

SANDFIRE INCREASES HIGH GRADE MINERAL RESOURCE

ADDITION OF 64,000t COPPER AND 93,000oz GOLD

Mineral Resource	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine	10.6	5.7	2.1	609,000	713,000
Open Pit	3.2	1.7	0.6	54,000	63,000
December 2012 - Total	13.8	4.8	1.8	664,000	777,000
Mineral Resource Statement reconciliation:					
March 2012 - Total	13.5	4.8	1.7	645,000	721,000
Crushed/milled	(0.5)	10.1	2.6	(45,000)	(37,000)
Addition (net of adjustments)	0.8			64,000	93,000
December 2012 - Total	13.8	4.8	1.8	664,000	777,000

- **Mineral Resource increase driven by extension to the C4 deposit and significant thickening of the C5 deposit delineated by recent diamond drilling:**
 - **Conductor 4 Mineral Resource** increased to 2.1Mt grading 4.8% Cu and 1.7g/t Au for 102,000t contained copper and 119,000oz contained gold (a 31% increase in contained copper); and
 - **Conductor 5 Mineral Resource** increased to 1.4Mt grading 6.2% Cu and 2.8g/t Au for 88,000t contained copper and 129,000oz contained gold (a 57% increase in contained copper).
- **The additional high-grade underground Inferred Mineral Resource to be incorporated into the DeGrussa mine plan, extending mine life.**

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

As at 31 December 2012, the total Mineral Resource at DeGrussa comprised **13.8 million tonnes grading 4.8% Cu and 1.8g/t Au** for **664,000 tonnes of contained copper** and **777,000oz of contained gold**.

An additional 64,000 tonnes of contained copper and 93,000oz gold has been added to DeGrussa's mineral inventory following depletion to December 2012, with the additional Inferred Mineral Resource to now be incorporated into the DeGrussa mine plan. Depletion totalled 45,000 tonnes of contained copper and 37,000 ounces of gold to 31 December 2012.

The previously published Mineral Resource (In Situ and stockpiles) stated as at 31 March 2012 was 13.5 million tonnes grading 4.8% Cu and 1.7g/t Au for 645,000 tonnes of contained copper and 721,000oz of contained gold.



As a result of some of the key insights gained from structural interpretation from mapping within the underground mine and open pit, Sandfire has developed an enhanced understanding of the lithological sequence, structural setting and, consequently, the positioning of potential accumulations of VMS mineralisation. This information was used to guide a surface diamond drilling program targeting potential extensions of the two deepest, high-grade lenses, Conductor 4 and Conductor 5.

The majority of the increase in tonnage and contained metal has come from successful surface drilling programs at DeGrussa targeting the two deepest high-grade deposits, Conductor 4 and Conductor 5, with the addition of 56,000 tonnes of contained copper (increased 42%) and 63,000 ounces of contained gold (increased 34%) in total Inferred Mineral Resources for these deposits, as shown in Table 1 below:

Table 1 – Combined Mineral Resource Statement: Conductor 4 and 5

Mineral Resource - Conductor 4 and 5, as at	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
March 2012 – Total	2.7	4.9	2.1	134,000	185,000
Increase	0.8	6.7	2.4	56,000	63,000
December 2012 - Total	3.5	5.3	2.2	190,000	248,000

The December 2012 Mineral Resource also reflects updates to DeGrussa and Conductor 1, with the addition of 8,000 tonnes of contained copper and 30,000 ounces of gold, reflecting increased understanding of the orebodies gained from mapping, grade control drilling, and mining activities.

Conductor 4

As previously reported, diamond drilling completed late last year targeting the interpreted eastern extension of the Conductor 4 deposit intersected significant widths of mineralisation.

The results of this drilling, together with an improved understanding of the geological setting of the orebody, have been incorporated into a revised Mineral Resource for Conductor 4, as set out in Table 2 below:

Table 2 – December 2012 Conductor 4 Mineral Resource

Mineral Resource - Conductor 4	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Indicated	1.0	5.3	1.8	54,000	59,000
Inferred	1.1	4.4	1.7	48,000	60,000
December 2012 - Total	2.1	4.8	1.7	102,000	119,000

This represents a 0.4Mt increase in tonnage (25% increase) and 24,000t Cu increase in contained copper (31% increase) compared with the previous March 2012 Mineral Resource.

Conductor 5

Diamond drilling to test an interpreted sub-parallel lens stratigraphically below Conductor 5 passed through the deposit and encountered significantly thicker massive sulphide intersection than previously interpreted, highlighting the potential to materially increase the Mineral Resource in this area.

As outlined in the December 2012 and March 2013 Quarterly reports, three diamond holes were completed to test this thickened position, with the results, incorporated into a revised Mineral Resource estimate, as set out in Table 3 below:

Table 3 – December 2012 Conductor 5 Mineral Resource

Mineral Resource - Conductor 5	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Inferred	1.4	6.2	2.8	88,000	129,000
December 2012 - Total	1.4	6.2	2.8	88,000	129,000

This represents a 0.4Mt increase in tonnage (40% increase) and 32,000t Cu increase in contained copper (57% increase) compared with the previous March 2012 Mineral Resource.

Drilling of the Inferred Resource in C4 and C5 will be undertaken from underground when development has progressed sufficiently to allow more practical and less expensive drilling positions given the depth of these ore bodies. Drilling of the C4 Inferred Resource is planned in the first half of CY2014.

Ore Reserve and Mine Plan Update

The Ore Reserves of the DeGrussa Mine will now be updated referencing the December 2012 Mineral Resource model and depletions up to December 2012.

The Company continues to incorporate the Inferred Mineral Resource from Conductor 4 and 5 into its Life-of-Mine (LOM) planning process due to geological continuity and the high copper grade nature of the deposits. The Inferred Mineral Resource from these deposits are not expected to be included in the update to Ore Reserves.

Management Comment

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

"We have been able to more than replace production depletion to December last year, adding 64,000 tonnes of contained copper metal to our high-grade underground Mineral Resource inventory through our work at Conductor 4 and Conductor 5 and in-mine work," he said.

"We believe this will add around one year's copper and gold metal to the mine plan. To put this in context, the majority of this increase has come through just five strategically targeted deep diamond drill holes, representing an outstanding return for shareholders.

"This drilling marks the beginning of a very exciting new phase of exploration at DeGrussa during which we will systematically target near-mine extensions of the deeper deposits – including positions where isolated high-grade grade intercepts were returned during the discovery days and require follow up.

"Having demonstrated what can be achieved with drilling from surface, we will establish underground drill platforms from later this year to enable us to target further prospective areas.

"We are now very much looking forward to the next phase of deep exploration at DeGrussa, which together with exploration along our prospective corridor, will we believe 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/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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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 - Total As at December 2012						
Mineral Resource						
Deposit	Resource category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
DeGrussa	Measured	1.0	7.4	2.3	74,000	73,000
	Indicated	0.4	9.4	2.4	34,000	28,000
Conductor 1	Measured	1.6	6.5	2.2	105,000	114,000
	Indicated	3.9	5.1	1.9	197,000	240,000
	Inferred	0.4	4.5	1.7	20,000	24,000
Conductor 4	Indicated	1.0	5.3	1.8	54,000	59,000
	Inferred	1.1	4.4	1.7	48,000	60,000
Conductor 5	Inferred	1.4	6.2	2.8	88,000	129,000
Oxide copper	Indicated	0.1	2.6	0.9	4,000	4,000
Stockpiles	Measured	2.8	1.4	0.5	40,000	46,000
	Measured	5.4	4.1	1.4	219,000	234,000
	Indicated	5.4	5.3	1.9	289,000	332,000
	Inferred	3.0	5.2	2.2	156,000	212,000
	Total	13.8	4.8	1.8	664,000	777,000

DeGrussa Mine - Underground As at December 2012						
Mineral Resource						
Deposit	Resource category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
DeGrussa	Measured	1.0	7.4	2.3	74,000	73,000
	Indicated	0.4	9.4	2.4	34,000	28,000
Conductor 1	Measured	1.6	6.5	2.2	105,000	114,000
	Indicated	3.8	5.1	1.9	192,000	233,000
	Inferred	0.2	4.6	1.8	11,000	14,000
Conductor 4	Indicated	1.0	5.3	1.8	54,000	59,000
	Inferred	1.1	4.4	1.7	48,000	60,000
Conductor 5	Inferred	1.4	6.2	2.8	88,000	129,000
Stockpiles	Measured	0.1	4.8	1.8	3,000	3,000
	Measured	2.7	6.8	2.2	182,000	190,000
	Indicated	5.2	5.4	1.9	280,000	320,000
	Inferred	2.8	5.3	2.3	147,000	203,000
	Total	10.6	5.7	2.1	609,000	713,000

DeGrussa Mine – Open Pit As at December 2012						
Mineral Resource						
Deposit	Resource category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Conductor 1	Indicated	0.1	3.8	1.9	4,000	7,000
	Inferred	0.2	4.5	1.5	9,000	9,000
Oxide copper	Indicated	0.1	2.6	0.9	4,000	4,000
Stockpiles	Measured	2.7	1.4	0.5	37,000	43,000
	Measured	2.7	1.4	0.5	37,000	43,000
	Indicated	0.3	3.0	1.3	8,000	11,000
	Inferred	0.2	4.7	1.5	9,000	9,000
	Total	3.2	1.7	0.6	54,000	63,000

Note: Calculations rounded to the nearest 100,000 tonnes; 0.1% Cu grade, 0.1 g/t Au grade; 1,000 tonnes Cu metal and 1,000 ounces Au metal. Errors of rounding may occur.

JORC 2012 MINERAL RESOURCE ESTIMATION PARAMETERS DEGRUSSA COPPER MINE

Section 1: Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	<ul style="list-style-type: none"> • The deposit was sampled by a combination of surface diamond drill (DD) and 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 laboratory Bureau Veritas combines and fuses 0.4g of assay sample plus 9.0g flux into a glass bead.
Drilling techniques	<ul style="list-style-type: none"> • The deposit was initially sampled by a combination of surface diamond drill (DD) and reverse circulation (RC) holes totaling 58,622m DD and 22,072m RC used in Definitive Feasibility Study (DFS). • Additional underground 395 NQ2 DD (50,910m) has been completed for Conductor 1 and DegruSSa lodes on a nominal grid to 13m on strike and 20m on dip of orebody within grade control areas. • Near mine exploration drilling including 8 DD (4056.3m) and 7 RC (2166m) surface holes were completed for the Mineral Resource update of Conductor 4 and Conductor 5 lodes. • 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 highly accurate Reflex ACT II RD orientation tool with stated accuracy of +/-1% in the range 0 to 88°.
Drill sample recovery	<ul style="list-style-type: none"> • 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 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 minimize 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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). 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 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 75µm. 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 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 LM2 mill to 90% passing 75µm. 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.

	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 of sample. Lower sample weights are employed where samples have very high S contents. This is a classical FA process and results in total separation of Au, Pt and Pd in the samples • 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 FA/ASS on a 40g assay charge (assay charge is variable depending on Sulphur content). • 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. • 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 primary laboratories respectively.and Adhoc umpire checks are done. • 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. • QAQC data analysis has been completed for all data and demonstrates sufficient accuracy and precision for use in Mineral Resource estimation.
Verification of sampling and assaying	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
Audits or reviews	<ul style="list-style-type: none"> • The sampling techniques and data collection processes are of industry standard and have been subjected to multiple internal and external review. Most recently Cube Consulting Pty completed a review during 17th - 19th December 2012 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	Commentary
Database integrity	<ul style="list-style-type: none"> 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 import it 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	<ul style="list-style-type: none"> Competent Person for this update is a full time employee of Sandfire and undertakes regular site visits ensuring industry standards of the Mineral Resource estimation process from sampling through to final block model. Regular site visits were undertaken during this update.
Geological interpretation	<ul style="list-style-type: none"> 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 were constructed using cross sectional interpretations based on logged massive sulphides in combination with Cu, Fe and S analyses. 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 corporate 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 and adjusted to mapping in underground development drives. 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	<ul style="list-style-type: none"> 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 Conductor 1 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.
Estimation and modelling techniques	<ul style="list-style-type: none"> 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 from 1,700mRL 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

	<p>has been completed for all elements and for all lodges and top-cuts established where applicable.</p> <ul style="list-style-type: none"> • 1m composites are extracted with minimum passing of 70% and best fit such that no residuals are created. • Variogram modelling completed within Snowden Supervisor™ software and used to define the characterization of the spatial continuity of all elements within all lodges and parameters used for the interpolation process. Variogram model are cross-validated to ensure parameters are accurate. • Quantitative kriging neighborhood analysis (QKNA) using 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 discretization.
	<ul style="list-style-type: none"> • Ordinary krigged Mineral Resource estimates are checked against an alternate inverse distance weighting estimates and also reconciled with previous estimates. • 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.
	<ul style="list-style-type: none"> • QKNA indicates parent block sizes of X(5m) by Y(5m) by Z(5m) to be suitable for grade control (GC) areas where drillhole ore intercept spacing varies from 0.2m to 45m averaging 6m. Within Resource Definition areas parent block sizes of X(20m) by Y(5m) 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(0.5m) by Y(0.5m) by Z(0.5m) ensuring high resolution at ore boundaries when filling wireframes with blocks taking 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 either as a capping or restricted search or combination of both. Restricted searching during estimation is applied to restrict the influence of extreme grades from smearing distant blocks by using a tighter search ellipsoid.
	<ul style="list-style-type: none"> • No selective mining units were assumed in this estimate • Within the massive sulphides there is a good and consistent correlation between Cu, Fe, S and bulk density which has been analysed separately for all lodges using multiple regression to fit the density and Cu, Fe, S relationship. The regressed formula is then applied to block model estimated Cu, Fe and S to assign the estimated block bulk density value. • The geological interpretation wireframes correlate with massive sulphide mineralisation boundaries. The block model has been assigned a unique mineralisation zone code 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. • Statistical analysis indicated that outlier management was crucial to prevent severe high grade smearing that could result in potential overestimation for some elements. The approach used has been capping or restricted search or the combination of both (Top-cuts and restricted search were defined following thorough examinations of histograms, probability curves and the spatial locations of the outliers). • 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. • No meaningful reconciliation data is available at this time.
Moisture	<ul style="list-style-type: none"> • Tonnages are estimated on a dry basis.
Cut-off parameters	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • The upper portion of the DeGrussa deposit is mined by open pit which has been designed in two stages. Stage1 is completed whilst the Stage 2 is in the advanced stages of completion. The approximate dimensions of the open pit at completion will be 600m length, 500m wide and 140m deep. Mining comprises conventional backhoe excavator methods with ore being mined in 5m benches on 2.5m fitches. • The underground mining method is long-hole open stope (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	<ul style="list-style-type: none"> • 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

	<p>by flotation. The dominant valuable component is copper, which is contained predominantly in chalcopyrite with minor assemblages of chalcocite mineralisation.</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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/cm³ to 4.9 g/cm³, with an average density reading of 3.7 g/cm³. Average density of 2.8 is assigned to waste blocks. In areas of the deposit where there are limited Archimedean measurements regressed formula is based on downhole gamma gamma data (Conductor4 and 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.
	<ul style="list-style-type: none"> This is not a bulk project Densities vary within the massive sulphides mineralisation and have consistent correlation with Cu, Fe and S. Regressed formula of density is used to calculate densities into blocks based on block estimated Cu, Fe and S. Within the semi-massive sulphides and waste zones average densities have been assigned.
Classification	<ul style="list-style-type: none"> 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 blocks within areas having drill hole intercept spacing less than 30m 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 90m by 60m, 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	<ul style="list-style-type: none"> This Mineral Resource has not been audited externally. 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 17th - 19th December 2012 and found the process to be industry standard with minor recommendations as part of continuous improvement.
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"> 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. Existing operating reports of achieved production verse estimate is positive. Further data will be monitored as the mine ramps up to full scale operations.