ASX Announcement **21 June 2019**

DEGRUSSA ORE RESERVE AND MINERAL RESOURCE UPDATE

Extension of Conductor 5 Mineral Resource and subsequent conversion to Ore Reserves supports mine life through to mid-CY2022

Highlights

- **Updated Underground Ore Reserve for DeGrussa and Monty Mines**
  - **5.5Mt grading 4.8% Cu and 1.6g/t Au for 264,000t of contained copper and 277,000oz of contained gold** (including UG ore on surface stockpiles).
  - Updated DeGrussa underground Ore Reserve net of underground mining depletion, a revision of modifying factors, and updated DeGrussa Mineral Resource.
- **Updated Underground Mineral Resource for DeGrussa and Monty Mines**
  - **4.9Mt grading 6.3% Cu and 2.0g/t Au for 306,000t of contained copper and 313,000oz of contained gold.**
  - Updated DeGrussa Mineral Resource based on mining depletion, sterilisation and resource definition drilling. Vertical extension of the Conductor 5 Mineral Resource along the Shiraz Fault has contributed to increase the Mineral Resource.

Note: DeGrussa stated as at 31 December 2018; Monty stated as at 31 March 2017

Sandfire Resources NL (ASX**: SFR**, "Sandfire") is pleased to announce an updated Ore Reserve and Mineral Resource for the DeGrussa Copper-Gold Operation in Western Australia. The update includes the DeGrussa, Conductor 1, Conductor 4 and Conductor 5 deposits at the DeGrussa Mine as well as the Monty Mine.

Resource definition drilling in Conductor 5 and subsequent orebody remodelling in conjunction with a revision to modifying factors has resulted in a net overall increase in underground Ore Reserves of 0.4Mt and 2,000t of contained copper. After accounting for annual mining depletion of approximately 1.6Mt, mine life is supported through to mid-CY2022.

Grade control drilling is ongoing at Monty with three underground (UG) diamond drill rigs currently operating. Mineral Resources and Ore Reserves will be updated in the second half of CY2019 to incorporate these results.

No material mining depletion has occurred at Monty up to 31 December 2018 therefore the Ore Reserves for Monty remain unchanged. Sandfire owns 100% of Monty following the acquisition of the 30% interest held by Talisman Mining Limited (ASX: **TLM**; Talisman) in the Springfield Exploration and Mining Joint Ventures (refer to Sandfire's ASX announcement titled, "Sandfire Completes Acquisition of Talisman's 30% Interest in the Springfield Project", dated 12 October 2018).

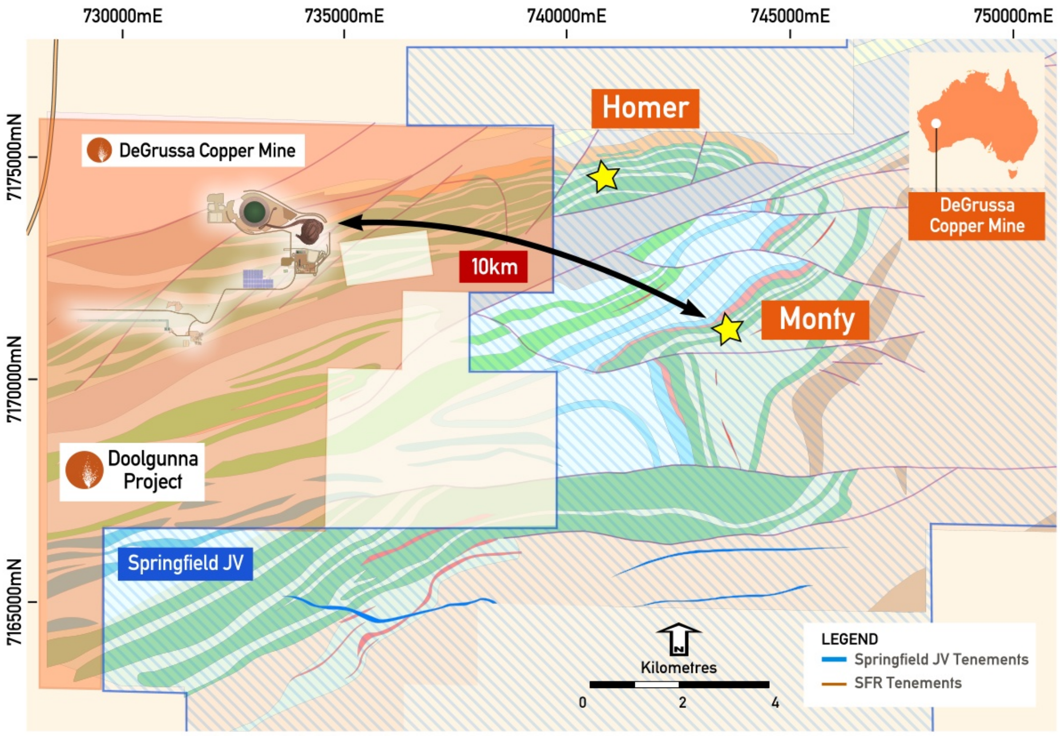

Figure 1 – DeGrussa and Monty Copper-Gold Project Location (WA)

Table 1 and Table 2 summarise a combined DeGrussa and Monty Ore Reserve and Mineral Resource (refer Appendix 1 for DeGrussa and Monty[1,2]).

Table 1 – DeGrussa and Monty Ore Reserve and Mineral Resource

DeGrussa and Monty	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Ore Reserve**	8.2	3.7	1.2	299,000	323,000
Mineral Resource*	7.6	4.5	1.5	340,000	359,000

Table 2 – DeGrussa and Monty Ore Reserve and Mineral Resource by Orebody

DeGrussa and Monty	Tonnes (Mt)	Stockpiles (Mt)	DG (Mt)	C1 (Mt)	C4 (Mt)	C5 (Mt)	Monty (Mt)
Ore Reserve**	8.2	2.7	0.3	1.5	1.3	1.4	0.9
Mineral Resource*	7.6	2.7	0.3	1.2	1.1	1.1	1.05

Notes:
Calculations have been rounded to the nearest: 1,000t; 0.1% Cu grade; and 1,000t Cu metal and 0.1g/t Au grade; and 1,000oz Au metal. Differences may occur due to rounding.
* Mineral Resource for DeGrussa is based on a 1.0% Cu cut-off and allows for mining depletion and sterilisation as at 31 December 2018. Mineral Resource for Monty is based on a 1.0% Cu cut-off.
** Ore Reserve include mining dilution and mining recovery.

The DeGrussa processing plant has a capacity of 1.6Mtpa. The mining operations strategy adopted for the DeGrussa and Monty operations requires DeGrussa to supplement production from Monty.

The updated underground Ore Reserves continues to support this strategy with DeGrussa mine production reducing to between 1.2Mtpa and 1.3Mtpa and mine production from the Monty Mine filling the mill capacity.

[1] SFR ASX announcement "Sandfire Announce Positive Monty Feasibility Study" released dated 6 April 2017. Available online at www.sandfire.com.au.
[2] SFR ASX announcement "Maiden High-Grade Mineral Resource for Monty VMS Deposit" released dated 13 April 2016. Available online at www.sandfire.com.au.

Ore Reserve Update

The DeGrussa Ore Reserve has been updated based on the December 2018 Mineral Resource model, annual mining depletion and revision to modifying factors.

A successful resource definition drilling campaign during CY2018 has provided the basis for an increase in the Mineral Resource in Conductor 5, part of which has been successfully converted to Ore Reserves and forms part of the current mine life.

Unconverted Measured and Indicated Mineral Resources remain with ongoing technical and economic assessment being undertaken in conjunction with short-term mine design and planning activities. Those Mineral Resources that cannot be successfully converted to Ore Reserves at this last phase of mine design and planning will be subsequently sterilised. The unconverted Mineral Resources are distributed throughout all four orebodies.

The DeGrussa underground mine Ore Reserve has been reduced by approximately 1.2Mt and 71,000t of contained copper based on mining depletion, revision to modifying factors and an updated Mineral Resource model.

Ore Reserves for Monty are as outlined in Sandfire's ASX announcement released in April 2017[3], with both summarised and combined in Table 3.

Table 3 – Ore Reserve as at 31 December 2018

DeGrussa Mine Ore Reserve	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine (includes stockpiles)	4.6	4.1	1.6	185,000	235,000
Stockpiles (Open Cut)	2.7	1.3	0.5	34,000	46,000
December 2018 – Total	**7.3**	**3.0**	**1.2**	**219,000**	**282,000**

Monty Mine Ore Reserve	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine	0.9	8.7	1.4	80,000	42,000
March 2017 – Total	**0.9**	**8.7**	**1.4**	**80,000**	**42,000**

Total Ore Reserve	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine (includes stockpiles)	5.5	4.8	1.6	264,000	277,000
Stockpiles (Open Cut)	2.7	1.3	0.5	34,000	46,000
Total	**8.2**	**3.7**	**1.2**	**299,000**	**323,000**

Mineral Resource Update

The DeGrussa Mineral Resource has been updated as at 31 December 2018 based on annual mining depletions, sterilisation and resource definition drilling. The resource definition drilling program completed during CY2018 has provided the basis to vertically extend the Conductor 5 Mineral Resource along the Shiraz Fault. This has resulted in a proportion being successfully converted to Ore Reserves.

Mineral Resources for Monty are as outlined in Sandfire's ASX announcement released in April 2016[4], with both summarised and combined in Table 4.

Vigorous exploration programs continue at Doolgunna with extensive programs of AC, RC and diamond drilling continuing to test the prospective stratigraphy for mineralisation. Routine testing of geochemical and geophysical anomalism is also ongoing.

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[3] SFR ASX announcement "Sandfire Announce Positive Monty Feasibility Study" released dated 6 April 2017. Available online at www.sandfire.com.au.
[4] SFR ASX announcement "Maiden High-Grade Mineral Resource for Monty VMS Deposit" released dated 13 April 2016. Available online at www.sandfire.com.au.

Table 4 – Mineral Resource

DeGrussa Mineral Resource	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine (includes stockpiles)	3.8	5.4	2.1	207,000	258,000
Stockpiles (Open Cut)	2.7	1.3	0.5	34,000	46,000
December 2018 – Total	**6.5**	**3.7**	**1.4**	**242,000**	**304,000**

Monty Mineral Resource	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine	1.05	9.4	1.6	99,000	55,000
March 2017 – Total	**1.05**	**9.4**	**1.6**	**99,000**	**55,000**

Total Mineral Resource	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Underground Mine (includes stockpiles)	4.9	6.3	2.0	306,000	313,000
Stockpiles (Open Cut)	2.7	1.3	0.5	34,000	46,000
Total	**7.6**	**4.5**	**1.5**	**340,000**	**359,000**

Management Comment

Sandfire's Managing Director, Mr Karl Simich, said the updated DeGrussa Ore Reserves reflected a net increase in underground Ore Reserves after mining depletion, underpinning a mine life which now extends into mid-CY2022.

"This is a positive outcome which reflects our continued success in replacing Ore Reserves and identifying extensions of some of the key VMS lenses at DeGrussa," Mr Simich said. "Our exploration effort also continues unabated, with extensive programs of air-core, RC and diamond drilling currently underway across our expanded footprint across the Greater Doolgunna District.

"Meanwhile, with the successful recent introduction of high-grade ore from the Monty Mine, we are expecting a strong finish to FY2019, with copper production tracking to hit or exceed the upper end of our guidance range at 68,000t of contained copper. As Monty mining rates continue to ramp up into next year we will see the head grade increase and further boost copper production and cash flow," he added.

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 Callum Browne who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Browne 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 Browne 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 announcement 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: DeGrussa Mine – Ore Reserve and Mineral Resource as at 31 December 2018

DeGrussa Mine - Underground	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	0.3	6.1	2.3	17,000	21,000	Measured	0.3	7.2	2.6	19,000	22,000
	Probable	<0.1	3.9	1.2	1,000	1,000	Indicated	<0.1	1.6	1.1	<1,000	1,000
							Inferred	-	-	-	-	-
	Total	**0.3**	**5.9**	**2.2**	**18,000**	**22,000**	**Total**	**0.3**	**6.8**	**2.5**	**19,000**	**22,000**
Conductor 1	Proved	1.3	3.7	1.4	48,000	59,000	Measured	1.1	5.3	2.0	57,000	70,000
	Probable	0.2	2.8	1.1	4,000	6,000	Indicated	0.2	1.6	0.4	2,000	2,000
							Inferred	<0.1	3.3	1.7	<1,000	<1,000
	Total	**1.5**	**3.6**	**1.4**	**52,000**	**65,000**	**Total**	**1.2**	**4.8**	**1.8**	**60,000**	**72,000**
Conductor 4	Proved	1.0	4.4	1.4	45,000	47,000	Measured	0.9	6.3	2.0	59,000	62,000
	Probable	0.3	3.3	1.2	11,000	12,000	Indicated	0.2	2.1	0.8	3,000	4,000
							Inferred	<0.1	2.7	1.8	1,000	2,000
	Total	**1.3**	**4.1**	**1.4**	**55,000**	**59,000**	**Total**	**1.1**	**5.6**	**1.9**	**63,000**	**68,000**
Conductor 5	Proved	1.1	4.4	2.0	49,000	73,000	Measured	0.9	6.1	2.7	56,000	79,000
	Probable	0.3	2.8	1.5	8,000	14,000	Indicated	0.2	3.4	2.0	7,000	13,000
							Inferred	<0.1	2.2	0.9	<1,000	1,000
	Total	**1.4**	**4.0**	**1.9**	**56,000**	**87,000**	**Total**	**1.1**	**5.6**	**2.6**	**63,000**	**93,000**
Stockpiles - Underground	Proved	<0.1	5.4	1.9	2,000	2,000	Measured	<0.1	5.4	1.9	2,000	2,000
Total	**Proved**	**3.8**	**4.3**	**1.7**	**161,000**	**202,000**	**Measured**	**3.2**	**6.0**	**2.3**	**193,000**	**235,000**
	Probable	**0.8**	**3.0**	**1.3**	**24,000**	**33,000**	**Indicated**	**0.5**	**2.4**	**1.2**	**13,000**	**20,000**
							Inferred	**<0.1**	**2.3**	**2.7**	**1,000**	**2,000**
	Total	**4.6**	**4.1**	**1.6**	**185,000**	**235,000**	**Total**	**3.8**	**5.4**	**2.1**	**207,000**	**257,000**

DeGrussa Mine – Open Pit	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**	2.7	1.3	0.5	34,000	46,000	**Measured**	2.7	1.3	0.5	34,000	46,000
	Probable	-	-	-	-	-	**Indicated**	-	-	-	-	-
							Inferred	-	-	-	-	-
	Total	**2.7**	**1.3**	**0.5**	**34,000**	**46,000**	**Total**	**2.7**	**1.3**	**0.5**	**34,000**	**46,000**

DeGrussa Mine - Total	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	0.3	6.1	2.3	17,000	21,000	Measured	0.3	7.2	2.6	19,000	22,000
	Probable	<0.1	3.9	1.2	1,000	1,000	Indicated	<0.1	1.6	1.1	<1,000	1,000
							Inferred	-	-	-	-	-
	Total	**0.3**	**5.9**	**2.2**	**18,000**	**22,000**	**Total**	**0.3**	**6.8**	**2.5**	**19,000**	**22,000**
Conductor 1	Proved	1.3	3.7	1.4	48,000	59,000	Measured	1.1	5.3	2.0	57,000	70,000
	Probable	0.2	2.8	1.1	4,000	6,000	Indicated	0.2	1.6	0.4	2,000	2,000
							Inferred	<0.1	3.3	1.7	<1,000	<1,000
	Total	**1.5**	**3.6**	**1.4**	**52,000**	**65,000**	**Total**	**1.2**	**4.8**	**1.8**	**60,000**	**72,000**
Conductor 4	Proved	1.0	4.4	1.4	45,000	47,000	Measured	0.9	6.3	2.0	59,000	62,000
	Probable	0.3	3.3	1.2	11,000	12,000	Indicated	0.2	2.1	0.8	3,000	4,000
							Inferred	<0.1	2.7	1.8	1,000	2,000
	Total	**1.3**	**4.1**	**1.4**	**55,000**	**59,000**	**Total**	**1.1**	**5.6**	**1.9**	**63,000**	**68,000**
Conductor 5	Proved	1.1	4.4	2.0	49,000	73,000	Measured	0.9	6.1	2.7	56,000	79,000
	Probable	0.3	2.8	1.5	8,000	14,000	Indicated	0.2	3.4	2.0	7,000	13,000
							Inferred	<0.1	2.2	0.9	<1,000	<1,000
	Total	**1.4**	**4.0**	**1.9**	**56,000**	**87,000**	**Total**	**1.1**	**5.6**	**2.6**	**63,000**	**93,000**
Stockpiles	Proved	2.7	1.3	0.6	37,000	49,000	Measured	2.7	1.3	0.6	37,000	49,000
							Indicated					
Total	**Proved**	**6.5**	**3.0**	**1.2**	**195,000**	**248,000**	**Measured**	**5.9**	**3.8**	**1.5**	**228,000**	**282,000**
	Probable	**0.8**	**3.0**	**1.3**	**24,000**	**33,000**	**Indicated**	**0.5**	**2.4**	**1.2**	**13,000**	**20,000**
							Inferred	**<0.1**	**2.7**	**1.7**	**1,000**	**2,000**
	Total	**7.3**	**3.0**	**1.2**	**219,000**	**282,000**	**Total**	**6.5**	**3.7**	**1.4**	**242,000**	**304,000**

Notes:

* Mineral Resource is based on a 1.0% Cu cut-off and allows for mining depletion and sterilisation as at 31 December 2018.

Calculations have been rounded to the nearest: 1,000t; 0.1% Cu grade; and 1,000t Cu metal and 0.1g/t Au grade; and 1,000oz Au metal. Differences may occur due to rounding.

APPENDIX 2: Monty Mine – Ore Reserve and Mineral Resource as at 31 March 2017

The Monty Mine Ore Reserve and Mineral Resource outlined in the table below is copied from Sandfire's ASX announcement, released in April 2017[5] and April 2016[6] respectively. No material changes have occurred as at 31 December 2018.

Monty Mine - Underground	Ore Reserve						Mineral Resource*					
Deposit	Reserve Category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)	Reserve Category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Contained Copper (t)	Contained Gold (oz)
Monty	Proved	-	-	-	-	-	Measured	-	-	-	-	-
	Probable	0.92	8.7	1.4	80,000	42,000	Indicated	1.04	9.3	1.6	97,000	54,000
							Inferred	0.01	20.7	2.7	2,000	1,000
	Total	**0.92**	**8.7**	**1.4**	**80,000**	**42,000**	**Total**	**1.05**	**9.4**	**1.6**	**99,000**	**55,000**

Notes:

* Mineral Resource is based on a 1.0% Cu cut-off.

Calculations have been rounded to the nearest: 1,000t; 0.1% Cu grade; and 1,000t Cu metal and 0.1g/t Au grade; and 1,000oz Au metal. Differences may occur due to rounding.

Included within the Ore Reserve is marginal grade material that is currently sub-economic that could become economic in the future. The quantity of this material is 10,000 tonnes at 2.5% Cu for 246 tonnes of copper and 0.6g/t Au for 200 ounces of gold. This material represents 1% of the Ore Reserve tonnes and less than 1% of the contained copper and gold.

[5] SFR ASX announcement "Sandfire Announce Positive Monty Feasibility Study" released dated 6 April 2017. Available online at www.sandfire.com.au.
[6] SFR ASX announcement "Maiden High-Grade Mineral Resource for Monty VMS Deposit" released dated 13 April 2016. Available online at www.sandfire.com.au.

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.*	Sampling boundaries are geologically defined and commonly one metre in length unless a significant geological feature warrants a change from this standard unit.
	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.	Diamond drill core 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. A 0.4g assay charge is combined and fused into a glass bead with 10.0g 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.).*	Surface drillholes primarily used NQ2 (50.6mm) core size although a small portion used HQ (63.5mm) core size (standard tubes). All underground drillholes used NQ2 (50.6mm) core size (standard tubes). All surface drill collars are surveyed using RTK GPS with downhole surveying by gyroscopic methods. All underground drill collars are surveyed using Trimble S6 electronic theodolite. Downhole survey is completed by gyroscopic downhole survey. Drill 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%.
	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.
	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.

Criteria	JORC Code Explanation	Commentary
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, sulphide, alteration, and structural characteristics of core are logged directly to a digital format following standard procedures and using Sandfire DeGrussa geological codes. The reliability and consistency of data is monitored though regular peer review. Data is imported onto 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 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. Longitudinally cut 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.	No non-core used in Mineral Resource Estimate
	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 samples are crushed through Jaques crusher to nominal -10mm followed by a second stage crushing through Boyd crusher to nominal -4mm. The sample is split to less than 2kg through a 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. Samples are first crushed through a Jaques crusher to nominal -10mm. Second stage crushing is through Boyd crusher to a nominal -4mm. The 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. Weekly onsite laboratory audits are completed to ensure the laboratory conforms to standards.
	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.

Criteria	JORC Code Explanation	Commentary
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 assay charge is combined and fused into a glass bead with 10.0g flux for XRF analysis. XRF method is used to analyse for a suite of elements (including Cu, Fe, SiO2, Al, Ca, K, MgO, P, S, Ti, Mn, Co, Ni, Zn, As, and Pb). 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 finish. 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 using fire assay with a 40g charge and analysed 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.	No geophysical tools were used to analyse the drilling products
	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 the 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 a recommended action. Results of all QC samples for every laboratory batch received are analysed to determine assay accuracy and repeatability. Analysis of pulp residue and coarse reject material shows acceptable repeatability and no significant bias
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.

Criteria	JORC Code Explanation	Commentary
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 of surface drilling is approximately 30m x 40m and underground grade control drilling is approximately 10m x 15m. The 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 drill holes 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 13th - 17th October 2016 and found procedures to be consistent with industry standard and appropriate with minor recommendations for enhancement as part of continuous improvement.

Section 2: Reporting of Exploration Results

No Exploration Results are included in this release.

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 each day to allow 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.
	Nature of the data used and of any assumptions made.	All available geological logging data from diamond core 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 abundance of sulphide minerals (incl. chalcopyrite, pyrite, pyrrhotite, sphalerite and magnetite), lithology, chlorite alteration of host rock and elevate Cu grades (>0.3%).

Criteria	JORC Code Explanation	Commentary
	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 corporate 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.	The nature of VMS mineralisation style and regional setting have an influence on mineralisation grade and geology. The Shiraz and Merlot faults post-date and off-set mineralisation.
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 230m, very steeply dipping towards the south with a plunge generally trending SW and having a vertical extent of about 180m. The Conductor 1 orebody lies north of DeGrussa and generally strikes ENE dipping approximately 65° to the SE with a high grade plunge trending SW. It has a strike length of about 540m with a vertical extent of 420m. Conductor 4 orebody lies to the east of DeGrussa and Conductor1 and are stratigraphically deeper. They have an overall strike length of 470m and vertical extent of 260m. The upper sulphide lode strikes towards ENE with an approximate dip of 47° to the SE and high grade plunge trending SE. The lower sulphide lode strikes E, dipping approximately 45° to the S with a SW high grade plunge. Conductor 5 orebody is east of Conductor 4 and has a strike length up to 380m and a vertical extent of 470m. The sulphide lode strikes ESE with an approximate dip of 45° to the SSW and high grade plunge trending SE.

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™ StudioRM version 1.3.11.0 software. Three dimensional mineralisation wireframes are completed within Surpac™ and Leapfrog software and these are then imported into StudioRM™. Geostatistical ordinary kriging (OK) is used to estimate the Mineral Resource as it is considered appropriate given the nature of mineralisation and orebody configuration. The Mineral Resource database is uniquely flagged with mineralisation domain codes as defined by wireframe boundaries and then composited into density weighted 1m lengths and these are used for estimating the Mineral Resource. Top cuts were applied to isolated high-grade composites prior to estimation where applicable based on review of histograms and statistical analysis of composites. Variography was completed using Geovariances Isatis software. Variograms for all domains display moderate D1/D2 anisotropy and moderate to strong D1/D3 anisotropy, which was reflected in search parameters. Variograms were modelled with three structures, a nugget and two spherical structures for all domains. The search parameters are tabulated for each orebody below. Search distances are chosen so that domains were estimated in a single pass. Larger searches are employed for massive sulphide pods and halo mineralisation on the extremities of the orebodies.

C1		Rotation			Max Search	D1/D2	D1/D3	Optimum	Minimum
Element	Domain	Azimuth	Dip	Pitch	Distance	ratio	ratio	Samples	Samples
CU	11 & 12	Dynamic Anisotropy			155	1.6	5.2	20	8
AU	11 & 12	Dynamic Anisotropy			100	2.0	2.5	20	8
AG	11 & 12	Dynamic Anisotropy			120	1.7	4.8	20	8
AS	11 & 12	Dynamic Anisotropy			80	2.7	6.7	20	8
BI	11 & 12	Dynamic Anisotropy			80	2.0	5.3	20	8
FE	11 & 12	Dynamic Anisotropy			130	1.5	4.3	20	8
PB	11 & 12	Dynamic Anisotropy			75	2.1	3.4	20	8
S	11 & 12	Dynamic Anisotropy			140	2.0	4.7	20	8
ZN	11 & 12	Dynamic Anisotropy			90	2.3	3.6	20	8
MGO	11 & 12	Dynamic Anisotropy			140	1.8	7.0	20	8
DENSITY	11 & 12	Dynamic Anisotropy			125	1.3	5.0	20	8
CU	101 - 104	Dynamic Anisotropy			140	2.3	7.0	20	4
AU	101 - 104	Dynamic Anisotropy			120	1.7	8.0	20	4
AG	101 - 104	Dynamic Anisotropy			220	1.7	11.0	20	4
AS	101 - 104	Dynamic Anisotropy			110	2.4	11.0	20	4
BI	101 - 104	Dynamic Anisotropy			340	3.4	11.3	20	4
FE	101 - 104	Dynamic Anisotropy			110	1.6	5.5	20	4
PB	101 - 104	Dynamic Anisotropy			125	1.8	5.0	20	4
S	101 - 104	Dynamic Anisotropy			100	1.7	2.5	20	4
ZN	101 - 104	Dynamic Anisotropy			110	1.8	5.5	20	4
MGO	101 - 104	Dynamic Anisotropy			180	1.6	4.5	20	4
DENSITY	101 - 104	Dynamic Anisotropy			160	1.8	3.2	20	4

Criteria	JORC Code Explanation	Commentary

C1E		Rotation			Max Search	D1/D2	D1/D3	Optimum	Minimum
Element	Domain	Azimuth	Dip	Pitch	Distance	ratio	ratio	Samples	Samples
CU	21 - 23	Dynamic Anisotropy			160	2.3	8.0	20	6
AU	21 - 23	Dynamic Anisotropy			120	2.0	5.5	20	6
AG	21 - 23	Dynamic Anisotropy			140	1.6	4.7	20	6
AS	21 - 23	Dynamic Anisotropy			130	1.6	6.5	20	8
BI	21 - 23	Dynamic Anisotropy			180	2.0	9.0	20	6
FE	21 - 23	Dynamic Anisotropy			135	1.8	5.4	20	6
PB	21 - 23	Dynamic Anisotropy			110	2.2	5.5	20	6
S	21 - 23	Dynamic Anisotropy			135	1.6	6.8	20	6
ZN	21 - 23	Dynamic Anisotropy			127.5	1.9	4.3	20	6
MGO	21 - 23	Dynamic Anisotropy			130	1.6	6.5	20	6
DENSITY	21 - 23	Dynamic Anisotropy			130	2.2	6.5	20	6
CU	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
AU	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
AG	201 - 204	Dynamic Anisotropy			600	2.0	4.0	20	4
AS	201 - 204	Dynamic Anisotropy			600	2.0	4.0	20	4
BI	201 - 204	Dynamic Anisotropy			600	2.0	4.0	20	4
FE	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
PB	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
S	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
ZN	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
MGO	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4
DENSITY	201 - 204	Dynamic Anisotropy			500	2.0	4.0	20	4

DG		Rotation			Max Search	D1/D2	D1/D3	Optimum	Minimum
Element	Domain	Azimuth	Dip	Pitch	Distance	ratio	ratio	Samples	Samples
CU	31	50	90	70	65	2.6	3.3	20	6
CU	32	230	85	-110	65	2.6	3.3	20	6
AU	32	240	85	90	65	2.6	3.3	20	8
AG	32	235	85	90	108	2.6	3.3	20	6
AS	32	230	85	55	65	2.6	3.3	20	6
BI	32	60	85	-75	150	2.5	3.3	20	6
FE	32	245	85	20	72	2.6	3.3	20	6
PB	32	245	85	70	65	2.6	3.3	20	6
S	32	245	85	20	72	2.6	3.3	20	6
ZN	32	255	85	70	65	2.6	3.3	20	8
MGO	32	240	85	-170	72	2.6	3.3	20	6
DENSITY	32	240	85	20	72	2.6	3.3	20	6
CU	301 & 302	230	85	-15	100	2.5	3.3	20	6
AU	301 & 302	230	85	30	100	2.5	3.3	20	8
AG	301 & 302	240	85	90	165	2.5	3.3	20	6
AS	301 & 302	230	85	75	100	2.5	3.3	20	6
BI	301 & 302	240	85	-40	150	2.5	3.3	20	6
FE	301 & 302	240	85	-40	100	2.5	3.3	20	6
PB	301 & 302	230	85	65	100	2.5	3.3	20	6
S	301 & 302	230	85	170	100	2.5	3.3	20	6
ZN	301 & 302	240	85	140	100	2.5	3.3	20	8
MGO	301 & 302	240	85	-145	100	2.5	3.3	20	6
DENSITY	301 & 302	240	85	150	100	2.5	3.3	20	6

Criteria	JORC Code Explanation	Commentary

C4		Rotation			Max Search	D1/D2	D1/D3	Optimum	Minimum
Element	Domain	Azimuth	Dip	Pitch	Distance	ratio	ratio	Samples	Samples
CU	41	70	47	22.5	160	2.3	8.0	20	6
AU	41	70	47	22.5	120	2.0	5.5	20	6
AG	41	70	47	20	140	1.6	4.7	20	6
AS	41	70	47	22.5	130	1.6	6.5	20	8
BI	41	70	47	22.5	180	2.0	9.0	20	6
FE	41	70	47	22.5	135	1.8	5.4	20	6
PB	41	70	47	22.5	110	2.2	5.5	20	6
S	41	70	47	22.5	135	1.6	6.8	20	6
ZN	41	70	47	22.5	127.5	1.9	4.3	20	6
MGO	41	70	47	22.5	130	1.6	6.5	20	6
DENSITY	41	70	47	22.5	130	2.2	6.5	20	6
CU	42	95	45	135	110	1.6	5.5	20	8
AU	42	95	45	135	120	1.5	4.8	20	8
AG	42	95	45	135	200	1.4	5.0	20	6
AS	42	95	45	140	200	2.0	5.0	20	8
BI	42	95	45	175	320	2.0	8.0	20	6
FE	42	95	45	135	160	2.5	5.3	20	6
PB	42	95	45	-157.5	120	1.8	3.2	20	6
S	42	95	45	135	130	1.4	5.2	20	6
ZN	42	95	45	65	120	2.0	5.3	20	6
MGO	42	95	45	135	160	2.7	6.4	20	8
DENSITY	42	95	45	135	160	2.3	5.3	20	6
CU	43	70	47	22.5	600	2.0	4.0	20	4
AU	43	70	47	22.5	600	2.0	4.0	20	4
AG	43	70	47	20	600	2.0	4.0	20	4
AS	43	70	47	22.5	600	2.0	4.0	20	4
BI	43	70	47	22.5	600	2.0	4.0	20	4
FE	43	70	47	22.5	600	2.0	4.0	20	4
PB	43	70	47	22.5	600	2.0	4.0	20	4
S	43	70	47	22.5	600	2.0	4.0	20	4
ZN	43	70	47	22.5	600	2.0	4.0	20	4
MGO	43	70	47	22.5	600	2.0	4.0	20	4
DENSITY	43	70	47	22.5	600	2.0	4.0	20	4
CU	401 - 405	65	47	180	500	2.0	4.0	20	4
AU	401 - 405	65	47	70	500	2.0	4.0	20	4
AG	401 - 405	65	47	80	600	2.0	4.0	20	4
AS	401 - 405	65	47	90	600	2.0	4.0	20	4
BI	401 - 405	65	47	90	600	2.0	4.0	20	4
FE	401 - 405	65	47	80	500	2.0	4.0	20	4
PB	401 - 405	65	47	100	500	2.0	4.0	20	4
S	401 - 405	65	47	85	500	2.0	4.0	20	4
ZN	401 - 405	65	47	165	500	2.0	4.0	20	4
MGO	401 - 405	65	47	180	500	2.0	4.0	20	4
DENSITY	401 - 405	65	47	80	500	2.0	4.0	20	4

Criteria	JORC Code Explanation	Commentary
		(see table below)

C5 Element	Domain	Rotation Azimuth	Dip	Pitch	Max Search Distance	D1/D2 ratio	D1/D3 ratio	Optimum Samples	Minimum Samples
CU	51	Dynamic Anisotropy			125	2.5	6.3	20	8
AU	51	Dynamic Anisotropy			180	3.0	8.0	20	8
AG	51	Dynamic Anisotropy			351	3.3	8.7	20	6
AS	51	Dynamic Anisotropy			130	1.9	5.2	16	8
BI	51	Dynamic Anisotropy			225	1.8	5.0	20	8
FE	51	Dynamic Anisotropy			150	2.5	6.0	20	6
PB	51	Dynamic Anisotropy			195	1.9	3.3	20	8
S	51	Dynamic Anisotropy			140	2.3	5.6	20	6
ZN	51	Dynamic Anisotropy			180	2.7	5.3	20	8
MGO	51	Dynamic Anisotropy			125	1.8	3.3	20	8
DENSITY	51	Dynamic Anisotropy			120	2.2	4.8	20	6
CU	52	Dynamic Anisotropy			125	2.5	6.3	20	8
AU	52	Dynamic Anisotropy			180	3.0	8.0	20	8
AG	52	Dynamic Anisotropy			351	3.3	8.7	20	6
AS	52	Dynamic Anisotropy			130	1.9	5.2	16	8
BI	52	Dynamic Anisotropy			225	1.8	5.0	20	8
FE	52	Dynamic Anisotropy			150	2.5	6.0	20	6
PB	52	Dynamic Anisotropy			195	1.9	3.3	20	8
S	52	Dynamic Anisotropy			140	2.3	5.6	20	6
ZN	52	Dynamic Anisotropy			120	2.7	5.3	20	8
MGO	52	Dynamic Anisotropy			125	1.8	3.3	20	8
DENSITY	52	Dynamic Anisotropy			120	2.2	4.8	20	6
CU	53	Dynamic Anisotropy			375	2.5	6.3	20	4
AU	53	Dynamic Anisotropy			432	3.0	8.0	20	6
AG	53	Dynamic Anisotropy			562	3.3	8.7	20	4
AS	53	Dynamic Anisotropy			390	1.9	5.2	20	4
BI	53	Dynamic Anisotropy			375	1.8	5.0	20	4
FE	53	Dynamic Anisotropy			450	2.5	6.0	20	4
PB	53	Dynamic Anisotropy			325	1.9	3.3	20	4
S	53	Dynamic Anisotropy			420	2.3	5.6	20	4
ZN	53	Dynamic Anisotropy			240	2.7	5.3	20	4
MGO	53	Dynamic Anisotropy			250	1.8	3.3	20	4
DENSITY	53	Dynamic Anisotropy			360	2.2	4.8	20	4
CU	501 - 504	Dynamic Anisotropy			180	1.8	4.5	16	6
AU	501 - 504	Dynamic Anisotropy			160	2.3	5.3	16	4
AG	501 - 504	Dynamic Anisotropy			510	1.7	5.7	20	4
AS	501 - 504	Dynamic Anisotropy			210	2.6	7.0	16	6
BI	501 - 504	Dynamic Anisotropy			585	2.2	8.7	20	4
FE	501 - 504	Dynamic Anisotropy			170	3.4	8.5	20	6
PB	501 - 504	Dynamic Anisotropy			200	1.8	6.7	16	6
S	501 - 504	Dynamic Anisotropy			180	3.0	9.0	20	6
ZN	501 - 504	Dynamic Anisotropy			160	2.3	5.3	16	6
MGO	501 - 504	Dynamic Anisotropy			270	2.3	4.5	20	4
DENSITY	501 - 504	Dynamic Anisotropy			200	2.9	5.0	20	6

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 as at the end of December 2018.
	The assumptions made regarding recovery of by-products.	No assumptions are made regarding recovery of by-products during the Mineral Resource estimation.

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td></td><td>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</td><td>Estimates includes deleterious or penalty elements Pb, Bi, Zn, As and MgO.</td></tr>
<tr><td></td><td>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</td><td>Data spacing was the primary consideration taken into account when selecting an appropriate estimation block size. The drill hole spacing is approximately 10m x 15m for all domains.
The model geometry are tabulated below.
<table>
<tr><th colspan="4">degdec17d Block Model</th></tr>
<tr><td></td><td>Northing</td><td>Easting</td><td>Elevation</td></tr>
<tr><td>Minimum Coordinates</td><td>7,172,850</td><td>733,250</td><td>1,700</td></tr>
<tr><td>Maximum Coordinates</td><td>7,173,750</td><td>735,250</td><td>2,800</td></tr>
<tr><td>Parent Block Size</td><td>5m</td><td>5m</td><td>5m</td></tr>
<tr><td>Minimum Sub-cell</td><td>1m</td><td>0.5m</td><td>0.5m</td></tr>
</table></td></tr>
<tr><td></td><td>Any assumptions behind modelling of selective mining units.</td><td>No selective mining units are assumed in this estimate.</td></tr>
<tr><td></td><td>Any assumptions about correlation between variables.</td><td>Density is only sampled on a limited but representative number of drillholes throughout the deposit. From the measured density data there exists a strong correlation between density, Fe and S. Before compositing, regression analysis was undertaken to estimate the conditional expectation of density where Fe and S are known for all drill holes by orebody. Where Fe or S were not assayed, a default density of 3.8g/cm3 was applied within the massive sulphide and 2.8g/cm3 for halo mineralisation. Measured density values are preserved with predicted density only used where there is no density data.
The regression formulas are tabulated below:
<table>
<tr><th>Lode</th><th>Regression Equation</th></tr>
<tr><td>C1/C1E</td><td>PDENSITY = 2.5077 + (0.0202*FE_PCT) + (0.0237*S_PCT)</td></tr>
<tr><td>DG</td><td>PDENSITY = 2.4304 + (0.0230*FE_PCT) + (0.0226*S_PCT)</td></tr>
<tr><td>C4</td><td>PDENSITY = 2.5176 + (0.0198*FE_PCT) + (0.0224*S_PCT)</td></tr>
<tr><td>C5</td><td>PDENSITY = 2.4781 + (0.0230*FE_PCT) + (0.0215*S_PCT)</td></tr>
</table></td></tr>
<tr><td></td><td>Description of how the geological interpretation was used to control the resource estimates.</td><td>The geological interpretation wireframes correlate with the massive sulphide mineralisation boundaries. The block model is assigned unique mineralisation domain codes that corresponds with the geological domain as defined by wireframes. Geological interpretations are then used as hard boundaries during interpolation where blocks are estimated only with composites having the corresponding domain code.</td></tr>
<tr><td></td><td>Discussion of basis for using or not using grade cutting or capping.</td><td>Top cuts were applied to isolated high-grade composites prior to estimation where applicable based on review of histograms, statistical analysis of composites and consideration of 3D spatial position.</td></tr>
</table>

Criteria	JORC Code Explanation	Commentary
	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; • Swath plots of the estimated block grades and composite mean grades are generated by eastings, northings and elevations and reviewed to ensure acceptable correlation; and • Block Kriging Efficiency (KE) and Slope of Regression (ZZ) are used to quantitatively check the estimation quality. Reconciled production data verse Mineral Resource estimate is positive.
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 cut-off of 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 underground mining method is long-hole open stoping (both transverse and longitudinal) with minor areas of jumbo cut and fill or uphole benching in some of the narrower areas. The primary method of backfill is paste fill. The sequence aims for 100% extraction of the orebody. Detailed mine plans are in place and mining is occurring.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	The Ore Reserve estimate is based on an operating 1.6Mtpa process plant producing a 24.5% copper-concentrate that contains gold and silver. Copper recovery models based on Copper:Sulphur ratio were used in the determination of the Ore Reserve estimate. Average weighted LOM copper recovery is 91.7%. Gold recovery was fixed at 44%. Silver recovery was fixed at 40%.
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.*	Bulk density was sampled on a limited (approximately 10%) but representative number of drill holes throughout the deposit. Sample mass was determined by weighing the core in air and sample volume was determined by the Archimedes principle. Within the massive sulphide the density varies approximately between 2.8g/cm3 to 4.9g/cm3, with an average density reading of 3.8g/cm3. 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	From the measured density data there exists a strong correlation between density, Fe and S. Before compositing, regression analysis was undertaken to estimate the conditional expectation of density where Fe and S are known for all drillholes by orebody. Where Fe or S were not assayed, a default density of 3.8g/cm3 was applied within the massive sulphide and 2.8g/cm3 for halo mineralisation. Measured density values are preserved with predicted density only used where there is no density data. The regression formulas are tabulated below: <table><tr><th>Lode</th><th>Regression Equation</th></tr><tr><td>**C1/C1E**</td><td>PDENSITY = 2.5077 + (0.0202*FE_PCT) + (0.0237*S_PCT)</td></tr><tr><td>**DG**</td><td>PDENSITY = 2.4304 + (0.0230*FE_PCT) + (0.0226*S_PCT)</td></tr><tr><td>**C4**</td><td>PDENSITY = 2.5176 + (0.0198*FE_PCT) + (0.0224*S_PCT)</td></tr><tr><td>**C5**</td><td>PDENSITY = 2.4781 + (0.0230*FE_PCT) + (0.0215*S_PCT)</td></tr></table>
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The Mineral Resource is classified as a function of drillhole spacing and geological continuity. Areas where drilling has been completed on a nominal 10m x 15m pattern, where geological continuity is high and proven through mining are classified as Measured. Areas where drill density is 40m x 40m or less and geological continuity is moderate to high are classified as indicated. Elsewhere where drill density is sparse the resource is classified as Inferred.
	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.
	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 process for geological modelling, estimation and reporting of Mineral Resources is industry standard and has been subject to an independent external review. The DeGrussa Mineral Resource Estimate was audited by Cube Consulting Pty in late 2017 to early 2018 as part of SFR's routine governance practices. The audit assessed SFR's compliance with reporting under the JORC Code (2012) regime and considered the guidelines and reporting standards stated in the Code. Cube also considered the overall quality of the resource estimate and the main risks associated with the data, process and implementation approach adopted by SFR. The findings from the audit show that the data, interpretation, estimation parameters, implementation, validation, documentation and reporting are all fit for purpose with no material errors or omissions and that SFR have completed the work with a high degree of professionalism. The resource estimate is of high industry standard suitable for both public reporting and internal mine design and scheduling.

Criteria	JORC Code Explanation	Commentary
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The 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. Resource has been reconciled against mined areas and results indicated appropriate accuracy.
	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 DeGrussa Mineral Resource Estimate is a global estimate.
	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 positive.

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 31st December 2018. 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 Ore Reserve statement is a full-time employee of Sandfire Resources NL (SFR), is based in Perth, 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 copper only cut-off grades have been calculated and applied as economic cut-offs in the determination of the underground Ore Reserves. These are based on current and forecasted costs, revenues, mill recoveries and modifying factors, forecast for the life of the mine. These cut-off values are: • Full cost cut-off grade (1.9%) – is based on all operating costs associated with the production of copper metal; • Stope incremental cut-off grade (1.6%) - considers material below the full cost cut-off that is accessible; and • Development cut-off grade (0.9%) – 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).*	Underground 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 block model interrogation to generate final mining diluted and recovered ore tonnage and grade.
	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. Cut and fill techniques are also employed in remnant areas. 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 (e.g. 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 31st December 2018 was used as the basis for stope and development design. No modifications were made to this model for mine design purposes.

Criteria	JORC Code Explanation	Commentary
	The mining dilution factors used.	Internal stope dilution from interrogation of detailed mining shapes against the geological block model ranges from 5% to 70% with a weighted average of 16%. External stope dilution is applied to stopes on an individual basis and is based on mining experience to date. This ranges from 5% to 45% with a weighted average of 11%. 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 85% to 105% with a weighted average of 99%. The factor is applied to diluted stopes.
	Any minimum mining widths used.	A minimum mining width of 2.0m is used based on the nature of the deposit and the equipment fleet employed.
	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 0.02% of Inferred Mineral Resource. This material is included in mining shapes therefore has mining modifying factors applied. Its inclusion and subsequent impact on economic viability is 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.
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 underground Ore Reserve estimate is based on an operating 1.6Mtpa process plant producing a 24.5% copper-concentrate that contains gold and silver. Copper recovery models based on Copper:Sulphur ratio were used in the determination of the underground Ore Reserve estimate. Average weighted LOM copper recovery is 91.7%. Gold recovery was fixed at 44%. Silver recovery was fixed at 40%.
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. No allowances required for deleterious elements (see Market Assessment) Exchange rates are based on consensus forecasts and vary over the life of the mine. The life-of-mine average rate is: • A$/US$: 0.79. Land freight and port charges are based on existing contracts. Sea freight charges based on Braemar indices. TC / RC based on benchmark. 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 Royalty rate for Native Title is: • 0.6% of gross revenue (copper, gold, silver).
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 consensus forecasts and vary over the life of the mine. The life-of-mine average values are: • Copper (US$/t): $6,946; • Gold (US$/oz): $1,265; and • Silver (US$/oz): $15.73. A revenue reduction factor of 21.2% has been applied which includes all future estimated and calculated transport, smelting, refining and royalty payments. The factor is based on current costs, payments and charges.
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.

Criteria	JORC Code Explanation	Commentary
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 claimants.
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 and valid marketing arrangements are in place.
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 2018 Mineral Resources. Underground Ore Reserves are initially derived from development and stope designs that are evaluated against Mineral Resources. Designs do not inherently honour mineral resource classification boundaries therefore designs contain multiple mineral resource classification material types. Proved Ore Reserves have been derived from designs that contain greater than 70% Measured Mineral Resources. Probable Ore Reserves have been derived from designs that contain greater than 70% Indicated Mineral Resources and less than 70% Measured Mineral Resources. Proved Ore reserves contain approximately 9% Indicated Mineral Resources and Probable Ore Reserves contain approximately 46% Measured Mineral Resources. Final classification is set after considering all relevant modifying factors. The underground Ore Reserve classification appropriately reflects the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	The underground Ore Reserve has been peer reviewed internally. The underground Ore Reserve estimate is in line with current industry standards.

Criteria	JORC Code Explanation	Commentary
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.*	The project is considered robust with the underground Ore Reserve copper grade of 4.1% Cu significantly higher than the full cost cut-off grade of 1.9% Cu. Approximately 5.0% of the underground Ore Reserve tonnes which contains 2.0% of the underground Ore Reserve contained copper tonnes falls between the development cut-off copper grade of 0.9% Cu and the full cost cut-off grade of 1.9% Cu. There has been an appropriate level of consideration given to all modifying factors, which are established from an operating mine, to support the declaration and classification of underground Ore Reserves. No statistical or geostatistical procedures were carried out to quantify the accuracy of the underground Ore Reserve. Underground Ore Reserve tonnes are split 7 % DG, 32 % C1, 30 % C4, and 31 % C5 with the remaining in stockpiles. Annual ore production for the LOM roughly aligns with the underground Ore Reserve split. Approximately 83% of the underground Ore Reserves tonnes are classified as Proved with the remaining 17% classified as Probable.