

ASX Announcement

POSITIVE MONTY FEASIBILITY STUDY PAVES WAY FOR DEVELOPMENT OF NEW HIGH-GRADE COPPER MINE

Highlights

- Feasibility Study completed for the high-grade Monty Copper-Gold Project (Sandfire 70% and manager; Talisman Mining 30% (ASX: TLM)), confirming its suitability to be developed as a satellite source of high-grade ore feed for the existing DeGrussa operation.
- Robust life-of-mine (LOM) study outcomes include:
 - Mine Plan of 0.80 million tonnes grading 9.4% copper and 1.5g/t gold for 74,000 tonnes of contained copper and 38,000 ounces of contained gold (100% basis)
 - Total contained metal production of 70,000t copper, 21,000oz gold, 288,000oz silver
 - o Three-year production life following one year of access development
 - Pre-production outlay of \$50M (70% JV share) including project capital and pre-production costs
- Maiden Monty Ore Reserve:
 - 0.92 million tonnes grading 8.7% copper and 1.4g/t gold for 80,000 tonnes of contained copper and 42,000 ounces of contained gold (100% basis)
- Sandfire will purchase Talisman's 30% share of the Monty JV ore under an Ore Sale and Purchase Agreement (OSPA). All Monty ore will be processed at the DeGrussa Concentrator, where concentrate capacity will be expanded to 400,000tpa.
- DeGrussa mining rate to be reduced from current 1.6Mtpa to 1.2-1.3Mtpa from mid-FY2019 to allow ore from Monty to be blended in at a rate of 0.3-0.4Mtpa.
- The 16.42km² Monty Mining Lease and Miscellaneous Licence for the haul road to DeGrussa granted. All remaining approvals are expected by end-FY2017.
- Early work packages have commenced for development of the Monty Project, including tendering for the main contracts. Development of the box-cut for the underground portal is expected to commence during Q2 FY2018.
- Sandfire's share of capital expenditure to be internally funded by cash reserves and cash-flow from the DeGrussa operation.
- The Monty discovery reflects the high-grade copper-gold endowment within the region and has opened up a highly prospective corridor as a priority focus for ongoing exploration. A new program of deep diamond drilling will commence shortly to test the prospective sequence at depth, along strike of Monty and provide a DHEM platform, in conjunction with other ongoing exploration activities along the Monty Mine Corridor.

Sandfire Resources NL (ASX: SFR; "Sandfire") is pleased to announce that the Feasibility Study ("Study") on the Monty Copper-Gold Project (**Monty Project**), located 10km east of its 100%-owned DeGrussa Copper-Gold Mine in Western Australia (Figure 1), has been completed and approved by the Springfield Joint Venture.

The robust technical and financial outcomes of the Study confirm the Monty Project's suitability to be developed as an underground satellite source of high grade ore feed to supplement copper production from the existing DeGrussa mining operation.

The Monty Project is part of the Springfield Unincorporated Joint Venture, which comprises participating interests of Sandfire (manager – 70% interest) and Talisman Mining Limited (ASX: TLM; "Talisman") (30% interest). The Study was compiled by Sandfire with input from a number of key contributors, consultants and industry experts, as well as in-house Sandfire personnel.

Early works have commenced for the development of the Monty deposit, including statutory approvals, design work and tendering for contracts. The Mining Lease for the Monty Project has been granted by the Department of Mines and Petroleum of Western Australia, and all other tenure has been granted with final development approvals expected by end-FY2017. Development of the box-cut is expected to commence during Q2 FY2018. Ore production is expected to commence in Q2 FY2019, with first stoping to follow soon after.



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

Monty Mineral Resource, Ore Reserve and Mine Plan

The maiden Monty Mineral Resource was announced on 14 April 2016. Following completion of the Study, the maiden Ore Reserve and Mine Plan is set out in Table 1 below.

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	Mt	Cu (%)	Au (g/t)	Contained Cu (t)	Contained Au (oz)
Mineral Resource	1.05	9.4	1.6	99,000	55,000
Ore Reserve	0.92	8.7	1.4	80,000	42,000
Mine Plan	0.80	9.4	1.5	74,000	38,000

Table 1: Monty Mineral Resource, Ore Reserve and Mine Plan (100% basis)

The Mine Plan incorporates the mining of the Lower Zone, which is the higher grade portion of the Ore Reserve. The Upper Zone, while marginally economic, will be subject to further technical and economic assessment in due course.

See Appendix 1, Appendix 2 and JORC Table 1 to this announcement for further detail on the Monty Mineral Resource, Ore Reserve and Mine Plan.

Table 2: Capital expenditure and mine development				
	Sandfire (70%) \$M	Monty Project (100%) \$M		
Project capital	22	32		
Pre-production costs	28	40		
Sustaining capital	13	18		
Total capital	63	90		

Project capital includes surface infrastructure, access road and other facilities. Pre-production costs include mine development (70%: \$14 million), underground mine infrastructure (70%: \$6 million) and mine services and administration costs (70%: \$8 million).

Site works are expected to commence in Q1 FY2018 with the cutting of the decline portal expected to begin in Q2 FY2018. Underground development will take one year before the first ore is accessed and grade control definition drilling is undertaken. Ore production is expected to commence in Q2 FY2019, with first stoping to follow soon after.

Sandfire and Talisman will jointly fund the development of the access road to DeGrussa, surface infrastructure (including power, buildings and crush/fill), underground development and mining activities through monthly cash calls.

Sandfire expects to fund its portion of the Monty capital expenditure and pre-production capital from existing cash reserves and future cash-flow from the DeGrussa mining operation.

Monty Mining

An underground mine will be developed comprising over 10km of lateral development and 500m of vertical development. As with DeGrussa, further drilling of the Monty orebody will be completed from access points along the decline to assist with grade control, mine development planning and further metallurgical testwork.

Sandfire has agreed to purchase Talisman's 30% share of Monty ore under an Ore Sale and Purchase Agreement (OSPA) utilising a weighbridge to be installed at the DeGrussa ROM. Following purchase, 100% of Monty ore will be blended into the DeGrussa processing plant and Sandfire will incur production and operating costs post the DeGrussa weighbridge.

Monty ore will be purchased from Talisman on a sliding scale with recognition of the prevailing copper, gold and silver prices and annual indexed cost adjustments.

At Study commodity prices and exchange rates Sandfire would purchase each tonne of ore from Talisman for \$513/t (US\$2.02 per payable pound). The purchase price increases/decreases by ~\$67 per tonne for each 10% movement from Study prices (Cu US\$6,118/t at USD:AUD 0.72).

Mining cash operating costs at Monty are expected to be similar to DeGrussa on a costs per pound of payable copper production (C1) basis. Higher ore unit mining costs associated with narrower orebody width, smaller stope size and the use of cemented aggregate fill (rather than paste fill as used at DeGrussa) will be offset by the higher grade of the Monty deposit.

The existing 1.6Mtpa DeGrussa mining rate will progressively reduce from mid-FY2019, to allow capacity for ore from Monty to be blended and resulting in an alignment of the production profiles of the two mines through to 2021.

Monty Ore Production and Copper Grade



An updated DeGrussa Mineral Resource, Ore Reserve and Mine Plan, incorporating the integration of the Monty Project, is expected to be available for release in Q4 FY2017.

DeGrussa Processing

Metallurgical test work completed on the Monty ore has demonstrated a continuation of the DeGrussa recovery curve, where recoveries typically increase in line with higher Cu:S ratio and associated copper grade. Monty ore is expected to blend well with DeGrussa ore and increase overall head grade, recovery and concentrate production, with no material impact expected on concentrate quality or marketability.

As previously announced, the flotation capacity of the DeGrussa plant will be expanded with the addition of a second column cell and additional thickening and filter capacity (to allow peak 400,000tpa concentrate production).

These additions will enhance DeGrussa recovery, facilitate the recovery of additional copper units from Monty ore and accommodate higher concentrate production rates.

Springfield Joint Venture Agreements

In addition to the OSPA outlined above, Sandfire and Talisman have also signed a more detailed Exploration Joint Venture Agreement (EJVA) over the Springfield Project as well as a Mining Joint Venture Agreement (MJVA) over the Monty deposit and immediate surrounding area. These agreements are based on the model forms published by the Australian Mining and Petroleum Lawyers Association (**AMPLA**). Key terms include:

<u>EJVA</u>

• All decisions made by majority vote of percentage joint venture ownership interest except for a small number of items that must be made by unanimous decision;

- Day-to-day operation of the joint venture rests with the manager, with Sandfire appointed as initial manager of the joint venture;
- All budgets set by the manager and approved by majority vote; and
- Dilution provisions to apply if any joint venturer does not contribute its share of any budget.

<u>MJVA</u>

- Economic discoveries from the EJVA become subject to the MJVA (or a new MJVA depending on their scale) after completion of a bankable feasibility study;
- Monty deposit to be developed and mined under the MJVA;
- Majority of terms from the EJVA are repeated in the MJVA; and
- Sandfire has been appointed manager of the MJVA.

Key Project Fundamentals

	FS Fundamentals			
Mining method	Long Hole Open Stoping (LHOS) with cemented aggregate fill (CAF) and loose rock fill (RF)			
Development	10km decline and lateral development, 0.5km vertical development			
Project construction	12 months (commencing start-FY2018)			
First ore production	Q2 FY2019			
Mine life	Three years plus one year access development			
Concentrator metal production (100%):	Contained metal	Payable metal		
Copper production	70,000 tonnes	67,000 tonnes		
Gold production	21,000 ounces	19,000 ounces		
Silver production	288,000 ounces	187,000 ounces		

Approvals

Mining Lease 52/1071 has been granted by the Department of Mines and Petroleum of Western Australia. This key milestone was achieved following the execution of a State Deed between the Yugunga-Nya Native Title Claimants and the Monty Joint Venture Partners.

The granted Mining Lease covers a total area of 16.42km² around the Monty deposit and has an initial term of 21 years. A Miscellaneous Licence which will accommodate a haul road between Monty and DeGrussa has also been granted by the Department of Mines and Petroleum.

As a result these regulatory milestones, all tenure in relation to the Monty Project has now been granted, allowing the remaining development approvals to be lodged. All remaining approvals are expected to be in placed by around end-FY2017.

Management Comment

Sandfire's Managing Director, Mr Karl Simich, said the completion of the Feasibility Study on the ultra-high grade Monty deposit marked another significant milestone for the Company towards its objective of unlocking the full potential of the Doolgunna region.

"Monty will be the first new copper mine at Doolgunna outside of DeGrussa, and we believe that the discovery and rapid development of this high quality deposit represents the start of an exciting new chapter for this emerging VMS province," he said.

"The Feasibility Study has delivered impressive results, confirming the technical and financial robustness of the Monty Project as a satellite source of ore feed for DeGrussa. This confirms that

Monty will make a significant contribution to the production profile and overall economics of the DeGrussa mining operation.

"As a result of the OSPA, 100 per cent of the Monty ore will be processed through the DeGrussa Concentrator under a structure which will seamlessly integrate the project into the overall DeGrussa Project. This will ensure the efficient utilisation of our existing plant and infrastructure in the region while at the same time maximising the returns from mining this high-grade deposit."

"Against the backdrop of a generally stronger copper price environment in recent months, this is an exciting time to bring a new high-grade copper deposit into production. Monty will effectively become our second standalone copper mine in the Bryah Basin and will be the fifth lens of high-grade copper-gold mineralisation to come on stream.

"Since the original discovery at DeGrussa, Sandfire has now brought more than 650,000 tonnes of copper into underground mine plans including the original mine at DeGrussa and now a new mine at Monty."



DeGrussa - Monty VMS Field Discoveries

Figure 3: VMS field discoveries at DeGrussa and Monty, showing contained copper in underground mine plan

"The evolution of VMS fields globally is typically based around the discovery of multiple, spatially discrete clusters of deposits. Given that we have so far only discovered two centres of mineralisation, we believe the Doolgunna region is still at a very early stage in its discovery history.

"We also believe that the establishment of a new underground mine will open up the Monty corridor to more effective exploration from underground drilling platforms, while at the same time providing us with significant insights into the exploration potential of the surrounding area.

"Our exploration teams are currently advancing a number of other exciting exploration prospects to the next stage – and where the opportunity for significant new discoveries remains," Mr Simich 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 Ekow Taylor who is a Member of The Australasian Institute of Mining and Metallurgy. Mr. Taylor is a permanent employee of Sandfire Resources NL and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Taylor consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Competent Person's Statement – Ore Reserves

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

Forward-Looking Statements

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

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: Monty Project - Ore Reserve and Mineral Resource

Monty Project Ore Reserve and Mineral Resources are shown in Table 1. Ore Reserves are declared after considering all modifying factors. Ore Reserves are derived from a feasibility Base Case that extracts material from both the Upper Zone and Lower Zone.

Monty Mine - Underground as at 31 March 2017			Ore Re	eserve*					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
Sandfire Resources NL	Proved	-	-	-	-	-	Measured	-	-	-	-	-
70% Interest	Probable	0.64	8.7	1.4	56,000	29,000	Indicated	0.73	9.3	1.6	68,000	38,000
							Inferred	0.01	20.7	2.7	1,000	1,000
	Total	0.64	8.7	1.4	56,000	29,000	Total	0.74	9.4	1.6	69,000	39,000
Talisman Mining Ltd	Proved	-	-	-	-	-	Measured	-	-	-	-	-
30% Interest	Probable	0.28	8.7	1.4	24,000	13,000	Indicated	0.31	9.3	1.6	29,000	16,000
							Inferred	0.00	20.7	2.7	1,000	0
	Total	0.28	8.7	1.4	24,000	13,000	Total	0.32	9.4	1.6	30,000	16,000

Table 1: Ore Reserve and Mineral Resource

*Calculations have been rounded to the nearest 1,000t, 0.1% Cu grade and 1,000t Cu metal, 0.1g/t Au grade, 1000oz Au metal, differences may occur due to rounding.

**Mineral Resource estimate for the Monty deposit as of 31 March 2016. SFR ASX release 13 April 2016.

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 0.6 g/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.

The LOM Plan includes the Lower Zone Ore Reserves and Inferred Mineral Resources. The same modifying factors as considered and used in estimating the Ore Reserves have been applied to the Inferred Mineral Resources. Modified Inferred Mineral Resources account for 20,000 tonnes at 9.4% Cu grade for 1000 copper tonnes of the LOM Plan.

Ore Reserve Summary

The owner and proponent of Monty is an Unincorporated Joint Venture between SFR and TLM. SFR holds a 70% interest in the Joint Venture and is the manager while TLM holds the remaining 30% as minority holder. The Joint Venture is based on three agreements, namely:

- Exploration JV Agreement (EJVA);
- Mining JV Agreement (MJVA); and
- Ore Sale and Purchase Agreement (OSPA).

All three agreements have been signed. The ore sale will be enacted prior to delivery to the existing DeGrussa ROM pad.

The Underground Ore Reserve estimate is based on the Monty deposit Mineral Resource estimate as at the 31 March 2016. The estimation and reporting of the Monty deposit Mineral Resources is outlined in SFR ASX Announcement, dated 13 April 2016. Mineral Resources reported are inclusive of Ore Reserves.

The Ore Reserves are declared based on the outcome of a feasibility study that was completed between June 2016 and April 2017.

The Monty project is a time constrained project that requires its mining life to align with the processing life of the nearby DeGrussa mine. The Ore Reserve must be accessed as early as practical to minimise extraction risk and provide production capacity and flexibility.

The mining method selected as the basis of the Ore Reserves is LHOS with fill. Primary fill material will be Cemented Aggregate Fill (CAF) with unconsolidated rock fill (RF) used where consolidated fill is not required. This method allows for total extraction where economic and provides good extraction flexibility with variable geometry and ground conditions.

An industry accepted empirical stability chart method has been used to determine stope size. Stope size in the Upper Zone (UZ) is constrained because of the influence of rock fracturing and oxidation associated with a significant structure called the Arneis Fault. This fault runs sub-parallel to and in and out of the UZ mineralisation. The level of confidence in stope performance in this zone is considered low. Rock mass conditions in the Lower Zone (LZ) are considered to be fair to very good with mineralisation geometric complexity a primary influence on stope size.

Orebody geometric complexity impacts on internal stope dilution tonnage and ranges from 5% to 90% with an average of 17%. Internal dilution is at zero grade. An external dilution factor is applied to stopes to account for blasting practices and expected local ground conditions. The LZ uses a 3% external dilution tonnage factor at zero grade. The UZ uses a 33% external dilution tonnage factor at an average grade of the Halo Mineral Resource that envelops the massive sulphide.

A mining recovery factor of 95% is applied to all diluted stopes. A minimum mining width of 3.0m has been used which takes account of the selected equipment fleet, productivity requirements and the nature of the mineralisation.

Three copper only break-even grades have been calculated as economic cut-offs in the determination of the Ore Reserves. Gold provides approximately 6% and Silver 1% of the revenue based on payable metal therefore contribute to project economics but do not drive project economics.

Monty ore will be processed at the DeGrussa concentrator and blended with DeGrussa ore. The DeGrussa plant will operate at 1.6 Mtpa and Monty will comprise up to 25% of the ore presented to the plant. The plant will produce a 24.5% copper-concentrate that contains gold and silver. This product will be sold into the global market for custom concentrates.

The Monty orebody is a volcanogenic massive sulphide similar in composition to the nearby DeGrussa orebodies. Testwork on the Monty ore has shown that flotation and comminution characteristics of the ores are similar to DeGrussa ore and Monty can be treated at DeGrussa with high recoveries.

Monty will utilise existing infrastructure and services installed to support mining operations at DeGrussa. Infrastructure requirements specific to Monty is a 14km long access haul road, PAF waste rock storage, ore stockpile, diversion drains and bunds, water storage and event ponds, mining offices, muster/crib room, toilets and first

aid treatment, fuel storage and dispensing, service facilities for underground mining equipment, power generators and power distribution, waste water treatment plant with spray fields and communications tower.

The project is considered to be economically robust. The project is most sensitive to copper price, copper grade and exchange rate. Individual variations in copper price (-20%), average copper grade (-15%) and exchange rate (+10%) all produce positive economic outcomes.

All the necessary studies required to complete the various applications for environmental and other statutory approvals have been completed and reported.

All areas of the proposed development have been surveyed in accordance with the Aboriginal Heritage Act 1972 (WA) and any areas of significance have been noted and plotted on development plans.

The Mining Lease M52/1071 over the Monty Project covers all mining and support infrastructure required before being transported to DeGrussa for processing. This lease was applied for 13 July 2016 and was granted 30 March 2017. Miscellaneous License L52/170 is for Monty Haul Road and other infrastructure such as pipelines and power lines, as required. This License was granted 17 February 2017.

Underground Ore Reserves have been derived from a mine plan that is based on extracting the 31 March 2016 Mineral Resources. Probable Ore Reserves have been derived from Indicated Mineral Resources after consideration of all modifying factors.

The UZ is marginally economic therefore is sensitive to changes in the key economic inputs e.g. copper price, copper grade. The UZ contains approximately 15% of the Ore Reserve tonnes and 8% of the Ore Reserve contained copper.

JORC 2012 MINERAL RESOURCE AND ORE RESERVE PARAMETERS - Monty Project

Section 1, 2 & 3

See Appendix 1 of the Sandfire ASX release dated 13 April 2016 for Monty Maiden Mineral Resource Estimate.

Section 4 – Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Comme	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 Reserve estimate is based on the Monty deposit Mineral Resource estimate as at the 31 Maro 2016. This estimate does not contain a Measured Mineral Resource therefore only the Indicated Mineral Resource available for conversion to an Ore Reserve. The Indicated Mineral Resource constitutes 99% of the total Monty depo Mineral Resource estimate tonnes and 98% of the total contained copper. The remainder is classified as Inferred Mineral Resource.				esource estimate as at the 31 March ly the Indicated Mineral Resource is titutes 99% of the total Monty deposit ainder is classified as Inferred Mineral I Resource by RL is tabulated below.	
				Name	RL	Tonnes (%)	Contained Copper (%)
			UZ		>=410mRL	22	11
			LZ		>=210mRL<410mRL	72	87
			LZ		<210mRL	6	2
				600mRL Lee Salina 500 mRL	Resource - looking South East.		Meres 0 X0 20 Flan view
		The esti April 20	imation 16.	All Mir	neralisation Types:	ral Resources is outlined in	a SFR ASX Announcement, dated 13
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral	Resou	rces reported	are inclusive of Ore Reser	ves.	

Criteria	JORC Code Explanation	Commentary
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.	A feasibility study was completed between June 2016 and April 2017.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The cut-off parameters used to determine the project Ore Reserves are based on 100% project ownership. JV charges and fees are also considered. Three copper only cut-off grades have been calculated as economic cut-offs in the determination of the Ore Reserves. These are based on study estimated costs, revenues, mill recoveries and modifying factors. The cut-off values are:
		Full cost cut-off grade (4.9% Cu) – is based on all operating costs associated with the production of copper metal.
		Stope incremental cut-off grade (3.2% Cu) - considers material below the full cost cut-off that is accessible, and
		Development cut-off grade (2.4% Cu) – considers material that has to be mined in the process of gaining access to fully costed economic material.
Mining factors or assumptions	The method and assumptions used as reported in the Pre- Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves have been estimated by generating detailed mining shapes that take account of cut-off grade criteria and geometric complexity for all areas that contain Indicated Mineral Resources. This also includes requirements for 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 model interrogation to generate final diluted and recovered material that is then reassessed against final Project cut-off grade criteria.
	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.	The Monty project is a time constrained project that requires its mining life to align with the processing life of the nearby DeGrussa mine. To minimise extraction risk and provide production capacity and flexibility the Ore Reserve requires to be accessed as early as practical. Development priority is given to accessing the Indicated Massive Sulphide Resource located between 210mRI and 410mRL.
		A deep weathering profile in the vicinity of the deposit has impacted on the selection of the location of the portal boxcut and subsequent decline pathway. Boxcut and decline development are located to provide early access to fresh rock in order to minimise orebody access timing risk.
		The mining method selected is long-hole open stoping (LHOS) with fill. Primary fill material will be Cemented Aggregate Fill (CAF) with unconsolidated rock fill (RF) used where consolidated fill is not required. This method allows for total extraction where economic and provides good extraction flexibility with variable geometry and ground conditions.
		An overhand mining sequence has been selected employing multiple mining panels. CAF sill pillars will be established to create mining panels. Strategic CAF rib pillars will be used to manage local stope and mining panel ground stability.
		The overhand sequence provides an opportunity to complete grade control drilling prior to accessing the orebody.
		The selected mining method is considered appropriate for the nature of the defined Mineral Resources and surrounding host rock. Experienced gained at the nearby DeGrussa underground mine has been adopted where applicable as extraction is expected to occur under comparable conditions.

Criteria	JORC Code Explanation	Commentary
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade	Both the boxcut and near surface decline locations have been assessed via specific diamond drilling programs and subsequent geotechnical assessment.
	control and pre-production drilling.	A 40m long primary surface ventilation raise is planned to be established in close proximity to the planned decline pathway. Geotechnical parameters for this raise have been derived from the nearby boxcut and decline geotechnical assessments.
		No <i>in situ</i> stress measurements have been undertaken. The stress field has been estimated to be low to moderate, supported by the measured stress field at DeGrussa, which is located approximately 10 km west of the Monty Project.
		Stope and development geotechnical parameters have been derived from core logging of dedicated geotechnical and metallurgical diamond drill holes, resource diamond drill holes, rock strength testing data and a structural model.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). The mining dilution factors used.	Stope stability (size) has been assessed using the industry accepted empirical stability chart method. This method is suitable to provide indicative stope stability assessments but reliable stability forecasts require local scale rock mass information. The method has known published limitations but is considered appropriate for this mine design in the manner in which it has been applied.
		Stope size in the Upper Zone (UZ) is constrained because of the influence of rock fracturing and oxidation associated with the Arneis Fault. This fault runs sub-parallel to and in and out of the UZ mineralisation. The level of confidence in stope performance in this zone is considered low.
		Rock mass conditions in the Low Zone (LZ) are considered to be fair to very good with mineralisation geometric complexity a primary influence on stope size.
		Grade control drilling requirements have been determined via the use of conditional simulation techniques. A drill hole spacing grid of 10m x 10m has been assumed.
		The Monty deposit Mineral Resources as at the 31 March 2016 was used as the basis for stope and development design. No modifications were made to this model for mine design and stope optimisation purposes.
		Internal stope dilution tonnage (waste material contained within the designed stope shape) has been captured via the stope design process and is variable dependent on the geometry of the mineralisation to be extracted. The geometry of the Monty deposit varies both on strike and dip with multiple lodes present. Internal stope dilution tonnage therefore varies and ranges from 0% to 90% with an average of 17%. Internal stope dilution is at zero grade.
		An external dilution factor (external to the stope shape) is also applied to stopes to account for blasting practices and expected local ground conditions. The UZ is impacted by the Arneis Fault that runs sub-parallel to and in and out of the mineralisation therefore a larger factor has been used compared to the LZ where ground conditions are better and are not impacted by a significant structure. The LZ uses a 3% external dilution tonnage factor at zero grade. The UZ uses a 33% external dilution tonnage factor at an average grade of the Halo Mineral Resource that envelops the massive sulphide.
	The mining recovery factors used.	A mining recovery factor of 95% is applied to all diluted stopes.
	Any minimum mining widths used.	A minimum mining width of 3.0m has been used which takes account of the selected equipment fleet, productivity requirements and the nature of the mineralisation.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No Inferred Mineral Resources are included in the Ore Reserves. The Monty deposit contains an Inferred Mineral Resource that constitutes less than 1% of the total mineral resource tonnage. Its inclusion in the LOM plan and subsequent impact on economic viability is negligible.

Criteria	JORC Code Explanation	Commentary
	The infrastructure requirements of the selected mining methods.	 The selected mining method requires the following infrastructure: Orebody access, including boxcut, and egress development drives and raises Orebody intake and return air ventilation development drives and raises Surface primary ventilation exhaust fans Underground service water and compressed air supply and dewatering system Underground communications system Underground power reticulation Crushing and screening facilities and a surface batch plant for shotcrete and CAF backfill supply Surface explosive storage
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well-tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	 The Ore Reserve estimate is based on an operating 1.6 Mtpa concentrator plant producing a 24.5% copper-concentrate that contains gold and silver. The ore from Monty will be treated subject to the terms of an Ore Sale and Purchase Agreement. The Monty orebody is a volcanogenic massive sulphide similar in composition to the nearby DeGrussa orebodies. The DeGrussa plant will operate at 1.6 Mtpa and Monty will comprise up to 25% of the ore presented to the plant. The level of testwork is considered adequate as a result of adopting a processing blend strategy and using the existing DeGrussa concentrator plant flowsheet. The testwork completed focused on: Understanding the comminution properties and how these properties affect the DeGrussa milling circuit achieving 1.6Mtpa at a primary grind of 45µm Performing flotation variability testing using the DeGrussa geometallurgical flowsheet to assess the robustness of this flowsheet on natural variations within the Monty ore Investigate the resultant concentrate specifications in order to determine the quality of the concentrate. Flotation testwork was based on a total of eleven quarter core and half core diamond drill holes that were selected to cover the deposit with respect to spatial variability, ore variability, ore mineralogy and waste types. Composites were created to reflect full ore zones plus adjacent waste. Comminution testwork included SMC, Bond Ball Work Index and abrasion testing. Seven large diameter PQ diamond drill holes were drilled for provide the samples. These holes were drilled "twinning" some of the geological significant areas determined from geotechnical drilling. In particular, in relation to known structural controls, grade ranges, mineralogy and waste characteristics. Testwork on the Monty ore has shown that flotation and comminution characteristics of the ores are similar to DeGrussa ore and Monty can be treated at DeGrussa with high recoveries. Cu

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Environmental	nmental 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	Monty will require a number of environmental approvals, including Mining Proposal (Mining Act), Works Approval and Environmental Licence (EP Act), Native Vegetation Clearing Permit (EP Act), Groundwater Licence (DoW Licence to Take Water). No separate Commonwealth environmental assessment will be required, nor will the project require assessment by the Office of the Environmental Protection Authority (WA).
		All the necessary studies required to complete the various applications have been completed and reported. Other reports completed include the Mine Closure Plan.
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.	Monty will utilise existing infrastructure and services installed to support mining operations at DeGrussa. The main items includes: Access road from the Great Northern Highway Raw water system and borefield Accommodation village Accommodation village Accordrome Assay laboratory Core farm External communication connections Underground heavy mobile equipment workshop Mine workers change room facilities DeGrussa ROM pad Infrastructure requirements specific to Monty include: A 14km access road to Monty that will connect the Monty mine to the DeGrussa ROM pad Site earthworks including laydown areas, Potential Acid Forming (PAF) waste rock storage, ore stockpile, diversion drains and bunds, water storage and event ponds Mining offices, muster/crib room, toilets and first aid treatment; Fuel storage and dispensing; Service facilities for underground mining equipment; Power generators and power distribution; Waste water treatment plant with spray fields; Communications tower; Crushing facilities, batch plant and CAF mixing.

Criteria	JORC Code Explanation	Commentary
Costs	JORC Code Explanation 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.	Commentary Capital and operating costs have been derived from first principles. Quantity information was derived from detailed design and factored from similar works. Cost information primarily supplied from: Existing DeGrussa contractors, and DeGrussa historical costs Monty ore will be subject to an ore treatment fee, as part of an Ore Sale and Purchase Agreement. The fee structure is subject to finalisation with negotiations nearing completion between Sandfire Resources NL (SFR) and Talisman Mining Ltd (TLM). No allowances have been made for deleterious elements. Exchange rates are based on ANZ bank December 2016 forecasts and vary over the life of the mine. The average weighted LOM AU\$:US\$ exchange rate is 0.72. Land freight and port charges are based on existing contracts. Sea freight charges based on Braemar indices. TC / RC based on benchmark. Monty is subject to Government Royalties. Rates for Government Royalties are: Copper is 5.0% of net revenue Gold is 2.5% of net revenue
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 the ANZ bank December 2016 forecast and vary over the life of the mine. Average weighted LOM values are: Copper price: US\$6,126/t Gold: US\$1,366/oz Silver: US\$18.72/oz
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.	Monty ore will be sold to SFR to be processed at DeGrussa into a copper concentrate containing gold and silver. SFR is a 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. SFR produces a clean concentrate, low in deleterious elements. SFR 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. SFR concentrate is sold by competitive tender.
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.	The economic evaluation has been completed on a 100% project ownership basis, including estimated JV charges and fees, and excludes tax considerations. The evaluation has not considered the commercial position of the respective JV parties. Cost inputs as outlined in Costs section with the exclusion of corporate overheads, exploration expenditure, project financing or interest charges and cost escalation. Revenue inputs as outlined in the Revenue factors section. The project is considered to be economically robust. The project is most sensitive to copper price, copper grade and exchange rate. Individual variations in copper price (-20%), average copper grade (-15%) and exchange rate (+10%) all produce positive economic outcomes.

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Social	The status of agreements with key stakeholders and matters leading to social license to operate.	Monty is located wholly within a registered Native Title Claim. An agreement (LAA) exists between the claimants and SF and the claimants have agreed to amend the existing LAA.				claimants and SFR	
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.	The owner and proponent of Monty is an Unincorporated Joint Venture between SFR and TLM. SFR holds a 70% intere in the Joint Venture and is the manager while TLM holds the remaining 30% as minority holder. The Joint Venture based on three agreements, namely: Exploration JV Agreement (EJVA); Mining JV Agreement (MJVA); and Ore Sale and Purchase Agreement (OSPA). All three agreements have been signed. All areas of the proposed development have been surveyed in accordance with the Aboriginal Heritage Act 1972 (W. and any areas of significance have been noted and plotted on development plans. The Mining Lease M52/1071 over the Monty Project covers all mining and support infrastructure required before beil transported to the DeGrussa for processing. Miscellaneous License L52/170 is for Monty Haul Road and oth infrastructure such as pipelines and power lines, as required. Tenement Area (ha) Area (km2) Holder(s) Application Date Grant Date					olds a 70% interest he Joint Venture is age Act 1972 (WA) quired before being al Road and other Grant Date
		M52/1071	1,642	16.42	SFR - TLM	13-Jul-16	30-Mar-17
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 Re Resources. Probabl modifying factors. The Ore Reserve cla The 31 March 2016 Unmodified Massive contained copper. Th Underground diamon	eserves have been of e Ore Reserves hat assification appropria Mineral Resource do Sulphide Indicated nese are generally lo nd drilling programs	derived from a mine ave been derived fr ately reflects the con bes not contain any Mineral Resources becated at the extremit will target these are	plan that is based om Indicated Mine npetent person's vi Measured Mineral comprise 191,000 ties of the defined c as during operation	on extracting the 31 I eral Resources after iew of the deposit. Resources. tonnes at 7.7% Cu fe prebody where the min	March 2016 Mineral consideration of all or 14,800 tonnes of eralisation narrows.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	Underground diamond drilling programs will target these areas during operations. The Ore Reserve has been internally reviewed. Modifying factors have been externally peer reviewed by: AMC Consultants Pty Ltd - Mining, geotechnical, geohydrology Battery Limits Pty Ltd - Metallurgical Mintrex Pty Ltd - Surface Infrastructure Integrate Sustainability Pty Ltd - Environment No fatal flaws were identified in the modifying factors by the external peer reviewers. } }					

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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 Ore Reserve copper grade of 8.6% Cu significantly higher than the full cost cut- off grade of 4.9% Cu. Approximately 19% of the Ore Reserve tonnes which contains 8% of the Ore Reserve contained copper tonnes falls between the development incremental cut-off copper grade of 2.4% Cu and the full cost cut-off grade of 4.9% Cu. There has been an appropriate level of consideration given to all modifying factors to support the declaration and classification of Ore Reserves. No statistical or geostatistical procedures were carried out to quantify the accuracy of the Ore Reserve. There is a lower level of confidence associated with the geotechnical parameters adopted to derive the Ore Reserves located in the UZ (>=410mRL) compared to those adopted for the LZ (<410mRL). This area is impacted by rock fracturing and oxidation associated with the Arneis Fault. This fault runs sub-parallel to and in and out of the UZ mineralisation that forms part of the Ore Reserve. This structure will negatively impact on stope performance in this zone. The zone is marginally economic therefore is sensitive to changes in the key economic inputs e.g. copper price, copper grade. The UZ contains approximately 15% of the Ore Reserve tonnes and 8% of the Ore Reserve contained copper.