ASX/Media Release 15 May 2018

## **DOOLGUNNA PROJECT – EXPLORATION UPDATE**

Sandfire Resources NL (ASX: **SFR**; "Sandfire") is pleased to advise that Aircore drilling at the Morck's Well Project, part of its Farm-in with Auris Minerals Limited (ASX: AUR; "Auris") and Fe Limited (ASX: FEL; "Fe Limited"), has intersected narrow zones of sulphide and supergene copper mineralisation approximately 22km south-west of its 100%-owned DeGrussa Copper Mine in Western Australia.

Aircore (AC) drilling commenced on May 9<sup>th</sup> in the northern part of the Morck's Well Project to provide initial bottom-of-hole (BOH) geochemistry samples and assist in defining the interpreted prospective sequence. To date, the drilling has targeted extensions of the prospective sequence previously defined by Aircore drilling at Sandfire's 100%-owned Homestead Prospect to the north and the neighbouring Vulcan Prospect, part of the Enterprise Metals (ASX: ENT) farm-in immediately to the east (see **Figure 1**).

Hole MWAC0109 intersected visible supergene copper mineralisation (native copper, malachite and chalcocite) from 72m to 73m and from 75m to 84m down-hole. Hole MWAC0111 intersected visible weakly oxidised sulphide copper mineralisation (chalcopyrite, weakly altered to chalcocite in places) from 112m to 114m down-hole. Hole MWAC0112 intersected weakly oxidised sulphide copper mineralisation from 149m to 152m and 159m to 160m down-hole (true widths are not known at this stage, assays pending) (for hole details see Table 1, Figure 1 and Figure 2 below).

Of these intersections, sulphide content in MWAC0111 from 112m to 113m and MWAC0112 from 149m to 151m is sufficiently high (>50% of drilled interval) for these intervals to be classified as massive sulphide.

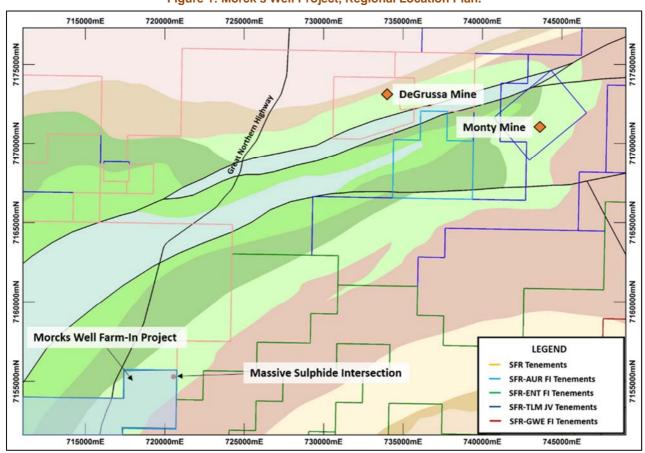


Figure 1: Morck's Well Project, Regional Location Plan.

Figure 2: Aircore Drill-Hole Collar Plan, Morck's Well Project.

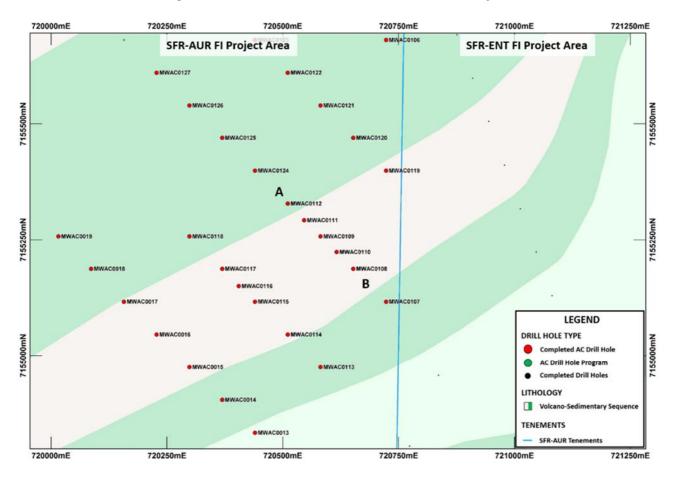


Table 1: Summary Collar and Intercept Table – Highlighted Cells are Massive Sulphides

Hole ID	Dip	Azimuth	EOH Depth	From (m)	To (m)	Width (m)	Significant Mineralisation
				72	73	1	Strongly ferruginous weathered sediment with minor disseminations of native copper.
				75	81	6	Ferruginous weathered sediment with malachite
MWAC0109	0109 -60°	135°	84	81	82	1	Strongly ferruginous weathered sediment with chalcocite, native copper, and minor relict chalcopyrite.
				82	84	2	Moderately ferruginous weathered sediment with malachite
MWAC0111	-60°	° 135°	5° 141	112	113	1	Massive sulphide with subordinate chlorite altered siltstone. Predominantly pyrite, with disseminated chalcopyrite and traces of malachite.
				113	114	1	Chlorite altered siltstone with subordinate sulphide (pyrite with minor chalcopyrite).
				117	119	2	Siltstone with minor malachite
				149	151	2	Massive sulphide (pyrite with minor chalcopyrite) with subordinate chlorite altered siltstone.
MWAC0112	-60°	)° 135°	160	151	152	1	Chlorite altered siltstone with subordinate sulphide (pyrite with minor chalcopyrite)
				159	160	1	Chlorite-altered siltstone with disseminated sulphide (pyrite with chalcopyrite)

MWAC0109 was terminated within mineralisation at 84m down-hole due to the hard ground conditions encountered, which prevented further aircore drilling. MWAC0112 was terminated in mineralisation at 160m down-hole due to the drill rig's depth capacity (for detailed drill logs see Appendix 1 and Figure 3).

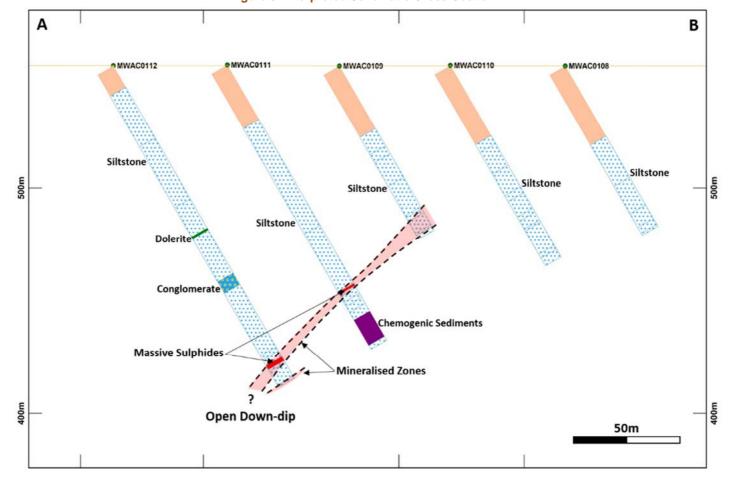


Figure 3: Interpreted Schematic Cross-Section.

Aircore drilling samples from these and neighbouring holes will be sent for analysis. No visible mineralisation has been logged in the holes drilled along strike to date. All AC holes have been drilled to refusal or maximum rig depth capacity.

Planning has commenced for follow-up ground EM surveys to be completed as a priority for the prospective corridor. The mineralisation reported in this release does not pertain to the VTEM anomalies reported by Auris on the 17<sup>th</sup> April 2018 (Sandfire Identify Preliminary VTEM Anomalies Within the Morck's Well East JV Project). In addition, deep Reverse Circulation drilling to test the area is currently being planned and will commence in the coming week.

Sandfire cautions that down-hole contamination can occur in Aircore drilling due to the method employed in this style of drilling. The Aircore drill holes have not been down-hole surveyed. The geological interpretation is preliminary and heavily data constrained. However, these initial holes clearly define an area which will be intensively targeted by RC and diamond drilling, supported by surface and down-hole geophysics, to establish if a significant accumulation of massive sulphide mineralisation may exist.

Sandfire is highly encouraged by the results of this early initial drilling, which represents the first accumulation of massive sulphides to be intersected within the Auris farm-in tenements. Follow-up RC and diamond drilling will be undertaken as a priority once all relevant permitting and approvals have been received. Aircore drilling will continue on the Morck's Well Project and along strike into the Enterprise Metals Limited Farm In area.

Sandfire will earn a 70% interest in the Morck's Well Project from the definition of at least 50,000 tonnes of copper contained in a declared JORC Mineral Resource (for full details of the agreement please see ASX release 27<sup>th</sup> February 2018, "Sandfire Farm-in to Morck's Well East and Doolgunna"). This Project forms part of Sandfire's Greater Doolgunna Project, comprising of a package of 6,276 square kilometres of contiguous tenements surrounding the DeGrussa Copper Mine.

Table 2: Drill-hole Information Summary, Morck's Well Project

Details and coordinates of drill holes completed by Sandfire at the project to date are provided below:

Hole ID	Depth	Dip	Azimuth	Grid_ID	East	North	RL	Lease ID	Hole Status
MWAC0001	81	-60°	135°	MGA94_50	717329	7151157	573	E52/1672	Complete
MWAC0002	66	-60°	135°	MGA94_50	717258	7151227	573	E52/1672	Complete
MWAC0003	28	-60°	135°	MGA94_50	717187	7151298	574	E52/1672	Complete
MWAC0004	27	-60°	135°	MGA94_50	717117	7151369	574	E52/1672	Complete
MWAC0005	42	-60°	135°	MGA94_50	717046	7151439	575	E52/1672	Complete
MWAC0006	41	-60°	135°	MGA94_50	716975	7151510	575	E52/1672	Complete
MWAC0007	34	-60°	135°	MGA94_50	716905	7151581	575	E52/1672	Complete
MWAC0008	71	-60°	135°	MGA94_50	716834	7151651	576	E52/1672	Complete
MWAC0009	82	-60°	135°	MGA94_50	720723	7154551	554	E52/1672	Complete
MWAC0010	69	-60°	135°	MGA94_50	720652	7154621	554	E52/1672	Complete
MWAC0011	117	-60°	135°	MGA94_50	720581	7154692	555	E52/1672	Complete
MWAC0012	96	-60°	135°	MGA94_50	720511	7154763	555	E52/1672	Complete
MWAC0013	144	-60°	135°	MGA94_50	720440	7154833	555	E52/1672	Complete
MWAC0014	93	-60°	135°	MGA94_50	720369	7154904	555	E52/1672	Complete
MWAC0015	57	-60°	135°	MGA94_50	720299	7154975	555	E52/1672	Complete
MWAC0016	81	-60°	135°	MGA94_50	720228	7155046	555	E52/1672	Complete
MWAC0017	68	-60°	135°	MGA94_50	720157	7155116	555	E52/1672	Complete
MWAC0018	66	-60°	135°	MGA94_50	720087	7155187	555	E52/1672	Complete
MWAC0019	18	-60°	135°	MGA94_50	720016	7155258	556	E52/1672	Complete
MWAC0020	114	-60°	135°	MGA94_50	720016	7154692	556	E52/1672	Complete
MWAC0021	128	-60°	135°	MGA94_50	720087	7154621	556	E52/1672	Complete
MWAC0022	69	-60°	135°	MGA94_50	719945	7154763	556	E52/1672	Complete
MWAC0023	58	-60°	135°	MGA94_50	720369	7154338	555	E52/1672	Complete
MWAC0024	51	-60°	135°	MGA94_50	720299	7154409	555	E52/1672	Complete
MWAC0025	49	-60°	135°	MGA94_50	720228	7154480	555	E52/1672	Complete
MWAC0026	63	-60°	135°	MGA94_50	720157	7154551	555	E52/1672	Complete
MWAC0027	93	-60°	135°	MGA94_50	719874	7154833	556	E52/1672	Complete

MWAC0028	69	-60°	135°	MGA94_50	719804	7154904	556	E52/1672	Complete
MWAC0029	160	-60°	135°	MGA94_50	719733	7154975	556	E52/1672	Complete
MWAC0030	10	-60°	135°	MGA94_50	719662	7155046	556	E52/1672	Complete
MWAC0031	48	-60°	135°	MGA94_50	719592	7155116	557	E52/1672	Complete
MWAC0032	42	-60°	135°	MGA94_50	719521	7155187	557	E52/1672	Complete
MWAC0101	92	-60°	135°	MGA94_50	717329	7151722	575	E52/1672	Complete
MWAC0102	35	-60°	135°	MGA94_50	717258	7151793	575	E52/1672	Complete
MWAC0103	31	-60°	135°	MGA94_50	717187	7151864	575	E52/1672	Complete
MWAC0104	60	-60°	135°	MGA94_50	717117	7151934	575	E52/1672	Complete
MWAC0105	25	-60°	135°	MGA94_50	717046	7152005	576	E52/1672	Complete
MWAC0106	58	-60°	135°	MGA94_50	720723	7155682	554	E52/1672	Complete
MWAC0107	75	-60°	135°	MGA94_50	720723	7155116	554	E52/1672	Complete
MWAC0108	82	-60°	135°	MGA94_50	720652	7155187	554	E52/1672	Complete
MWAC0109	84	-60°	135°	MGA94_50	720581	7155258	554	E52/1672	Complete
MWAC0110	98	-60°	135°	MGA94_50	720616	7155223	554	E52/1672	Complete
MWAC0111	141	-60°	135°	MGA94_50	720546	7155293	555	E52/1672	Complete
MWAC0112	160	-60°	135°	MGA94_50	720511	7155328	554	E52/1672	Complete
MWAC0113	75	-60°	135°	MGA94_50	720581	7154975	554	E52/1672	Complete
MWAC0114	53	-60°	135°	MGA94_50	720511	7155046	554	E52/1672	Complete
MWAC0115	35	-60°	135°	MGA94_50	720440	7155116	554	E52/1672	Complete
MWAC0116	86	-60°	135°	MGA94_50	720405	7155150	554	E52/1672	Complete
MWAC0117	99	-60°	135°	MGA94_50	720369	7155187	555	E52/1672	Complete
MWAC0118	78	-60°	135°	MGA94_50	720299	7155258	555	E52/1672	Complete
MWAC0119	115	-60°	135°	MGA94_50	720723	7155399	554	E52/1672	Complete
MWAC0120	66	-60°	135°	MGA94_50	720652	7155470	554	E52/1672	Complete
MWAC0121	35	-60°	135°	MGA94_50	720440	7155682	554	E52/1672	Complete
MWAC0122	25	-60°	135°	MGA94_50	720511	7155611	554	E52/1672	Complete
MWAC0123	61	-60°	135°	MGA94_50	720440	7155682	554	E52/1672	Complete
MWAC0124	32	-60°	135°	MGA94_50	720440	7155399	554	E52/1672	Complete
MWAC0125	15	-60°	135°	MGA94_50	720369	7155470	554	E52/1672	Complete
MWAC0126	42	-60°	135°	MGA94_50	720299	7155541	555	E52/1672	Complete
MWAC0127	16	-60°	135°	MGA94_50	720228	7155611	555	E52/1672	Complete
MWAC0128	81	-60°	135°	MGA94_50	720087	7154056	556	E52/1672	Complete

MWAC0129	65	-60°	135°	MGA94_50	720016	7154126	556	E52/1672	Complete
MWAC0130	53	-60°	135°	MGA94_50	719945	7154197	556	E52/1672	Complete

## **ENDS**

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### Competent Person's Statement - Exploration Results Doolgunna

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

### **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.

### **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 plac

### **JORC Compliance Statement**

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

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

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

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

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

Sampling of diamond core was based on geological intervals (standard length 0.5 m to 1.3 m). The core was cut into half or quarter (NQ2) to give sample weights up to 3 kg. RC samples were 1.0m samples down-hole, with sample weights between 3.5kg and 7kg depending on material type. Field quality control procedures involved assay standards, along with blanks and duplicates. These QC samples were inserted at an average rate of 1.15

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

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

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

Density of the massive sulphide orebody ranges from 2.8g/cm3 to 4.9g/cm3, with an average density reading of 3.7g/cm3. Geotechnical and structural readings recorded from diamond drilling include recovery, RQD, structure type, dip, dip direction, alpha and beta angles, and descriptive information. All data is stored in the tables Oriented Structure, Geotechnical RQD, Core Recovery, Interval Structure as appropriate.

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

Regional drilling has been completed using a combination of RC and AC drilling. A majority of the drilling is preliminary in nature and starts with 800m x 100m AC drilling where the geology and geochemistry is evaluated to determine the requirement for follow 400m x 100m drilling. If significant anomalism is identified in the AC drilling then follow up RC drilling will be conducted to determine the opportunity for delineating potentially economic mineralisation. Whist the main aim of the exploration at Doolgunna is to identify additional VHMS mineralisation in some areas of regional land holding it is currently the interpreted that there is shear zones located on the contact between dolerite and sediments hosting auriferous quartz vein stockworks with some coincident copper.

AC and RC regional samples are prepared at Ultra Trace in Perth with the original samples being dried at 80° for up to 24 hours and weighed, and Boyd crushed to -4mm. Samples are then split to less than 2kg through linear splitter and excess retained. Sample splits are weighed at a frequency of 1/20 and entered into the job results file. Pulverising is completed using LM5 mill to 90% passing 75%µm. Assaying is completed using a Mixed 4 Acid Digest (MAD) 0.3g charge and MAD Hotbox 0.15g charge methods with ICPOES or ICPMS. The samples are digested and refluxed with a mixture of acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric acids and conducted for multi elements including Cu, Pb, Zn, Ag, As, Fe, S, Sb, Bi, Mo. 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 are then determined by ICPOES or ICPMS finish. Samples are analysed for Au, Pd and Pt by firing a 40g of sample with ICP AES/MS finish.

• Fortnum Mine 0 Horseshoe Lights Mine Ned's Creek Horseshoe Mine DeGrussa Copper Mine Green Dragon Mine Thaduna Mine Peak Hill Mine Project Harmony Mine Enterprise Great Western Exploration Farm-in Sandfire Tenements (3.121 km²) Talisman JV Tenements (323 km²) erprise Farm-in Tenements (917 km²) Great Western Exploration Farm-in Tenements (1,525 km²) Yerrida Project Auris Farm-in Tenements (390 km²) TOTAL = 6,276 km<sup>2</sup> Prospective Narracoota Volcanics Killara + Maralou Formations Thaduna + Doolgunna Formations Windplain Sub-Group Andy Well Mine

Historical Mine

Figure 4: Sandfire's Greater Doolgunna Project showing 100% owned tenure and farm-in joint ventures including Auris Minerals Ltd Farm-in.

# Appendix 1: Detailed Drill logs for MWAC0109, MWAC0111 and MWAC0112.

Hole ID	From (m)	To (m)	Lithology	Description
	0	32	Cover	Hematite rich, cemented alluvium/colluvium. Clay altered and partly stained by goethite. Pisolitic gravel from 8-16m.
	32	41	Siltstone	Hematite rich Upper Saprolite after siltstone.
	41	57	Siltstone	Hematite rich Lower Saprolite after finely laminated siltstone. Silicified.
	57	72	Siltstone	Lower Saprolite after finely laminated chloritic siltstone
	72	73	Siltstone	Very hard, highly ferruginised (predominantly hematite) siltstone containing disseminated native copper. Minor quartz veinlets.
MWAC0109	73	75	Siltstone	Strongly ferruginised, highly magnetic, weakly silicified Lower Saprolite after siltstone. Similar to above intersection but no visible native copper.
	75	81	Siltstone	Lower Saprolite after chloritic siltstone. Finely laminated with some laminations being replaced by malachite (after sulphide layers).
	81	82	Oxidised Massive Sulphide?	Highly ferruginised material. Almost completely replaced by hematite that contains chalcocite. Minor native copper and relict chalcopyrite present.
	82	84	Siltstone	Moderately ferruginised Lower Saprolite after chloritic siltstone. Weakly magnetic with trace jasper and malachite.
	0	17	Cover	Alluvium/Colluvium with minor pisoliths.
	17	28	Cover	Clay altered Alluvium/Colluvium
	28	82	Siltstone	Hematite rich Lower Saprolite after siltstone.
	82	112	Siltstone	Goethitic Lower Saprolite after finely laminated interbeds of chloritic and purple hematite rich siltstone.
	112	113	Massive Sulphide	Massive sulphide (60% Sulphide: Pyrite 55%. Chalcopyrite 5%) with subordinate finely laminated chloritic siltstone. Sulphides are predominantly massive pyrite with some minor disseminated chalcopyrite. Minor chalcocite and Trace malachite present.
MWAC0111	113	114	Siltstone/Semi- Massive Sulphide	Finely laminated, sericite altered chloritic silt in which a high number of laminations are being replaced by sulphide (30% Sulphide: Pyrite 28%, Chalcopyrite 2%, Chalcocite 1%)
	114	117	Siltstone	Finely laminated, sericite altered silt. Joints stained by goethite.
	117	119	Siltstone	Finely laminated, sericite altered siltstone. Joints stained by goethite. Minor malachite on some lamination faces.
	119	122	Siltstone	Finely laminated, sericite altered chloritic siltstone. Joints stained by goethite.
	122	126	Siltstone	Finely laminated chloritic siltstone. Minor coarse grained cubic pyrite.
	126	139	Chemogenic Sediments	Finely laminated interbedded hematite and chloritic siltstone.  Moderately magnetic, visible magnetite throughout. Minor jasper at 129-130m. Goethite staining along joints.
	139	141	Siltstone	Finely laminated chloritic siltstone.

Hole ID	From (m)	To (m)	Lithology	Description
	0	11	Cover	Ferruginous indurated Alluvium/Colluvium
	11	37	Siltstone	Upper Saprolite after siltstone, bleached and goethitic clays.
	37	83	Siltstone	Lower Saprolite after siltstone
	83	84	Dolerite	Weakly chloritic dolerite with fine leucoxene.
	84	106	Siltstone/Sandstone	Interbedded siltstone and lithic/quartz sandstone.
	106	112	Conglomerate	Lithic clast-dominant conglomerate with some interbedded siltstone and sandstone.
	112	144	Siltstone/Sandstone	Interbedded siltstone and sandstone.
	144	146	Siltstone	Quartz veining, partial oxidation, minor malachite present.
MWAC0112	146	149	Siltstone	Strongly chloritic sediment. Minor pyrite. Malachite developed on some surfaces.
	149	150	Massive Sulphide	Massive sulphide (100% Sulphide: Pyrite 85%. Chalcopyrite 15%).
	150	151	Massive Sulphide	Massive sulphide (65% Sulphide: Pyrite 60%. Chalcopyrite 5%). Subordinate chlorite altered siltstone.
	151	152	Siltstone/Semi- Massive Sulphide	Pyrite, chalcopyrite and chalcocite within fine strongly chloritic siltstone. (35% Sulphide: Pyrite 20%, Chalcocite 10%, Chalcopyrite 5%)
	152	159	Siltstone	Moderately to strongly chloritic altered fine-grained foliated siltstone, finely laminated, some pyrite visible.
	159	160	Siltstone/Semi- Massive Sulphide	Foliated fine chloritic siltstone with disseminated to semi- massive pyrite (20% Sulphide: Pyrite 20%)

NOTE: Where sulphide species could be differentiated they have been visually logged and estimated as a % of the sample. These estimates do not displace assays, which are pending. Where sulphide species could not be differentiated, identified species have been named but not estimated.

## Appendix 2: Images of AC drill spoil piles



Figure 5: Aircore drill spoils from MWAC0109 showing native copper at 72-73m and native copper and sulphides at 81-82m (inset).



Figure 6: Aircore drill spoils from MWAC0109 showing native copper and sulphides intersected at 81-82m.



Figure 7: Aircore drill spoils from MWAC0111 showing sulphides intersected at 112-114m.



Figure 8: Aircore drill spoils from MWAC0111 showing massive sulphide chips, pyrite with minor chalcopyrite at 113-114m.

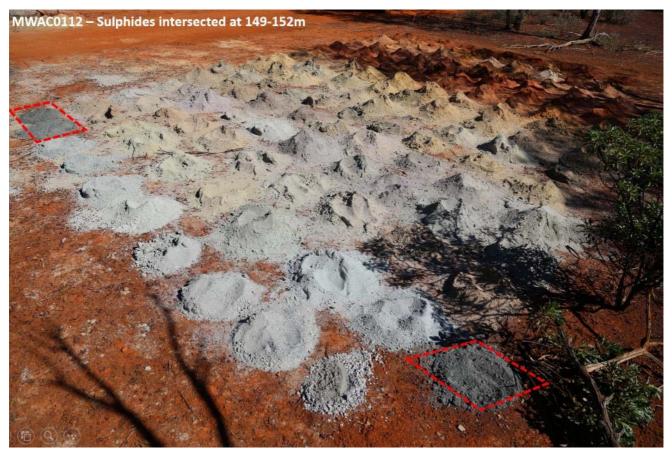
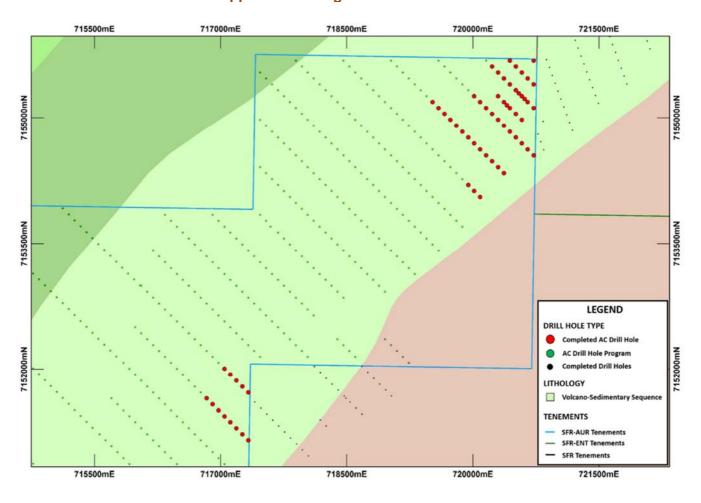


Figure 9: Aircore drill spoils from MWAC0112 showing sulphides intersected at 149-152m.



Figure 10: Aircore drill spoils from MWAC0112 showing massive sulphides chips, pyrite and minor chalcopyrite at 149m.

# Appendix 3 – Regional Collar Plan



## **JORC 2012 TABLE 1 – EXPLORATION RESULTS**

# **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 down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	AC samples are collected using spear techniques for both composite and single metre samples.			
	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 protocols and Quality Control (QC) procedures as per industry standard.			
	Aspects of the determination of mineralisation that are Material to the Public Report.  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.	AC samples are crushed to -4mm through a Boyd crusher and representative subsamples pulverised via LM5.  Pulverising is to nominal 90% passing -75µm and checked using wet sieving technique.  Samples are assayed using Mixed 4 Acid Digest (MAD) 0.3g charge and MAD Hotbox 0.15g charge methods with ICPOES or ICPMS.  Fire Assay is completed by firing 40g portion of the sample with ICPMS finish.			
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.).	All AC drilling was completed with a Drillboss 300 with on-board compressor (700cfm at 400psi) using a nominal 90mm diameter air core drill bit.  All drill collars are surveyed using a GPS.			
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	AC sample recoveries are logged and captured into the database.			
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Appropriate measures are taken to maximise sample recovery and ensure the representative nature of the samples.  Recovery and moisture content are routinely recorded for composite and 1m samples.  The majority of AC samples collected are of good quality with minimal wet sampling in the project area.			
	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 are believed to have impacted on potential sample bias. When grades are available the comparison can be completed.			
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	AC chips are washed and stored in chip trays in 1m intervals.  Geological logging is completed for all holes and representative across the project area. All geological fields (i.e. lithology, alteration etc.) are logged directly to a digital format following procedures and using Sandfire geological codes. Data is imported into Sandfire's central database after validation in Ocris.			
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is both qualitative and quantitative depending on field being logged. All chip trays are photographed.			
	The total length and percentage of the relevant intersections logged.	All drill holes are fully logged.			

Criteria	JORC Code Explanation	Commentary			
Sub-sampling techniques and	If core, whether cut or sawn and whether quarter, half or all core taken.	No core drilled as part of this report			
sample preparation	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	AC samples consist of 5m composite spear samples produced from 1m sample piles.  Additional 1m sampling is completed depending on results from 5m composite samples or where mineralisation is observed while drilling is occurring.			
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	All samples are sorted, dried at 80° for up to 24 hours and weighed. AC samples are Boyd crushed to -4mm and pulverised using LM5 mill to 90% passing 75µm.  Sample splits are weighed at a frequency of 1:20 and entered into the job results file. Pulverising is completed using LM5 mill to 90% passing 75%µm using wet sieving technique.			
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	1:20 grind quality checks are completed for 90% passing 75%µm criteria to ensure representativeness of sub-samples.			
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	Sampling is carried out in accordance with Sandfire protocols as per industry best practice.  No field duplicates have been taken for AC drilling.			
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the VHMS and Gold mineralisation types.			
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.	Samples are assayed using Mixed 4 Acid Digest (MAD) 0.3g charge and MAD Hotbox 0.15g charge methods with ICPOES or ICPMS. The samples are digested and refluxed with a mixture of acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric acids and conducted for multi elements including Cu, Pb, Zn, Ag, As, Fe, S, Sb, Bi, Mo, Re, Mn, Co, Cd, Cr, Ni, Se, Te, Ti, Zr, V, Sn, W and Ba. The MAD Hotbox method is an extended digest method that approaches a total digest for many elements however some refractory minerals are not completely attacked. The elements S, Cu, Zn, Co, Fe, Ca, Mg, Mn, Ni, Cr, Ti, K, Na, V are determined by ICPOES, and Ag, Pb, As, Sb, Bi, Cd, Se, Te, Mo, Re, Zr, Ba, Sn, W are determined by ICPMS. Samples are analysed for Au, Pd and Pt by firing a 40g of sample with ICP AES/MS finish. Lower sample weights are employed where samples have very high S contents. This is a classical FA process and results in total separation of Au, Pt and Pd in the samples.  The analytical methods are considered appropriate for this mineralisation styles.			
	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 in the analysis.			
	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 QAQC protocol is considered industry standard with standard reference material (SRM) submitted on regular basis with routine samples. SRMs and blanks are inserted at a minimum of 5% frequency rate.			
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.			
assaying	The use of twinned holes.	None of the drill holes in this report are twinned.			

Criteria	JORC Code Explanation	Commentary			
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is captured on field "tough book" laptops using Ocris Software. The software has validation routines and data is then imported into a secure central database.			
	Discuss any adjustment to assay data.	The primary data is always kept and is never replaced by adjusted or interpreted data.			
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	All AC holes are surveyed in the field using a Garmin GPS Map 64. Estimated accuracy of this device is +/- 4m's .			
	Specification of the grid system used.	Coordinate and azimuth are reported in MGA 94 Zone 50.			
	Quality and adequacy of topographic control.	Topographic control was established LiDar laser imagery technology.			
Data spacing and distribution	Data spacing for reporting of Exploration Results.	First pass AC is completed at a spacing of 400 m x 100 m.  Infill drilling may be completed at 200 m x 100 m dependant on results.  In areas of observed mineralisation and adjacent to it, hole spacing on drill may be narrowed to 50m.			
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Data spacing and distribution is not sufficient to establish the degree of geological and grade continuity appropriate for Mineral Resource estimation. Additional RC and DDH work will be completed if required.			
	Whether sample compositing has been applied.	AC samples consist of 5m composite spear samples produced from 1m sample piles.  Additional 1m sampling is completed depending on results from 5m composite samples or where mineralisation is observed while drilling is occurring.			
Orientation of data in relation to geological	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	There is no significant orientation based sampling bias known at this time in the Morck's Well project area.			
structure	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill hole may not necessarily be perpendicular to the orientation of the intersected mineralisation.  All reported mineralised intervals are downhole intervals not true widths.			
Sample security	The measures taken to ensure sample security.	Appropriate security measures are taken to dispatch samples to the laboratory. Chain of custody of samples is being managed by Sandfire Resources NL. Samples are stored onsite and transported to laboratory by a licenced transport company in sealed bulker bags. The laboratory receipts received samples against the sample dispatch documents and issues a reconciliation report for every sample batch.			
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No external audits or reviews of the sampling techniques and data have been completed.			

# **Section 2: Reporting of Exploration Results**

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Morck's Well project encompasses E52/1672, E52/1613 and E51/1033 which are jointly owned by Auris Minerals Limited (80%) and Fe Limited (20%). Sandfire is currently farming into the project with the right to earn 70% interest in the project area. (Refer to terms of Farm-In Agreement dated 27th February 2018).  The Project is centred ~120km north-east of Meekatharra, in Western Australia and forms part of Sandfire's Doolgunna Project, comprising of a package of 6,276 square kilometres of contiguous tenements surrounding the DeGrussa Copper Mine.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All tenements are current and in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Aside from Sandfire Resources and Auris Minerals Limited there has been no recent exploration undertaken on the Morcks Well Project.  Exploration work completed prior to Auris's tenure included geochemical soil, stream sediment, laterite and rock chip sampling combined with geological mapping.
Geology	Deposit type, geological setting and style of mineralisation.	The Morcks Well Project lies within the Proterozoic-aged Bryah rift basin enclosed between the Archaean Marymia Inlier to the north and the Proterozoic Yerrida basin to the south.  The principal exploration targets in the Doolgunna Project area are Volcanogenic Massive Sulphide (VMS) deposits located within the Proterozoic Bryah Basin of Western Australia. Secondary targets include orogenic gold deposits.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:  o easting and northing of the drill hole collar; o elevation or RL (Reduced Level – elevation above sea level in metres); o of the drill hole collar; o dip and azimuth of the hole; o down hole length and interception depth; and o hole length.  If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Refer to Tables 2 and 3 in the main body of this release: Morcks Well Project Drill hole Information Summary.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.  Where aggregate intercepts incorporate short lengths of high grade results and	No analyses are reported in this release.  No analyses are reported in this release.
	longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.  The assumptions used for any reporting of metal equivalent values should be clearly stated.	No analyses are reported in this release.

Criteria	JORC Code Explanation	Commentary			
Relationship between mineralisation widths and	These relationships are particularly important in the reporting of Exploration Results.	Downhole intercepts of mineralisation reported in this release are from a drillhole orientated perpendicular to the regional stratigraphy. The drillhole may not necessarily be perpendicular to the mineralised zone. All widths reported are downhole intervals.			
intercept lengths	If the geometry of the mineralisation with respect to the drill-hole angle is known, its nature should be reported.	The geometry of the mineralisation, relative to the drillhole, is unknown at this stage.			
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	All intersections reported in this release are downhole intervals. True widths are not known.			
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate maps are included within the body of the accompanying document.			
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	The accompanying document is considered to represent a balanced report.			
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Other exploration data collected is not considered as material to this document at this stage. Further data collection will be reviewed and reported when considered material.			
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).  Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Additional work including additional drilling, downhole geophysics and surface geophysics) is being planned. Once initial analytical results are received for the drill holes discussed in this release further work programs may be planned.			