-	-	Measured	1.0	6.4	2.9	66,000	97,000
	Probable	1.8	4.5	2.1	83,000	123,000	Indicated	0.6	6.1	2.7	37,000	53,000
							Inferred	0.1	7.4	2.9	4,000	5,000
Stockpiles	Proved	2.9	1.4	1.0	41,000	89,000	Measured	2.9	1.4	1.0	40,000	90,000
							Indicated	0.2	0.2	1.1	<1,000	5,000
	Proved	**7.5**	**3.1**	**1.4**	**236,000**	**332,000**	**Measured**	**9.2**	**4.4**	**1.8**	**401,000**	**523,000**
	Probable	**3.3**	**4.7**	**1.8**	**152,000**	**193,000**	**Indicated**	**1.4**	**5.0**	**2.2**	**68,000**	**94,000**
							Inferred	**0.2**	**5.1**	**1.5**	**10,000**	**9,000**
	Total	**10.8**	**3.6**	**1.5**	**388,000**	**525,000**	**Total**	**10.7**	**4.5**	**1.8**	**478,000**	**625,000**

* Calculations have been rounded to the nearest 1000 t, 0.1 % Cu grade and 1000 t Cu metal, 0.1 g/t Au grade, 1000 oz Au metal, differences may occur due to rounding.

JORC 2012 MINERAL RESOURCE AND ORE RESERVES PARAMETERS
DEGRUSSA COPPER MINE

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	*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 downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	• The deposit is sampled by a combination of surface and underground (UG) diamond drill (DD) and surface reverse circulation (RC) holes. • DD sampling 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.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	• Sampling is guided by Sandfire DeGrussa protocols and Quality Control (QC) procedures as per industry standard.
	Aspects of the determination of mineralisation that are Material to the Public Report.	• The determination of mineralisation is based on observed amount of sulphides and lithological differences.
	In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	• DD sample is first crushed through a Jaques jaw crusher to -10mm, then Boyd crushed to -4mm and pulverised via LM2 to nominal 90% passing -75µm. RC samples are only Boyd crushed to -4mm and pulverised to 90% passing -75µm. • A 0.4g assay charge is combined and fused into a glass bead with 9.0g flux for XRF analysis. A 40g charge is used for Fire 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).*	• The deposit was initially sampled by a combination of surface DD and RC holes totalling 58,622m and 22,072m respectively that were used in the Definitive Feasibility Study (DFS). • Subsequent to the DFS drilling, an additional 206,250m have been completed for the Mineral Resource update of Conductor 1, DeGrussa, Conductor 4 and Conductor 5 lodes comprising of ○ 169,750m of UG NQ2 DD grade control drilling, ○ 26,586m of UG Resource Definition and Extensional (ResDef) drilling, ○ 6,200m of Surface ResDef drilling and ○ 3,714m of UG Geotech drilling. • All surface drill collars are surveyed using RTK GPS with downhole surveying by gyroscopic methods except shallow RC holes. • 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°.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	• 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.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	• Core is meter marked and orientated 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 database.
	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.	• No sample recovery issues have impacted on potential sample bias.
Logging Sub-sampling techniques and sample preparation	*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.*	• Geological logging is completed for all holes and is 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™.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	• Logging is both qualitative and quantitative depending on the field being logged. • All cores are photographed.
	The total length and percentage of the relevant intersections logged.	• All DD and RC drill holes are fully logged.
	If core, whether cut or sawn and whether quarter, half or all core taken.	• 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.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	• 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.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	• Sample preparation at the onsite laboratory involves weighing and drying the original sample at 80° for up to 24 hours. All DD Samples are then crushed through Jaques crusher to nominal -10mm (for DD sample

		only) followed by a second stage crushing through Boyd crusher to nominal -4mm. RC samples are only Boyd crushed to -4mm. Sample is split to less than 2kg through linear splitter and excess retained 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 1:20. A 1.5kg of rock quartz is pulverised at rate of 1:20 samples. Two lots of packets are retained for the onsite laboratory services whilst the pulverised residue is shipped externally to Bureau Veritas laboratory in Perth for further analysis. • Sample preparation at the Bureau Veritas laboratory in Perth involves weighing and drying the original sample at 80° for up to 24 hours. DD samples are first crushed through a Jaques crusher to nominal -10mm. Second stage crushing is through Boyd crusher to a nominal -4mm. All RC samples are only Boyd crushed to -4mm. Sample is 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. Grind size checks are completed at a minimum of 1 per batch. 1.5kg of rock quartz is pulverised at every 1:10 sample.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	• 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. • Weekly on-site laboratory audits are completed to ensure the laboratory conforms to standards. • Additional grind size checks are completed via Umpire Checks.
	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.	• 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.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	• The sample size is considered appropriate for the Massive Sulphide mineralisation 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.*	• At the onsite laboratory, a 0.4g sub-sample with 9.0g flux is fused into a glass bead. XRF method 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 Bureau Veritas laboratory 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). • Samples submitted to Bureau Veritas laboratory 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. • These analytical methods are considered appropriate for the mineralisation style.
	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.	• 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 purpose. Handheld XRF results are not used in the Mineral Resource estimation.
	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.	• Sandfire DeGrussa Quality Control (QC) 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. Additionally, Umpire Checks are completed on quarterly basis. • QC 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 QC report is generated and sent to QAQC Geologists for recommended action. Results of all QC samples for every laboratory batch received are analysed to determine assay accuracy and repeatability. • Only data that demonstrate sufficient accuracy and precision of assays are used for Mineral Resource updates.

Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	• Significant intersections have been verified by alternative company personnel.
	The use of twinned holes.	• There are no twinned holes drilled for the DeGrussa Mineral Resource.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	• 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.
	Discuss any adjustment to assay data.	• 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.*	• 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 onsite that has been located by a static GPS survey from two government standard survey marks (SSM) recommended by Landgate. Downhole survey is 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.
	Specification of the grid system used.	• MGA94 Zone 50 grid coordinate system is used.
	Quality and adequacy of topographic control	• 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.*	• No Exploration Results are included in this release.
	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.	• Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for the JORC 2012 classifications applied.
	Whether sample compositing has been applied.	• No sample compositing is applied during the sampling process.

Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• The majority of the drillholes are orientated to achieve intersection angles as close to perpendicular to the mineralisation as practicable.
	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	• 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.*	• Chain of custody of samples is being managed by Sandfire Resources NL. • Appropriate security measures are taken to dispatch samples to the laboratory. Samples are transported to the external laboratory by Toll IPEC or Nexus transport companies in sealed bulka bags. • The laboratory receipt 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.*	• Sandfire uses SQL as the central data storage system via Datashed™ software front end. User access to the database is regulated by specific user permissions. Only the Database Management team 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.
	Data validation procedures used.	• 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.*	• The Competent Person for this Mineral Resource update is a full time employee of Sandfire Resources NL and undertakes regular site visits.
	If no site visits have been undertaken indicate why this is the case.	• Sites visits are undertaken.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	• 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 the confidence in the interpretation of the deposit.

Criteria	JORC Code Explanation	Commentary
	Nature of the data used and of any assumptions made.	• All available geological logging data from diamond core and reverse circulation drilling are used for the interpretations. • 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 effect, if any, of alternative interpretations on Mineral Resource estimation.	• The geological interpretation of mineralised boundaries are considered robust and alternative interpretations do not have the potential to impact significantly on the Mineral Resources. Ongoing site and coporate peer reviews, and external reviews, ensure that the geological interpretation is robust.
	The use of geology in guiding and controlling Mineral Resource estimation.	• The interpreted mineralisation boundaries are used as hard boundaries during the Mineral Resource estimation.
	The factors affecting continuity both of grade and geology.	• Sandfire DeGrussa Copper Mine mineralisation style, chemistry and regional setting are consistent with volcanogenic sulphide style deposit. The primary sulphide mineralisation consists of massive sulphide, semi-massive sulphide and more rarely, stringer mineralisation. Gold is associated with the chalcopyrite rich phases and occurs as a high silver electrum. Mineralisation terminates at known faults.
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.*	• 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.*	• Mineral Resource estimation is completed within Datamine™ Studio 3 Resource Modelling software. Three dimensional mineralisation wireframes are completed within Surpac™ or Leapfrog™ software and then imported into Datamine™. • With the exception of Au, geostatistical ordinary kriging (OK) using dynamic local anisotropic search is used to estimate the Mineral Resource as it is considered appropriate given the nature of mineralisation and orebody configuration. • Gold is estimated using Indicator Kriging (IK). • The Mineral Resource database is uniquely flagged with mineralisation zone codes as defined by wireframe boundaries and then composited into density weighted 1m lengths and these are used for estimating the Mineral Resource. The composites are extracted with minimum passing of 70% and best fit such that no residuals are created. • Statistical and geostatistical analysis are undertaken within Snowden's Supervisor™ software. • Histograms, log-probability plots and mean variance plots are considered in determining the appropriate cut-offs for each mineralised zone. The points of inflexion in the upper tail of the distribution on the log-probability plots as well as their spatial distributions are examined to help identify outliers and decide on the treatments applied. High-grade cuts used are either as top-cuts or high grade spatial restriction or a combination of both. All grade values greater than the cut-off grade are set to the cut-off value (capped). • Variography studies includes analysing series of fans in three principal directions of horizontal, across-strike vertical and dip planes. The selected strike, plunge and dip directions are used to locate the three directions for which experimental variogram models are fitted. The nugget variance is modelled first by the use of down-hole variograms based on 1m lag, reflecting the downhole composite spacing. Variograms are estimated by fitting spherical models in the three principal directions using the nugget variance modelled for the same mineralised zone. • Quantitative Kriging Neighbourhood Analysis (QKNA) using the goodness of fit statistics to optimise estimation parameters is undertaken. • Elements estimated include Cu, Au, Ag, Fe, S, Pb, and Zn.

Criteria	JORC Code Explanation	Commentary
	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 new estimates have been checked against the previous estimates. • The current Mineral Resource takes into account mine production using wireframe of the mined out open pit outline and CMS data for underground mined out areas.
	The assumptions made regarding recovery of by-products.	• No assumptions are made regarding recovery of by-products during the Mineral Resource estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	• Estimates includes deleterious or penalty elements Pb, Bi, Zn, As, MgO as well as Pyrite:Pyrrhotite ratio for metallurgical modelling.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	• Estimation is based on interpolation into three dimensional parent blocks of sizes X=5m by Y=5m by Z=5m within close spaced (GC) drilling areas where ore body drillhole intercept spacing varies from 0.2m to 45m averaging at 6m. Within the ResDef areas, parent block sizes of X=10m by Y=10m by Z=10 are considered adequate for drillhole intercept spacing varying from 8m to 90m and averaging 30m. All parent blocks have been sub-blocked into X=1m by Y=1m by Z=1m sizes. Parent block evaluations are assigned to sub-blocks. • Given that the orientation of mineralisation varies considerably within the DeGrussa deposit and to preserve the orientation of mineralisation, "Dynamic Anisotropy" option of Datamine Studio3™ is used. This option, allows orienting the search volume precisely such that it follows the trend of the mineralisation. • Directional ranges are determined from variogram modelling and are used to constrain the search distances used in the block interpolation. To preserve local grade variation, the search neighborhood strategy implemented involves the use of three estimation search runs with initial short-search set to approximately 75% of the variogram range for the respective element and extending the sample influence in later runs. To estimate a block, data from more than one drillhole is used; a minimum of 6/8 and maximum 30 composites are used with no more than 4 composites from a single drill-hole. • High grade restriction is sometimes used to ensure that only blocks with centroids within a search radius corresponding to the first pass of a designated high-grade are estimated with composites including the high grades. Any block whose centroid is outside this limit is estimated with composites excluding the high grades.
	Any assumptions behind modelling of selective mining units.	• No selective mining units are assumed in this estimate.

Criteria	JORC Code Explanation	Commentary
	Any assumptions about correlation between variables.	• Within the massive sulphides there is a good and consistent correlation between Fe and S and 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 density value.
	Description of how the geological interpretation was used to control the resource estimates.	• The mineralogy interpretation wireframes correlate with the massive sulphide mineralisation boundaries. The block model is assigned unique mineralisation zone codes that corresponds with the mineralogical domain as defined by wireframes. The mineralogical interpretations are then used as hard boundaries during interpolation where blocks are estimated only with composites having the corresponding zone code.
	Discussion of basis for using or not using grade cutting or capping.	• Statistical analysis in conjunction with the examination of the spatial configuration of samples are used to assist in identifying outliers and decide on the treatments applied. High-grade cuts strategy used is either as a top-cut or high grade spatial restriction or a combination of both to minimise the smoothing of very high-grades in areas not supported by data.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• The process of validation includes standard model validation using visual and numerical methods: ○ The block model estimates are checked against the input composite/drillhole data with sufficient spot checks completed on sections and plans. ○ The block model estimated global means for each mineralised domain are checked against the declustered composite mean grades to ensure they are within acceptable variance. ○ Efficiency models using block Kriging Efficiencies (KE) and Slope of Regression (ZZ) are used to quantitatively check the estimation quality. ○ Swath plots of the estimated block grades and composite mean grades are generated by eastings, northings and elevations and reviewed to ensure acceptable correlation. ○ Peer reviews. • Reconciled production data verse Mineral Resource estimate is satisfactory.

Criteria	JORC Code Explanation	Commentary
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 and completed in two stages. The approximate dimensions of the open pit at completion were 600m length, 500m wide and 140m deep. Open pit mining comprised of conventional backhoe excavator methods with ore being mined in 5m benches on 2.5m flitches. • Primary mining methods employed are sub-level open stoping (SLOS) and long-hole open stoping (LHOS) with fill. Primary fill material is paste with minor use of cemented rock fill and rock fill when appropriate. • 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.

Criteria	JORC Code Explanation	Commentary
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.
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.*	• Water immersion is the current methodology used in the measurement of densities. Regular and systematic density 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. • To test the methodology and accuracy of the density measurements, regular samples constituting 20% of total measurements are submitted to an independent laboratory for measurements.
	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.	• The procedure used is suitable for non-porous or very low porosity samples, which can be quickly weighed in water before saturation occurs.

Criteria	JORC Code Explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials	• Densities vary within the massive sulphides mineralisation 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. • The host volcanic and sedimentary rocks are assigned an average density value of 2.8 g/cm^3 consistent with measurements. • Statistical analysis has shown that within the mineralised lenses pyrite/pyrrhotite dominant versus mixed mineralisation/lithologies constitute distinct statistical density sub-populations. The logged pyrite/pyrrhotite percentage greater than 70% are typically consistent with homogenous massive sulphides zones within the mineralised lenses. Outside these areas are the mixed mineralisation zones which consist of semi-massive sulphides with interbedded volcanic rocks or carbonate/chloride alterations. These density sub-domains are demarcated using geostatistical categorical kriging estimation method based on the logged pyrite/pyrrhotite percentage values. The density, Fe and S relationships are then fitted separately for each sub-domain and are then applied to the block model estimated Fe and S to assign the estimated block density values.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	• The Mineral Resources has been classified into Measured, 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 are used to control the Mineral Resource classification. This process allows review of the geological control/confidence on the deposit. Measured Resources are areas within drill hole intercept spacing of 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 areas within drill hole intercept spacing of 40m by 40m, estimated with minimum 6 samples with no more than 4 samples from a single drillhole.
	Whether appropriate account has been taken of all relevant factors (i.e. 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).	• The Mineral Resource classification has appropriately taken into account data spacing, distribution, reliability, quality and quantity of input data as well as the confidence in predicting grade and geological continuity.

Criteria	JORC Code Explanation	Commentary
	Whether the result appropriately reflects the Competent Person's view of the deposit.	• The Mineral Resource estimation appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	• The DeGrussa Database has been subject to an independent data and assay audit. Maxwell Geoservices completed an audit in January 2016 and found the SQL database to be of industry standard, with minor issues noted such as unmatched data, missing data and noted minor schema limitations. • 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 of the estimation in January 2016 and found the process to be of industry standard with some low risk issues noted.
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 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 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 statements 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.	• Reconciled production data verse Mineral Resource estimate is satisfactory.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*	• The Underground Ore Reserves estimate is based on the Mineral Resources estimate as at the 31 December 2015. The estimation and reporting of Mineral Resources is outlined in Section 3 of this Table.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• Mineral Resources are reported inclusive of Ore Reserves.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	• The Competent Person for this Mineral Resource update is a full time employee of Sandfire Resources NL and undertakes regular site visits.
	If no site visits have been undertaken indicate why this is the case.	• Site visits are undertaken as described above.
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*	• The DeGrussa mine has been in operation since 2011. Underground stope production commenced in October 2012. The Modifying Factors used in the conversion of Mineral Resources to Ore Reserves are based on operational experience.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	• Three break-even grades have been calculated and applied as economic cut-offs in the determination of the Ore Reserves. These are based on current and forecasted costs, revenues, mill recoveries and modifying factors, forecast for the life of the mine plan. These cut-off values are: o Full cost break-even – is based on all operating costs associated with the production of copper metal; o Incremental break-even - considers material below the full cost break-even that is accessible; and o Mill break-even – considers material that has to be mined in the process of gaining access to fully costed economic material.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	• Ore Reserves have been estimated by generating detailed mining shapes for all areas that contain Measured or Indicated Mineral Resources as well as access development. Internal stope dilution has been designed into the mining shapes and interrogated. External stope dilution and mining recovery factors have been applied post geological interrogation to generate final diluted and recovered ore.

Criteria	JORC Code Explanation	Commentary
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	• Primary mining methods employed are sub-level open stoping (SLOS) and long-hole open stoping (LHOS) with fill. Primary fill material is paste with minor use of cemented rock fill and rock fill when appropriate. • The selected mining methods are considered appropriate for the nature of the defined Mineral Resources.
	The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.	• Stopes to be mined in the short term are assessed on an individual basis using all related local mining, geological and geotechnical experience to date. This includes data gathered from back-analysis of stopes mined to date in adjacent or similar areas. • Stopes to be mined in the medium to long term employ geotechnical parameters derived from area mining experience and / or diamond drill core.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	• The Mineral Resource model created to estimate the Mineral Resources as at the 31 December 2015 was used as the basis for stope and development design. No modifications were made to this model for mine design purposes.
	The mining dilution factors used.	• An external dilution factor is applied to stopes on an individual basis. The factor is based on mining experience to date and ranges from 10 % to 15 % dependent on mining area. External dilution is considered at zero grade.
	The mining recovery factors used.	• A mining recovery factor is applied to stopes on an individual basis. The factor is based on mining experience to date and ranges from 95 % to 100 %. The factor is applied to diluted stopes.
	Any minimum mining widths used.	• DeGrussa does not in general use a minimum mining width due to the nature of the deposit.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	• The Underground Ore Reserves contain approximately 0.1 % of Inferred Mineral Resource. No modfications have been made to this material. Its inclusion and subsequent impact on economic viability is considered negligible.
	The infrastructure requirements of the selected mining methods.	• DeGrussa is an operating mine and all infrastructure required to service the selected mining methods is in place.

Criteria	JORC Code Explanation	Commentary
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* *Whether the metallurgical process is well-tested technology or novel in nature.* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* *Any assumptions or allowances made for deleterious elements.* *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• The Ore Reserve estimate is based on an operating 1.6 Mtpa process plant producing a 24.5% copper-concentrate that contains gold and silver. • The Cu recovery algorithm used in the determination of the Ore Reserve estimate is Cu Recovery = 0.08072 * LN (Ore Grade Cu / Ore Grade S) + 1.0423. • Au and Ag recovery are both 45%. • Process improvement projects are being investigated in FY16 to further debottleneck the mill and provide improved recovery.
Environmental	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• DeGrussa is an operating mine and is compliant with all environmental regulatory requirements and permits.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• DeGrussa is an operating mine and all infrastructure required for continued operation is in place.

Criteria	JORC Code Explanation	Commentary
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.* *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The source of exchange rates used in the study.* *Derivation of transportation charges.* *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* *The allowances made for royalties payable, both Government and private.*	• DeGrussa is an operating mine and capital costs are generally limited to that required to sustain the operation. • Operating costs are based on current contracts and historical averages. • Exchange rates are based on an average of ANZ bank and CRU forecasts and vary over the life of the mine. The life-of-mine average rate is: ○ A$ / US$: 0.71. • DeGrussa is subject to Government Royalties and Royalties for Native Title. Rates for Government Royalties are: ○ Copper is 5.0% of net revenue; ○ Gold is 2.5% of net revenue; and ○ Silver is 2.5% of net revenue. • The Royality rate for Native Title is: ○ 0.5% of gross revenue (copper, gold, silver). • Royalty costs are accounted for under the revenue factors.
Revenue factors	*The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• Commodity prices are based on an average of ANZ bank and CRU forecasts and vary over the life of the mine. The life-of-mine average values are: Copper (US$/t) : 5,545; Gold (US$/oz) : 1,234; and Silver (US$/oz) : 16.51. • A revenue reduction factor of 23.1% has been applied which includes all future estimated and calculated transport, smelting, refining and royalty payments.

Criteria	JORC Code Explanation	Commentary
Market assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* *A customer and competitor analysis along with the identification of likely market windows for the product.* *Price and volume forecasts and the basis for these forecasts.* *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• Sandfire is a low cost copper concentrate producer selling into global market for custom concentrates • Pricing is fundamentally on value of contained metals the main metal being copper with gold and small silver credits • The price of copper being set based on the LME which is a mature, well established and publically traded exchange • Sandfire produces a clean concentrate, low in deleterious elements • Sandfire relies upon independent expert publications (CRU, Wood Mac, Metal Bulletin) and other sources (bank reports, trader reports, conferences, other trade publications) in forming a view about future demand and supply and the likely effects of this on both metal prices and concentrate prices • Sandfire concentrate is sold by competitive tender. The 2015 benchmark TC/RC is well above the break even TC/RC for most smelters which should underpin robust demand for clean concentrates for the foreseeable future.
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• DeGrussa is an operating mine with a focus on operating cash margins. • The mine plan created to derive the underground Ore Reserves provides positive cash margins in all years when all modifying factors are applied.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	• DeGrussa is an operating mine and all agreements are in place and are current with all key stakeholders including traditional owner claiments.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* *Any identified material naturally occurring risks.* *The status of material legal agreements and marketing arrangements.* *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• Sandfire has advised that DeGrussa is currently compliant with all legal and regulatory requirements.

Criteria	JORC Code Explanation	Commentary
Classification	*The basis for the classification of the Ore Reserves into varying confidence categories.* *Whether the result appropriately reflects the Competent Person's view of the deposit.* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• Underground Ore Reserves have been derived from a mine plan that is based on extracting the 31 December 2015 Mineral Resources. Proven Ore Reserves have been derived from Measured Mineral Resources and Probable Ore Reserves have been derived from both Measured and Indicated Mineral Resources after consideration of all modifying factors. • Part of C4 and all of C5 Measured Mineral Resources have been converted to Probable Ore Reserves on the basis that no ore mining (development or stoping) has been completed as at 31 December 2015. Experience to date has shown grade and geometry variation at a local scale therefore the highest level of confidence can only be applied once an area has been fully developed and detailed stope design completed. • The Ore Reserve classification appropriately reflects the competent person's view of the deposit. • Approximately 66% of the Underground Probable Ore Reserve has been derived from Measured Mineral Resources.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	• The Ore Reserve has been peer reviewed internally. • The Ore Reserve estimate is in line with current industry standards.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which 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.* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Global Underground Ore Reserves for C1 and DG have a higher confidence level than those stated for C4 and C5 because C1 and DG modifying factors are based on actual mining and reconciliation data. One stope has been mined in C4 and none in C5 therefore modifying factors have a lower confidence level. This lower confidence level is reflected in the classification of C4 and C5 Ore Reserves as Probable. See discussion on Classification. • Underground Ore Reserves are split 11 % DG, 37 % C1, 27 % C4, 23 % C5 with the remaining in stockpiles. Primary ore production is currently from C1 and DG with production ramp up in progress in C4. C5 will come on line during the middle of 2016. • Approximately 59 % of the UG Ore Reserves are classified as Proven with the remaining 41 % classified as Probable.

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 NL and has sufficient experience that is relevant to the style of mineralisation 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.

Competent Person's Statement – Ore Reserves

The information in this report that relates to Ore Reserves is based on information compiled by Mr Neil Hastings who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Hastings is a permanent employee of Sandfire Resources NL and has sufficient experience that is relevant to the style of mineralisation 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 Hastings 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.