



**SANDFIRE** RESOURCES NL

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16 October 2014

Mr Sebastian Bednarczyk  
Adviser, Issuers (Perth)  
ASX Limited  
Level 8, Exchange Plaza  
2 The Esplanade  
Perth WA 6000

Dear Sebastian

**LODGEMENT OF SEPTEMBER 2014 QUARTERLY REPORT, QUARTERLY UPDATE  
PRESENTATION AND INVESTOR CONFERENCE CALL AND WEBCAST**

I am pleased to attach the following items for immediate release to the market:

1. September 2014 Quarterly Activities Report
2. September 2014 Quarterly Update Powerpoint Presentation

In addition, Sandfire's Managing Director and CEO, Karl Simich, is hosting an investor teleconference and live webcast on the September 2014 Quarterly Report at 10.00am (WST) / 1.00pm (AEST) today. Details of the call are provided in the September 2014 Quarterly Activities Report.

The webcast and synchronised slide presentation is available through the Company's website or through BRR Media.

Live date:

Thursday, 16 October 2014

Access this webcast at:

<http://www.brrmedia.com/event/127685>  
<http://www.sandfire.com.au>

Yours sincerely

**Matt Fitzgerald**  
**Chief Financial Officer**  
**and Company Secretary**

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Surface drilling, DeGrussa

**ASX Code:**

SFR

**Issued Capital:**

Ordinary Shares 155.6M  
Options 8.1M

**Major Shareholders:**

OZ Minerals 19.2%  
POSCO 15.3%

**Directors:**

**Derek La Ferla**  
Non-Executive Chairman

**Karl M. Simich**  
Managing Director and  
Chief Executive Officer

**Paul Hallam**  
Non-Executive Director

**W. John Evans**  
Non-Executive Director

**Soocheol Shin**  
Non-Executive Director

**Robert Scott**  
Non-Executive Director

**Management:**

**Michael Spreadborough**  
Chief Operating Officer

**Matthew Fitzgerald**  
Chief Financial Officer and  
Joint Company Secretary

**Robert Klug**  
Chief Commercial Officer and  
Joint Company Secretary

**Date:**

16 October 2014



**SANDFIRE RESOURCES NL**

# QUARTERLY REPORT

For the period ended 30 September 2014

## HIGHLIGHTS

### Production & Operations

Contained metal production	Sep 2014 Quarter	FY2015 Guidance
<b>COPPER (t)</b>	16,064	<b>65-70,000</b>
<b>GOLD (oz)</b>	8,678	<b>35-40,000</b>

- 16,064t copper and 8,678oz gold produced; C1 US\$1.24/lb.
- Milling rates maintained at 1.5Mtpa for the Quarter.
- Change over to new mining contractor completed with mining rates returning to 1.5Mtpa from mid-Quarter.
- Development of C1, C4 and C5 declines progressed on schedule in good ground conditions.
- FY2015 production guidance: 65-70,000t of copper, 35-40,000oz of gold at C1 cash operating costs in the range of US\$1.15-1.25/lb.

### Exploration

- Resource definition drilling completed at the C4 orebody to upgrade the Central and Eastern portions of the Resource from Inferred to Indicated status. Updated Mineral Resource to be released in early 2015.
- Resource definition drilling now underway at the C5 orebody.
- Initial 1,099m diamond hole completed at the Springfield Project (Talisman JV), confirming the Project contains interpreted extensions to the DeGrussa mine stratigraphy. High-powered DHEM and FLEM surveys and extensive aircore drilling underway.
- Metallurgical drilling completed at the Thaduna Copper Project (Ventnor JV) to advance assessment of the near-surface resource for treatment at DeGrussa's proposed Oxide Copper Project and deeper ore for processing at DeGrussa's Sulphide Processing Plant. The Thaduna Scoping Study remains on target for completion in December 2014.
- Deep diamond drilling commenced at the key Mt Sisa target at the Misima porphyry copper-gold project (SFR: 37% of WCB Resources).

### Corporate

- Sandfire acquired a cornerstone 36% stake in TSX-listed copper development company, Tintina Resources, whose core asset is the 100%-owned Black Butte Copper Project in Montana, one of the highest grade undeveloped copper projects in North America.

September 2014 Quarterly Report Presentation to be webcast at 10.00am (WST) / 1.00pm (AEDT) today, 16 October 2014, with a simultaneous investor conference call (details inside).



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## 1.0 SAFETY PERFORMANCE

The Total Recordable Injury Frequency Rate (TRIFR) for the Sandfire Group for the September Quarter was 11.8, compared to a TRIFR for the June Quarter of 9.1 (corrected). Recordable injuries include those that result in any days away from work (Lost Time Injuries) and those where an employee or contractor cannot perform all or any part of their normal shift (Restricted Work Day Injuries), as well as any injury that requires services that only a medical practitioner can provide (Medical Treatment Injuries).

The September Quarter saw a higher number of recordable injuries across the Group compared with previous quarters as a result of strains and sprains. Management has instigated a series of initiatives to address this issue, and to ensure that the strong improvements demonstrated in safety performance over the past 12 months continue.

Work continues on initiatives to further improve safety performance including the development of safety systems, improved safety leadership, development of safety culture and risk and assurance management.



Figure 1: Dust monitoring (left) and seed collection (right), two of the ongoing environmental monitoring programs at DeGrussa

## 2.0 OPERATIONS OVERVIEW

Copper production for the September Quarter was 16,064 tonnes (June Quarter: 17,654 tonnes) which was above guidance, reflecting an average ore grade of 4.9% Cu for the Quarter (June Quarter: 5.0% Cu). C1 cash operating costs for the Quarter were a pleasing US\$1.24/lb (June Quarter: US\$1.18/lb).

Milling throughput was maintained at approximately 1.5Mtpa for the September Quarter, with 364,360 tonnes of ore milled. The strategy of running the SAG mill in 'scatting out' mode continued, allowing higher copper unit production for the Quarter. The Quarter was impacted by two major mill shut-downs, the first to enable a change-out of the SAG mill liner and the second to facilitate a first time change-out of the pulp lifters. Average copper recovery was maintained at 89.4% in the September Quarter – primarily as a result of the lower ore feed grade in July and August and processing of lower recovery ore.

The installation of a pebble crusher, SAG mill classification screen and a column flotation cell are on target for completion in the December Quarter. As previously foreshadowed, this will further improve the efficiency of the recycling SAG mill scats, reduce plant instability and is expected to further lift copper recovery by over 1 per cent. The December Quarter will see further processing plant shut-downs to allow for construction, installation and commissioning of these projects. This work will include modifications to the existing milling and flotation circuits to allow for integration of these projects.

Byrncut Mining commenced as the underground mining contractor on 1 July 2014. Production ramp-up was completed early in the Quarter with the mine returning to 1.5Mtpa production rates from mid-way through the Quarter. Underground mining progressed on schedule with four stopes in various stages of development and production. The underground mine delivered 311,644 tonnes of underground sulphide ore for the Quarter, with healthy run-of-mine stocks of over 30,000 tonnes of ore at the end of the reporting period. The mine remains in balance between production and back-fill with good performance from the paste plant. During the Quarter an upper level stope was filled using pump delivery with the remainder of filling being by gravity flow. All filling for the remainder of FY2015 will be by gravity flow.

The mined grade was 5.4% Cu for the Quarter, which was in-line with expectations given the mine sequence and current mining area, which was predominantly focused on the lower portions of the Conductor 1 lens. Sandfire maintained a strong focus on underground development, with the Conductor 1, Conductor 4 and Conductor 5 declines well advanced from the junction off the Evans Decline and total underground development reaching over 23km at Quarter-end. At the end of the Quarter, a new exhaust ventilation raise was commissioned that will service the C4 and C5 ventilation requirements.

### 3.0 MINING & PRODUCTION

#### 3.1 Overview

September 2014 Quarter – Production Statistics		Tonnes	Grade (% Cu)	Grade (g/t Au)	Contained Copper (t)	Contained Gold (oz)
Concentrator	Mined	311,644	5.4	1.9	16,958	18,638
	Milled	364,360	4.9	1.8	17,977	20,681
<b>Production</b>		<b>66,146</b>	<b>24.3</b>	<b>4.1</b>	<b>16,064</b>	<b>8,678</b>

**Note:** Mining and production statistics are rounded to the nearest 0.1% Cu grade and 0.1 g/t Au grade. Errors may occur due to rounding. Production Statistics are subject to change following reconciliation and finalisation subsequent to the end of the Quarter.

#### 3.2 Underground Mining

Byrnescut Mining commenced as the underground mining contractor on 1 July. Production ramp-up was completed early in the September Quarter, with the mine returning to 1.5Mtpa production rates from mid-way through the Quarter. Underground mining progressed on schedule, with four stopes on-line during the Quarter and a total of 311,644 tonnes of underground sulphide ore mined. At Quarter-end, Run-of-Mine (ROM) stocks remained at a healthy level exceeding 30,000 tonnes of ore.

The mine remains in balance between production and back-fill with good performance from the paste plant. During the Quarter an upper level stope was filled using pump delivery with the remainder of filling being by gravity flow. All filling for the remainder of FY2015 will be by gravity flow. One stope is currently being filled with cemented rock-fill (CRF) due to current parallel priorities for filling.

The mining of a secondary stope later in the Quarter has allowed for the filling of this stope by development waste, thus reducing the need for waste to be hauled to the surface. As secondary stope mining continues, opportunities for depositing waste underground will be sought.

The mined grade was 5.4% Cu for the Quarter, which was in-line with expected performance given the mine sequence and current mining area which was predominantly focused on the lower portions of the C1 lens.

The Conductor 1 Decline advanced on schedule during the Quarter. The development of this decline will enable the Conductor 1 deposit to be fully developed and extracted. Conductor 4 decline development advanced 230m and Conductor 5 decline development advanced 68m, with all development advance occurring in good ground conditions. C5 decline development was suspended for a period during the Quarter to allow for the early commencement of C5 resource definition drilling. At the end of the Quarter, a new exhaust ventilation raise was commissioned that will service the C4 and C5 ventilation requirements.

#### 3.3 Processing

Key processing metrics for the September Quarter included:

- 364,360 tonnes milled at an average head feed grade of 4.9% Cu (June Quarter: 396,077 tonnes at 5.0% Cu);
- Overall copper recovery of 89.4% (June Quarter: 89.5%);
- Concentrate production of 66,146 tonnes (June Quarter: 74,064 tonnes); and
- Metal production of 16,064 tonnes of contained copper and 8,679 ounces of contained gold (June Quarter: 17,654 tonnes of contained copper and 9,288 ounces of contained gold).

The Quarter was impacted by two major shut-downs for SAG mill liner change-out, with the second shut-down including a first-time change-out of the pulp lifters and a 36-hour unplanned SAG mill bearing change-out.

Average copper recovery was maintained at 89.4% in the September Quarter as a result of the lower ore feed grade in July and August, and the impact of higher flotation tail grade due to plant instability and the processing of more difficult ore leading to lower recovery in September.

Sandfire is in the process of implementing a number of processing improvement projects including installation of a Pebble Crusher, Column Flotation Cell, and new classification screen arrangement as part of the SAG milling system. These projects remain on schedule for completion during the December 2014 Quarter. The installation of the Column Flotation Cell is expected to improve copper recovery by over 1 per cent after commissioning.



The December Quarter will see further processing plant shut-downs to allow for construction, installation and commissioning of these projects. This work will include modifications to the existing milling and flotation circuits to allow for integration of these projects.

### 3.4 Guidance – FY2015

FY2015 targeted copper production is expected to be within the range of 65-70,000 tonnes of contained copper metal (1H FY2015 of around 31,000t Cu) and gold production within the range of 35-40,000oz. Headline C1 cash operating costs are expected to be within the range of US\$1.15-1.25/lb, currently being assisted by the decline in the Australian dollar.

## 4.0 SALES AND MARKETING

### 4.1 Copper Concentrate Shipments

A total of 67,760 tonnes of plant concentrate containing 16,443 tonnes of copper was sold for the Quarter. Gold sales totalled 9,492 ounces for the Quarter. Shipments were completed from Port Hedland and Geraldton.

## 5.0 FEASIBILITY STUDIES & METALLURGY

### 5.1 Oxide copper

The Sandfire Oxide Copper Project at DeGrussa has been extensively tested and the project is being evaluated on the following basis:

- Existing stockpiled oxide material will be scrubbed to remove fine clays;
- The -150um material will be deposited in a purpose-built additional tailings storage facility and the +150um material will be all in crushed to -24mm for heap leaching;
- The heap leach will be a combination of a traditional sulphuric acid leach coupled with bio-leaching; and
- The pregnant liquor from the heap leach will be concentrated in a solvent extraction circuit with the strong electrolyte fed to an electrowinning circuit to produce 99.99-99.999% copper cathode.

In December 2013, Sandfire signed a joint venture agreement with Ventnor Resources at the Thaduna/Green Dragon Copper Project (see Section 6.3.2 below). The Thaduna/Green Dragon Project contains copper oxide material which has the potential to be processed through the copper oxide facility being proposed for DeGrussa.

Geological investigation and metallurgical testing of this oxide material is currently being undertaken as part of the joint venture with Ventnor. Following this, the Oxide Copper Project financial analysis will be updated to reflect the potential oxide material from this joint venture being processed by the Oxide Copper facility.

The Thaduna Project has the potential to increase the copper units to the Oxide Copper Project, increasing the life of the project. Project commitment will await completion of this detailed Ventnor work.

## 6.0 DEGRUSSA EXPLORATION

### 6.1 Overview

Sandfire continues to progress a tightly focused, multi-disciplined exploration campaign to test for extensions to the known cluster of VMS deposits at DeGrussa and to unlock the broader potential of the Doolgunna region for additional VMS (volcanogenic massive sulphide) deposits or clusters of deposits.

Key components of the Company's exploration activity at DeGrussa during the September Quarter included:

- Continued underground drilling focusing on C4 and C5 resource definition and updating the geological model of the DeGrussa deposits;
- Continued first-pass regional exploration over a number of projects within the broader Doolgunna tenement holding;
- The completion of a deep diamond drill hole targeting a conductive anomaly at Talisman's Springfield Project;
- Continuation of EM surveying over the prospective sequence at Talisman's Springfield Project; and
- The continuation of core re-logging and structural interpretation of the Thaduna and Green Dragon copper deposits.

The aggregate metres drilled on Sandfire's tenements during the September Quarter is shown below:

Drilling	AC/RAB Drilling (m)	RC Drilling (m)	UG Diamond Drilling (m)	Surface Diamond Drilling (m)	Total Drilling (m)
Q1FY2015	26,368	-	3,646	-	30,014

## 6.2 DeGrussa Near-Mine Extensional Exploration

During the period, Sandfire completed the Conductor 4 resource definition drilling programme and commenced resource definition drilling at Conductor 5. During the Quarter, a total of 2,832m of UG DDH (underground diamond drill-hole) core was drilled.

The aim of the C5 Drilling is to convert the existing Inferred Resource to Indicated Resource status. Additionally, this drilling will define the morphology of the orebody and allow for detailed mine planning to commence. Drilling will continue in the December Quarter with a target of updating the C5 resource model in Q3 FY15.

Exploration drilling down-dip / plunge from C5 will also commence in the December Quarter.

During the Quarter, additional work was completed in reviewing the spatial location, characteristics and potential extension of the mineralised feeder zones identified earlier in the year. An underground diamond drilling program will be planned in the December Quarter to test potential repeat positions lower in the stratigraphy proximal to the identified feeders.

This drilling will likely be undertaken in Q3 FY15 due to drill platform and drill rig availability.

Drill testing of the stratigraphy down-dip from the C1 West orebody was completed during the Quarter. While no economic mineralisation was intersected, it confirmed that the stratigraphy and mineralised horizon continues to the west of the mine. No further drilling is planned for this target.

## 6.3 DeGrussa Regional Exploration

The Greater Doolgunna Project, which now includes the Talisman Joint Venture, covers an aggregate area of 725km<sup>2</sup> and incorporates a strike length of more than 65km of prospective VMS-hosting lithologies. Much of this stratigraphy is obscured beneath transported alluvium and requires systematic aircore drilling to test the bedrock geochemistry and identify prospective rock-types.

Regional aircore drilling was completed at the South Robinson Range prospect area during the Quarter, with minor follow-up completed at the Homestead prospect. A limited programme of in-fill aircore drilling will be completed at the South Robinson Range to complete the definition of identified geochemical anomalies.

In the December Quarter, a surface diamond drill rig and a Reverse Circulation (RC) rig will be mobilised to site to test a number of targets that have been modelled during the reporting period. Diamond drilling will focus on anomalous geochemistry north of the Robinson Range.

The geochemistry encountered in this location is anomalous in a range of elements that are not normally associated with VHMS deposits; accordingly, the planned holes are positioned to define stratigraphy, structure and potential sources of the anomalism. RC programs will focus on drilling targets in the North Noonyereena, West Airstrip, and South Robinson Range projects.

Work has continued to define the best seismic surveying techniques and methodologies to utilise to aid in the direct detection of massive sulphides at Doolgunna. Discussions with numerous seismic contractors about acquisition, processing and interpretation have been conducted. These discussion have been led by an experienced hard rock seismic consultant to ensure the best possible outcome in future seismic surveys.

In the December Quarter, technical details of an upcoming seismic program will be finalised, quotes received, and a contractor(s) engaged to allow the completion of seismic surveys and subsequent processing and interpretation in Q3 FY15.

Drilling completed during the September Quarter and planned during the December Quarter on Sandfire's 100%-owned Doolgunna tenements is shown in Figures 2 and 3 below.

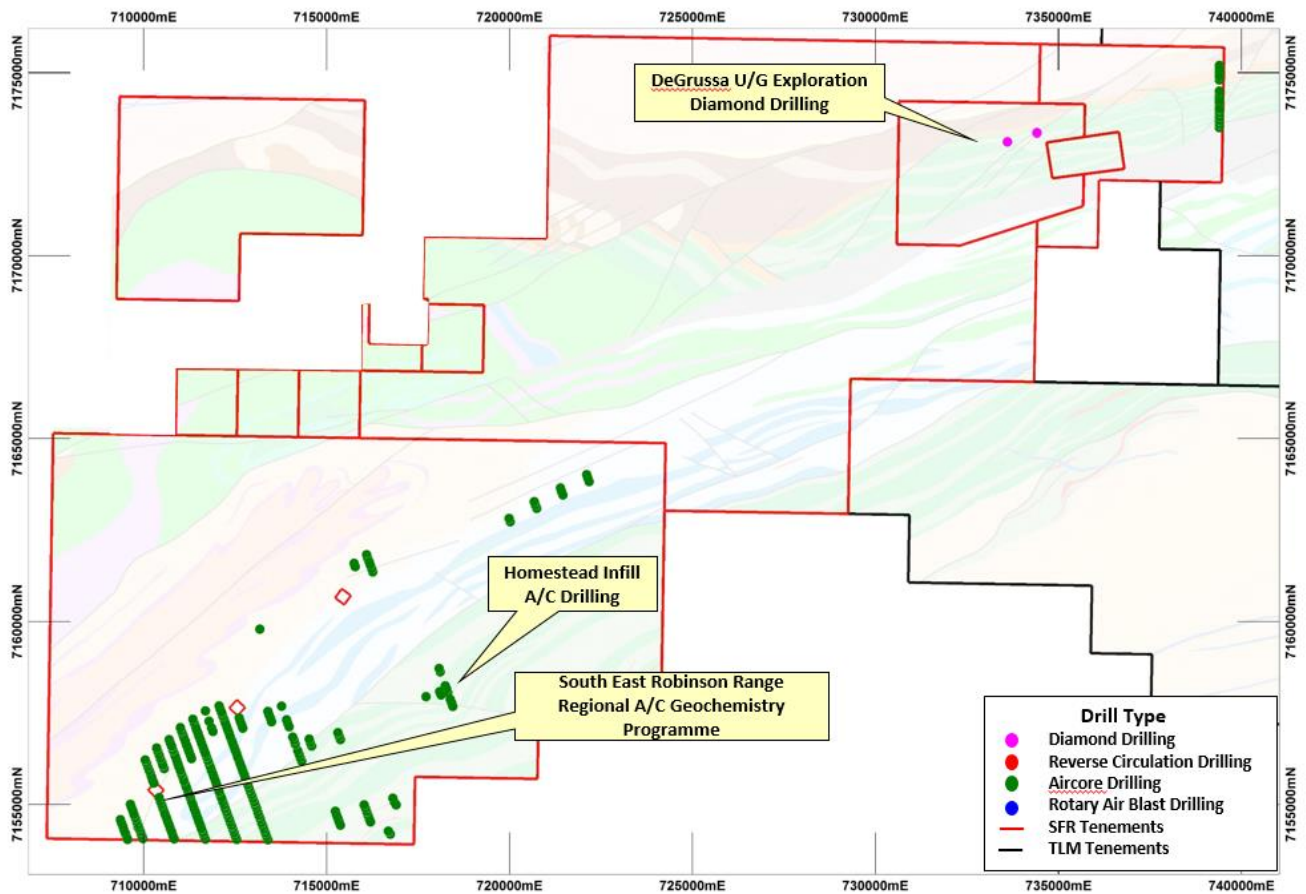


Figure 2: Drilling completed in Sandfire's 100%-owned Doolgunna Tenements during the Quarter and simplified geology

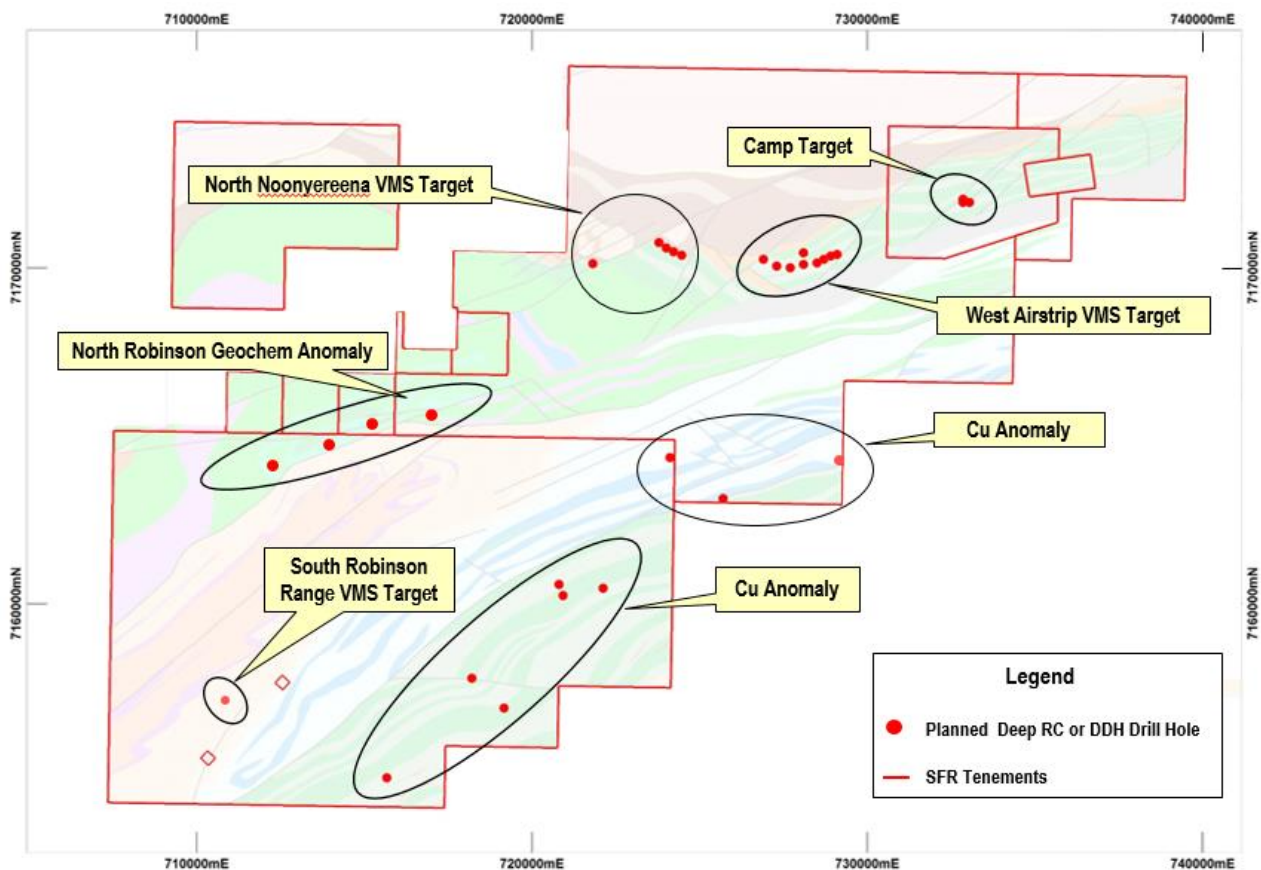


Figure 3: Drilling planned in Sandfire's 100%-owned Doolgunna Tenements during the December Quarter and simplified geology

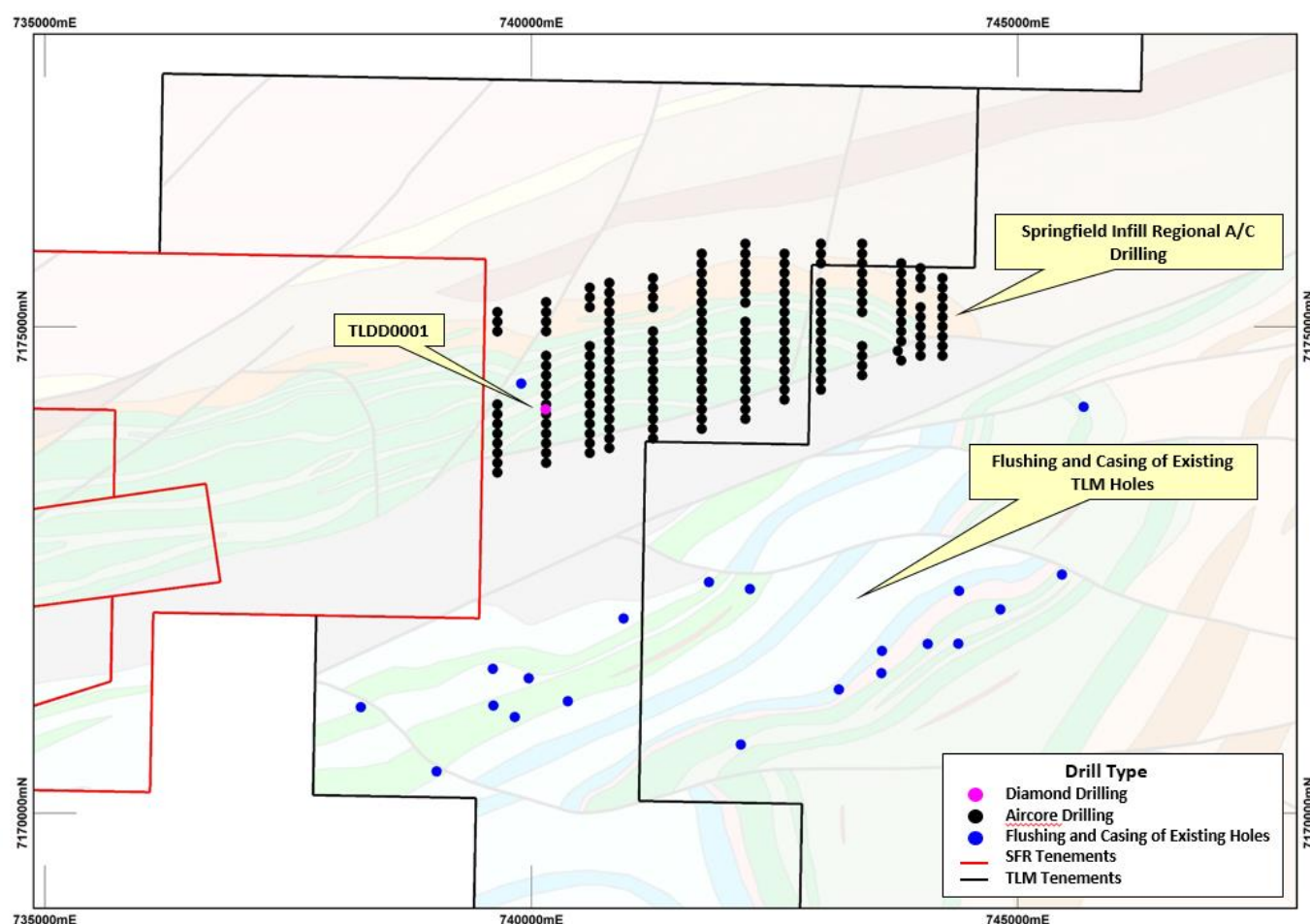
### 6.3.1 Talisman Joint Venture

The Talisman Projects comprise the Springfield, Halloween and Halloween West Projects, which abut Sandfire's DeGrussa-Doolgunna tenements and contain extensions of the volcanic rock package which hosts the DeGrussa VMS deposits. The projects are being explored under a Joint Venture Farm-in Agreement with Talisman Mining Limited (ASX: TLM) under which Sandfire has the right to earn up to an 70% interest by spending \$15 million on exploration over five-and-a-half years.

The preliminary observations from the initial phases of exploration in the JV tenements have already delivered significant geological encouragement, confirming that the Springfield Project contains interpreted extensions of the volcanic rock package which hosts the DeGrussa VMS deposits.

On the ground, exploration continued with the first Aircore (AC) drilling commencing in the Springfield Project with 12,486m drilled (see Figure 1). The geology, dominantly sediments, mafic sediments, dolerites and basalts which are consistent with the geology encountered in the eastern DeGrussa corridor on Sandfire's tenements. Assay results for this drilling were partially received during the Quarter. Detailed interpretation of lithological and stratigraphic units will begin early in the December Quarter.

To aid future modelling and interpretation, 1,131 pulp samples are being re-assayed for detailed low detection level multi-element analysis. The samples were targeted from the fresh rock interface in historical drilling. Analysis and interpretation of the data collected will continue in the December Quarter, as the final assays are received.



**Figure 4: Aircore drilling and the existing DDH and RC holes flushed as part of the ongoing EM surveying being undertaken across the Springfield Project; simplified geology as background**

TLDD0001, the first Sandfire diamond hole drilled in the Talisman JV project, was completed in early August, with an end-of-hole depth of 1,099m (see Figure 4 above). The hole was designed to target an off-hole conductor identified during DHEM surveying of historic Talisman drill holes.

Preliminary analysis of the DHEM did not provide a clear in-hole explanation for the late-time EM target or a definitive conductor within the immediate environment (80-100m) of TLDD0001.



Re-interpretation of all EM in the Homer Prospect will be completed by Newexco Services. However, the hole potentially intersected a package of rocks analogous to the C1 host horizon from 931.10m to 967.97m.

The package consists of siliciclastic rocks with variable haematite alteration, ranging from unaltered to pervasively altered. Sporadic jasper clasts were observed throughout the package. Within the most altered component of the package, a narrow zone of strong silicification, banded magnetite and fine sulphides was intersected from 957.08m to 957.50m. Assaying has not identified any economic mineralisation although trace element signatures will be investigated in the December Quarter.

The haematitic, jasper and magnetite-rich sediments with sulphides are likely to represent an exhalite horizon that is related to a volcanogenic massive sulphide system. 22 samples have been sent away for detailed lithogeochemical analysis and LA-ICPMS analysis. This work is ongoing.

High-powered down-hole DHEM (down-hole electro-magnetic surveys) and FLEM (fixed-loop electro-magnetic surveys) is a key tool in VHMS exploration and has proven to be successful in the DeGrussa environment. As such this tool will be extensively deployed across the interpreted prospective stratigraphy.

During the Quarter, FLEM and DHEM programs were ongoing across the Springfield area of the Talisman JV (see Figure 5). The first phase, consisting of four 1,200m by 1,000m high-power FLEM loops covering the northern extension of the DeGrussa Formation was completed towards the end of the previous quarter.

The second phase of the program commenced during September, consisting of 19 loops encompassing a large proportion of the DeGrussa Formation mafic sediment extension and projected fold hinge to the east, along strike from DeGrussa. Before the end of the reporting period the crew had completed the first four loops and submitted the data to Newexco for analysis. This work program is ongoing.

In preparation for further DHEM surveying within the Springfield area, DDH1 flushed and cased a total of 23 additional RC and diamond drill holes within E52/2282 and E52/2313.

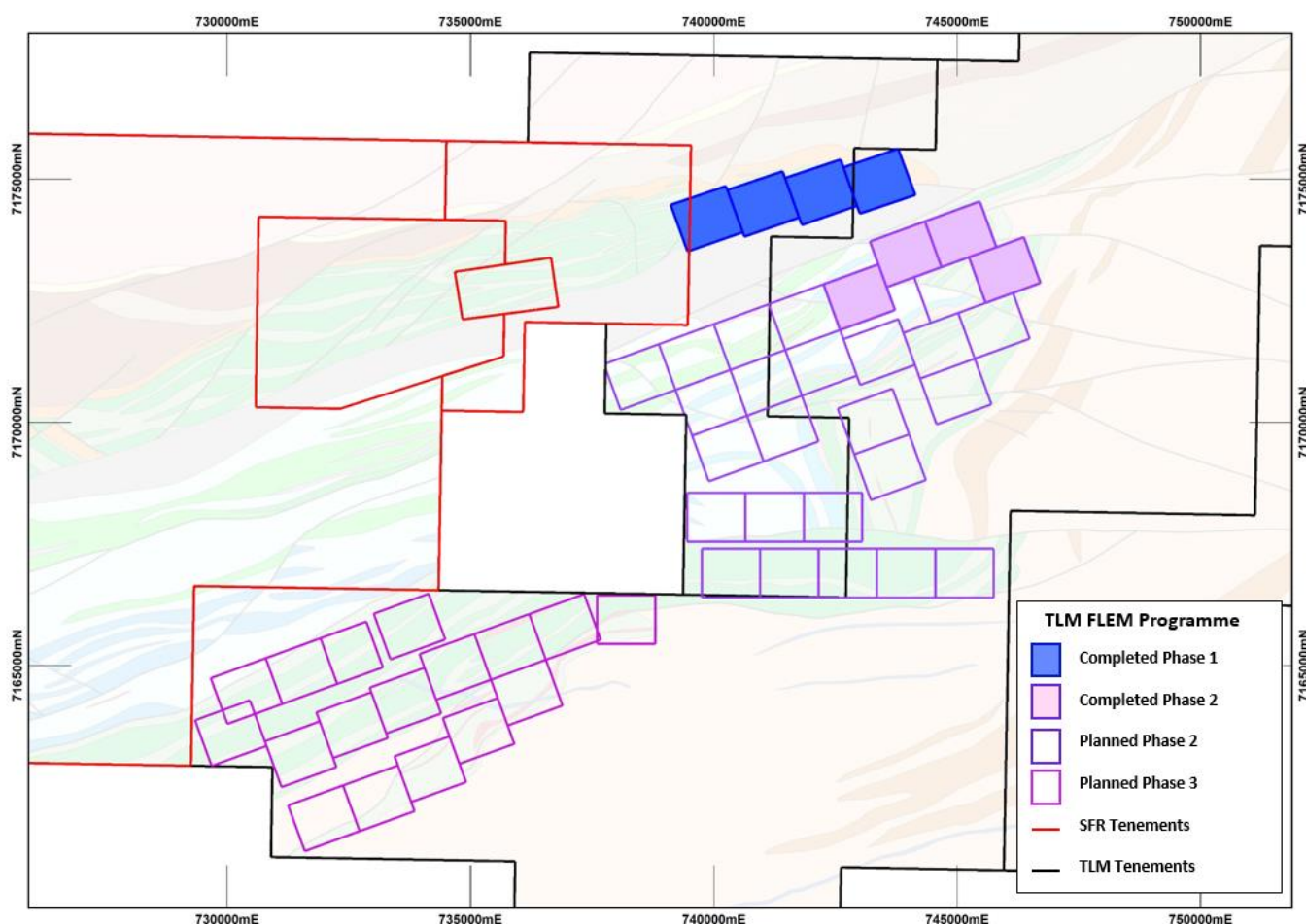


Figure 5: Completed and planned FLEM loops as part of the ongoing EM survey programs

In addition to the current extensive work completed at Homer, further activities will continue to allow for a more holistic geological interpretation of the Central Corridor, Monty Prospect and Southern Volcanics to be developed.

These programmes include:

- Continued high-powered FLEM program with Phases two and Three scheduled to be completed before the end of the calendar year;
- High-powered DHEM surveying of 23 deep holes drilled historically by Talisman across the Homer and Monty prospects as well as the Central Corridor;
- Continued geochemical aircore drilling programmes over the Central Corridor, Southern Volcanics and Monty Prospects; and
- Commencement of a detailed interpretation update of the geology of the Homer trend incorporating, surface AC drilling, DHEM, FLEM, and low-level multi-element analysis.

### 5.3.2 Thaduna Project Joint Venture

*The Thaduna Project is located 40km east of DeGrussa and represents the largest copper resource in the Doolgunna-Bryah Basin Region outside of Sandfire's DeGrussa-Doolgunna Project (7.9Mt @ 1.8% Cu for 142,000 tonnes of contained copper). Sandfire currently owns a 35% interest in the project, and has entered into a farm-in agreement to earn up to a further 45% (total of 80%) with Ventnor Resources Limited (ASX: VRX).*

Sandfire is currently assessing two development opportunities at the Thaduna Project:

- an oxide project, with ore to be treated through the proposed DeGrussa Copper Oxide Heap Leach;
- a sulphide project, with ore to be treated through the existing DeGrussa Flotation Processing Plant.

Metallurgical drilling conducted in the previous Quarter had preliminary head assay results returned, with best assays including 10.8m at 6.6% copper from 72m down-hole, 10.6m at 2.3% copper from 37m down-hole and 7.7m at 3.2% copper from 78m down-hole.

These assays were used to assist in the selection of material to make an oxide, mixed and chalcocite / sulphide composite sample for metallurgical testwork. Full details can be found in the ASX release from Ventnor Resources Limited "Preliminary Assays from Metallurgical Drill Holes at Thaduna" dated 9<sup>th</sup> September 2014.

Initial results from the metallurgical testwork on the transitional zone indicate that the sulphide-dominated material had a good rougher floatation response. Additional cleaner testing on the samples is in progress. Mineralogy and mineral associations of the tailings are being completed to understand losses. Initial leaching testwork showed the material leached well but had high acid consumptions.

During the Quarter, Sandfire also completed a program of detailed re-logging and interpretation of historical drilling at Thaduna and Green Dragon. This comprised some 17,130m of DDH core and 37,369m of RC chips being re-logged. The aim of this program is to aid in the development of detailed stratigraphic and structural models.

Rehabilitation of historical exploration disturbance was completed during the Quarter. Work has also commenced to evaluate mining and processing scenarios with results of this work targeted to be completed by the end of the December Quarter.

## 7.0 AUSTRALIAN EXPLORATION

*Sandfire has a number of exploration joint ventures around Australia. The Company recognises that its activities impact directly and indirectly on the local environments and communities in which we operate. Sandfire is committed to conducting its activities in a sustainable and socially responsible manner to minimise and mitigate these impacts. In order to achieve its sustainability objectives, Sandfire applies the same high standards and commitment to absolute safety in the workplace, environmentally sound practices and transparent social responsibility at its exploration joint ventures as it does at its DeGrussa Copper Mine in Western Australia.*

### 7.1 Borroloola Project

*The Borroloola Project is located north of the McArthur River Mine (Xstrata), and is prospective for base metals, sedimentary manganese and iron ore. Sandfire has signed two farm-out Joint Venture agreements to advance the Borroloola Project. The Batten Trough JV covering the eastern portion of the tenements is under an option and joint venture agreement with MMG Exploration Pty Ltd, which can earn up to an 80% interest. The Borroloola West JV covering the western portion is under an agreement with Pacifico Minerals Ltd in alliance with Cliffs Natural Resources, which has the right to earn up to an 80% interest.*

MMG Exploration is completing a diamond drilling program in the Joint Venture tenements exploring for base metal mineralisation. Five holes were completed during the Quarter with the program ongoing.

Pacifico Minerals completed an airborne geophysical survey and surface geochemical sampling programs during the Quarter. Pacifico has announced an agreement with Cliffs Natural Resources to terminate the alliance between Cliffs and Pacifico and for Pacifico to take Cliffs' interest in the Borroloola West Joint Venture.

## 7.2 Queensland Projects

*A number of projects are held in the eastern succession of the Mount Isa region south and east of Cloncurry in north-west Queensland which are prospective for Broken Hill style lead-zinc-silver deposits such as the Cannington deposit (BHP) and the Ernest Henry Iron Oxide copper-gold deposits (Xstrata)*

*The Altia Project includes an option to Joint Venture into two areas encompassing 43.7 km<sup>2</sup> with Minotaur Exploration Limited (ASX: MEP) to earn up to 80% of the project and includes the Altia Deposit, where previous exploration has defined a shallow lead-silver resource.*

Three diamond holes were completed in the Altia Joint Venture on the Boralis and Capricorn prospects and at depth under the Altia deposit. Mineralisation was intercepted as expected 120m below the Altia resource confirming the interpretation with a shallow flat-lying structure offsetting the mineralized horizon. Downhole geophysics reported conductors in the hole.

A deep diamond hole of 627m was completed at the 100% owned Wilgunya magnetic anomaly and intersected significant sulphides, predominantly pyrothite explaining the strong magnetic and gravity anomaly. The hole is being evaluated and geochemical results are pending.

A regional aircore program and soil sampling over the 100%-owned Landsborough gravity anomaly is underway and continues into the December Quarter.

## 7.3 New South Wales Projects

### New South Wales Projects

*A number of project areas are held in the Lachlan Fold Belt of New South Wales near West Wyalong which are prospective for porphyry copper-gold mineralisation as found at Northparkes (China Moly), Cadia (Newcrest) and Cowal (Barrick).*

*Farm-in agreements to earn up to 80% are held with Straits Resources Ltd (ASX: SRQ) on the Bland Creek project and with Gold Fields Australasia Pty Ltd on the Marsden South project.*

Detailed planning and permitting has been finalised on a number of projects for commencing late next Quarter after the harvest is completed.

Regional and in-fill aircore programs are planned at the 100%-owned Wingrunner Project and on the Bland Creek and Marsden South Joint Ventures.

## 7.4 Alford Project

*The Alford Project on the Yorke Peninsula lies 20km NE of Wallaroo, South Australia in the southern portion of the Gawler Craton. The tenements are prospective for iron oxide copper-gold mineralisation as found at Prominent Hill (OZ Minerals), Olympic Dam (BHP) and Hillside (Rex Minerals). The Project includes an option to Joint Venture into the Alford project (EL3969, PM268) with Argonaut Resources (ASX: ARE) to earn up to 75% of the project.*

Results from the recent drilling campaigns have been compiled with recommendations for limited further work to test new prospective gold anomalism in the granites defined which will be soil sampled.

## 8.0 INTERNATIONAL EXPLORATION

### 8.1 Misima Project

*Sandfire has invested in WCB Resources Ltd ("WCB"; TSX-V: WCB), a Toronto-listed copper-gold explorer, by subscribing for shares in a A\$5.9M private share placement and now holds a 37% interest in the company.*

*WCB is earning a 70% interest in the Misima Island exploration lease through a joint venture with Pan Pacific Copper ("PPC"), an integrated copper mining and smelting company that is jointly owned by JX Nippon Mining & Metals*

Corporation and Mitsui Mining & Smelting Company Ltd. The Misima Project is located within a porphyry belt which contains four of the world's richest primary grade copper and gold porphyries including Grasberg (4.9 billion tonnes @ 0.8% Cu and 0.7g/t Au), Ok Tedi (1.7 billion tonnes @ 0.7% Cu and 0.6g/t Au), Golpu (1 billion tonnes @ 0.9% Cu and 0.6g/t Au) and Panguna (1.4 billion tonnes @ 0.5% Cu and 0.6g/t Au)\*

The primary target is a potential Tier-1 copper-gold porphyry target at Mt Sisa located adjacent to an historical gold mine formerly owned by Placer Dome Asia Pacific which produced 4.0Moz of gold and 20Moz of silver. At Mt Sisa a very large 1km<sup>2</sup> copper soil anomaly coincides with extensive rock chips, shallow drilling and a deep strong magnetic anomaly with skarn mineralisation and halo veining at surface.

WCB Resources has awarded the drilling contract to Quest Exploration Drilling (QED), who have mobilised an excavator and drill rig to the island and commenced drilling at Mt Sisa in mid-September.

A program of 4,000m is proposed to test the magnetic features and geochemical anomalies at Mt Sisa on the north-eastern part of the historic pit to depths of up to 1 km. The drilling is expected to take six months to complete and results will be released by WCB Resources as available.

## 9.0 CORPORATE

### 9.1 Acquisition of cornerstone stake in Tintina Resources

During the Quarter Sandfire secured the opportunity to participate in the ongoing evaluation, exploration and development of one of the highest grade undeveloped copper deposits in North America after acquiring a cornerstone interest in Vancouver-based copper development company Tintina Resources ("Tintina"; TSX-V: TAU).



Figure 6: Location map – Black Butte Project, Montana

As part of its global business development strategy of securing quality growth opportunities in base metals and gold, Sandfire subscribed for 80 million shares in a private share placement at C\$0.20 per share. The C\$16 million placement has given Sandfire an initial 36% interest in Tintina.

In addition, Tintina will issue Sandfire with 20 million two-year Class A warrants exercisable at C\$0.28 per share, 20 million three-year Class B warrants exercisable at C\$0.32 per share and 40 million five-year Class C warrants exercisable at C\$0.40 per share. If these warrants are exercised, Sandfire's interest would increase to 53% (undiluted) giving it a clear path to control of the Company and the project.<sup>1</sup>

Following completion of the transaction, Sandfire is now Tintina's largest shareholder (36%), alongside other strategic shareholders including Quantum Partners LP (~21%) and Electrum Strategic Metals LLC (~16%).

Mr Bruce Hooper, Sandfire's current Chief Exploration & Business Development Officer, has been appointed President and Chief Executive Officer and a director of Tintina on a secondment basis.

Another person nominated by Sandfire will be appointed to the Tintina Board as a non-executive director shortly.

Funds contributed by Sandfire will be used to complete a Feasibility Study for the Black Butte Project and to pursue project permitting, as well as to fund further exploration in the district.

Further information relating to the Black Butte Project can be found in the Company's ASX Announcement dated 28 August 2014.

<sup>1</sup> The warrants are subject to early expiry, if, over twenty consecutive trading days in the last three months prior to the natural expiry date of each class of warrants, the VWAP of Tintina's shares on the TSX-V is at least 120% of the exercise price and Sandfire does not exercise the relevant class of warrants in full. Early expiry of any class of warrants causes all subsequent warrants to also expire.



## 9.2 Declaration of maiden dividend

Sandfire announced a final unfranked dividend of 10 cents per share for the 2014 Financial Year.

The record date to determine entitlements was 12 September 2014, and dividend payments commenced on 10 October 2014 via electronic funds transfer.

## 9.3 Finance Facility

Sandfire completed a scheduled repayment of \$10.0 million against the DeGrussa Project Finance Facility in September 2014, reducing the outstanding balance of the facility to \$150.0 million. A total of \$230.0 million has now been repaid against the original \$380.0 million DeGrussa Project Finance Facility.

Cash on hand at 30 September 2014 totalled \$87.7 million.

## 9.4 Investor Call and Webcast

An investor conference call on Sandfire's September 2014 Quarterly Report will be held today (Thursday, 16 October 2014) for investors and analysts, commencing at 10.00am (WST) / 1.00pm (AEDT). Analysts, brokers and investors can join the conference call by dialling the following numbers:

<b>Australia Toll Free:</b>	<b>1 800 558 698</b>
<b>Alternate Australia Toll Free:</b>	<b>1 800 809 971</b>
<b>International:</b>	<b>+61 2 9007 3187</b>
<b>Audio Access Code:</b>	<b>984735</b>

The Quarterly Report and an accompanying Quarterly slide presentation will be available via the ASX Company Announcements Platform (Code: SFR), as well as at Sandfire's website: [www.sandfire.com.au](http://www.sandfire.com.au).

In addition, a live webcast of the investor call and the slide presentation will be available via the Boardroom Radio (BRR Media) service by clicking on the following link: <http://www.brr.com.au/event/127685>.

A recording of the webcast will be available at the same link shortly following the conclusion of the conference call.

## ENDS

### For further information, please contact:

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### Media Inquiries:

Nicholas Read – Read Corporate:  
Mobile: +61 419 929 046 (Nicholas Read)

## Competent Person's Statement – Exploration Results

The information in this report that relates to Exploration Results 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

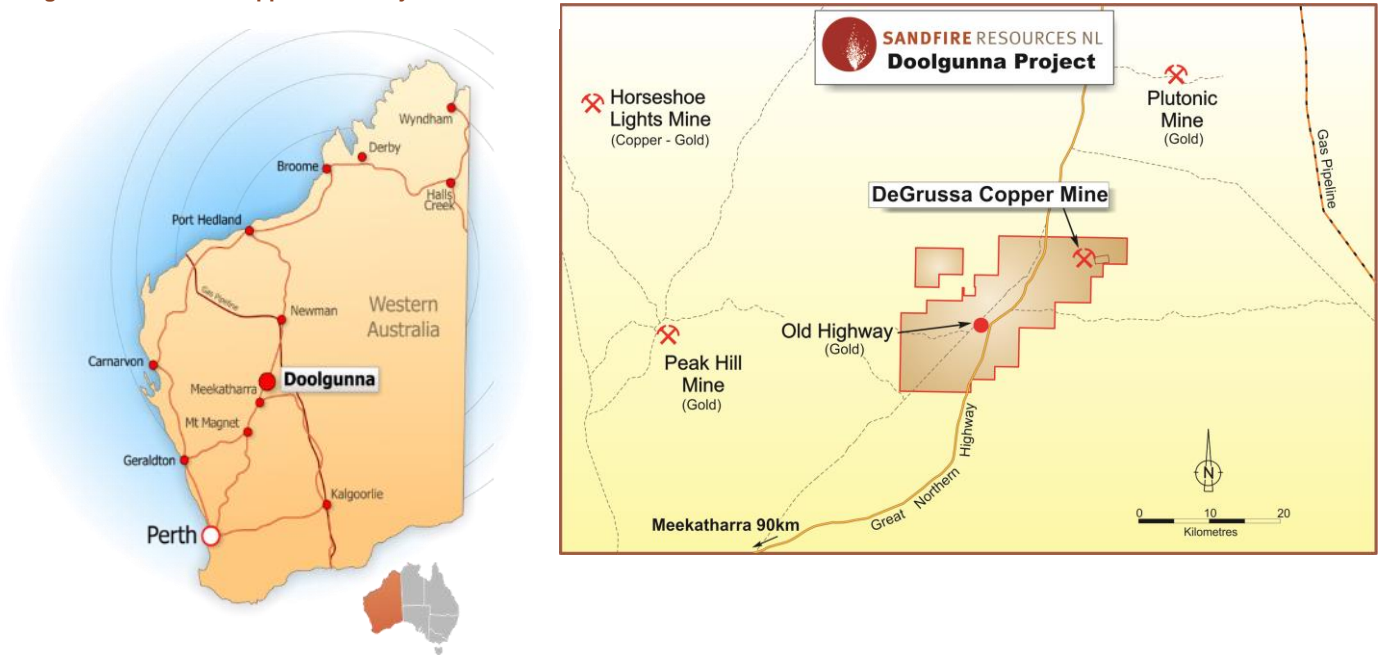
Any discussion in relation to the potential quantity and grade of Exploration Targets is only conceptual in nature. While Sandfire is confident that it will report additional JORC compliant resources for the DeGrussa Project, there has been insufficient exploration to define mineral resources in addition 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 place undue reliance on any forward looking statement.

**Figure 7: DeGrussa Copper-Gold Project Location**



**Figure 8: Strategic location in an emerging VMS belt: Talisman and Ventnor Joint Ventures**

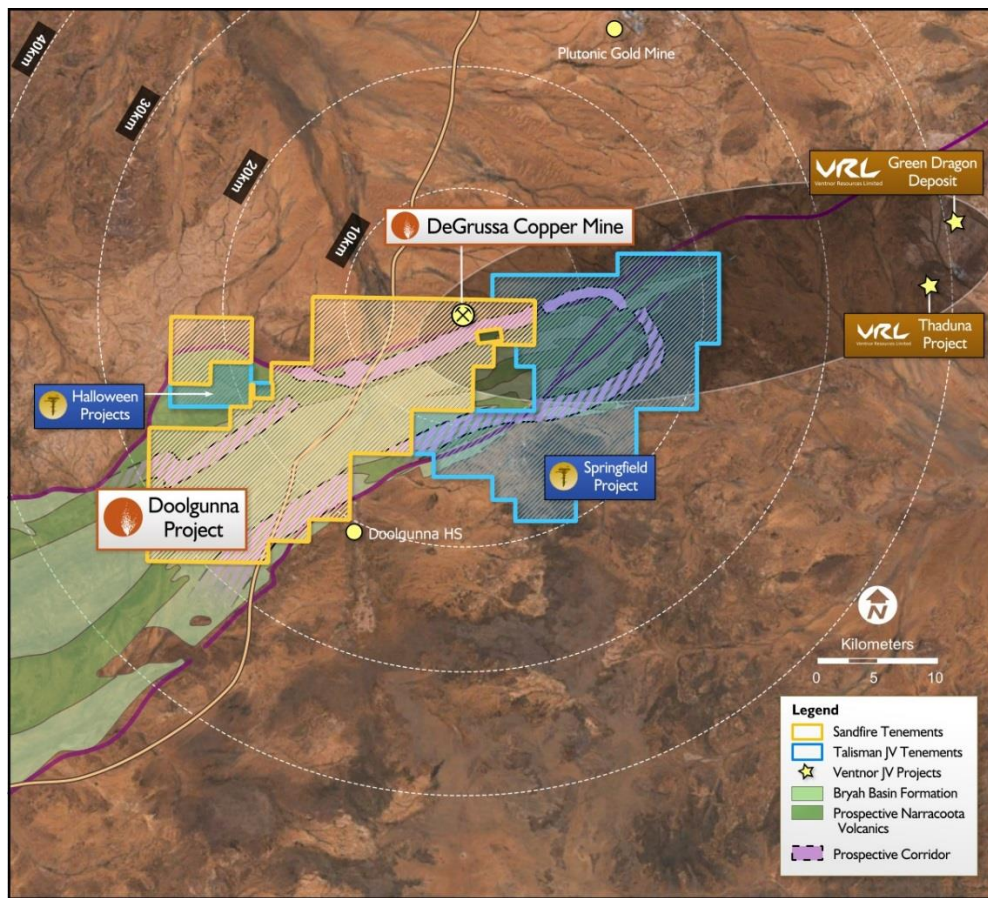
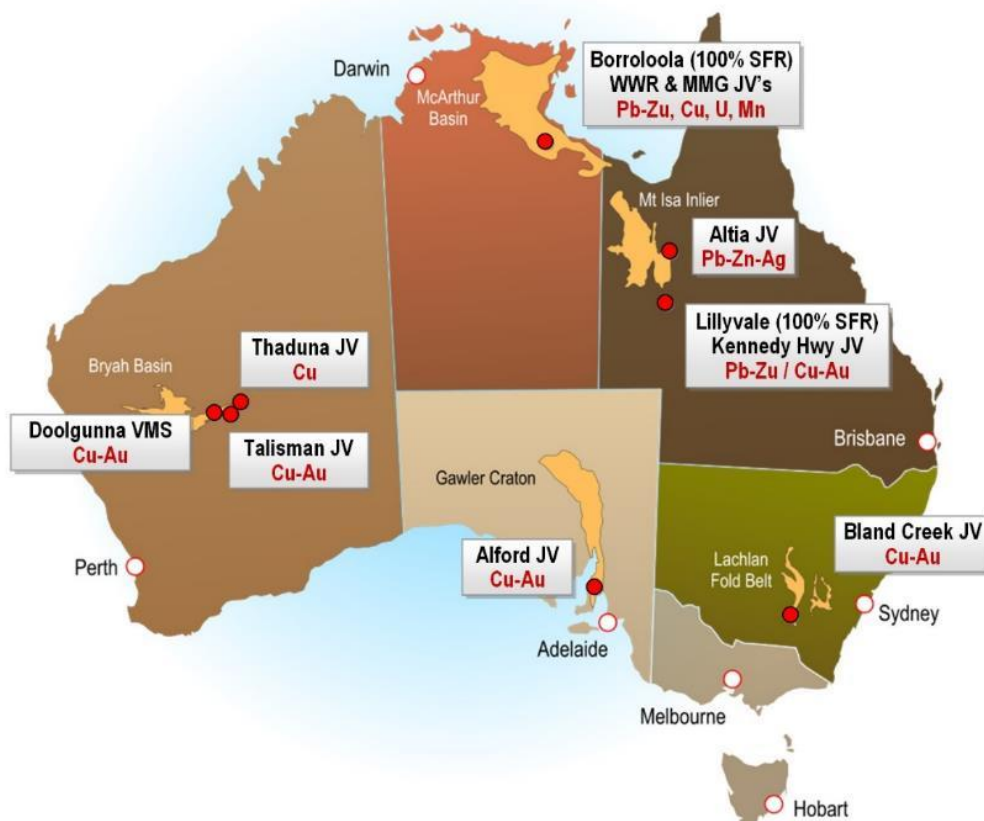


Figure 9: Australian Joint Venture and Exploration Project Locations



### 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 of 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/cm<sup>3</sup> to 4.9g/cm<sup>3</sup>, with an average density reading of 3.7g/cm<sup>3</sup>. 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 revaluated 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. Whilst the main aim of the exploration at Doodlgunna is to identify additional VHMS mineralisation in some areas of regional land holding it is currently 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 then 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 75µm. 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.



## Appendix 1 – Exploration Drilling Results

## Regional Exploration Surface Drilling (AC/RC)

Hole ID	Hole Type	MGA Zone 50 Co-ordinates						Intersection				Mineralisation			
		East	North	RL	Depth (m)	Azimuth	Inclination	From (m)	To (m)	Intercept Down Hole	Approx True Width	Cu [ppm]	Au [ppm]	Zn [ppm]	Sample Type
DGAC4558	AC	718225.494	7161805.27	560.758	165	340°	-60°	35	45	10	N/A		1.17		Spear Composite
DGAC4561	AC	718148.626	7161724.09	561.000	154	340°	-60°	40	60	20	N/A		4.58		Spear Composite
DGAC4620	AC	725700.000	7163200.00	557.546	114	340°	-60°	80	95	15	N/A	1405			Spear Composite
DGAC4839	AC	712894.984	7159492.66	581.394	116	340°	-60°	105	116	111	N/A			1315	Spear Composite
DGAC4844	AC	713236.659	7159723.44	581.915	97	340°	-60°	80	97	17	N/A			2135	Spear Composite
DGAC4869	AC	714074.091	7159176.90	580.704	81	340°	-60°	75	80	5	N/A	1100		150	Spear Composite
DGAC4915	AC	715647.384	7154854.31	576.328	35	340°	-60°	25	35	10	N/A	755		725	Spear Composite
DGAC4940	AC	718208.393	7161852.26	560.782	165	340°	-60°	105	115	10	N/A		1.17		Spear Composite
								130	135	5	N/A		1.63		Spear Composite
DGAC4958	AC	716533.875	7161774.87	568.219	102	340°	-60°	45	65	20	N/A		1.87		Spear Composite
DGAC4968	AC	720874.425	7160375.00	554.500	96	340°	-60°	65	75	10	N/A		1.17	1315	Spear Composite
DGAC5006	AC	713083.613	7157220.13	581.963	132	340°	-60°	45	50	5	N/A	1010		165	Spear Composite
TLDD0001	DD	740150.000	7174150.000	590.479	183.30	360°	-60°	0	183.30	0	N/A		NSA		Half Core

NSA – No significant result

AP – Assays pending

**TABLE 1: EXPLORATION RESULTS - JORC 2012**  
**DEGRUSSA COPPER MINE**

*Section 1: Sampling Techniques and Data*

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Sampling methods include half-core sampling of NQ2 core from underground diamond drilling (DD) , Reverse Circulation drilling (RC) samples are collected by a cone splitter for single metre samples or by a sampling spear for first pass composite samples using a face sampling hammer with a nominal 140mm hole, aircore drilling. Air Core (AC) samples are collected from spear samples for both composite and single metre samples.</li> <li>Sampling is guided by Sandfire DeGrussa protocols and QAQC procedures as per industry standard.</li> <li>Underground DD sample size reduction is completed through a Jaques jaw crusher to -10mm and all samples Boyd crushed to -4mm and pulverised via LM2 to nominal 90% passing -75µm. RC and AC sample size reduction is completed through a Boyd crusher to -10mm and pulverised via LM5 to nominal -75µm. Pulp size checks are completed.</li> <li>Pulp samples are fused into a glass bead by the combination of 0.4g of assay sample plus 9.0g flux XRF analysis. A 40g and 0.15g assays charges are used for FA and mixed acid digest respectively.</li> <li>Core samples are routinely sampled for SG determination.</li> </ul>
Drilling techniques	<i>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).</i>	<ul style="list-style-type: none"> <li>Underground drilling is completed by DD rig with a core size of NQ2.</li> <li>Surface drilling is by RC with sampling hammer of nominal 140mm hole and AC drilling with a blade bit. .</li> <li>All surface drill collars are surveyed using RTK GPS. All underground drill collars are surveyed using Trimble S6 electronic theodolite with downhole survey completed by gyroscopically.</li> <li>Holes are inclined at varying angles for optimal ore zone intersection from the drilling position.</li> <li>All core where possible is oriented using a Reflex ACT II RD orientation tool with stated accuracy of +/-1% in the range 0 to 88°.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li><i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li><i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Core is meter marked and orientated to check against the driller's blocks, ensuring that all core loss is taken into account.</li> <li>Diamond core recovery is logged and captured into the database with weighted average core recoveries of approximately 99%. Surface RC sampling is good with almost no wet sampling in the project area. AC drilling recovery is good with sample quality captured in the database.</li> <li>Samples are routinely weighed and captured into the central secured database.</li> <li>No sample recovery issues have impacted on potential sample bias.</li> </ul>

Logging	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Geological logging is completed for all holes and representative across the ore body. The lithology, alteration, and structural characteristics of core are logged directly to a digital format following standard procedures and using Sandfire DeGrussa geological codes. Data is imported into the central database after validation in LogChief™.</li> <li>• Logging is both qualitative and quantitative depending on field being logged.</li> <li>• All cores are digitally photographed and stored.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>• DD Core orientation is completed where possible and all are marked prior to sampling. Half core samples are produced using Almonte Core Saw. Samples are weighed and recorded.</li> <li>• RC samples are split using a cone or riffle splitter. A majority of RC samples are dry. On occasions that wet samples are encountered they are dried prior to splitting with a riffle splitter.</li> <li>• AC samples consist of 5m composite spear samples produced from 1m drilling with weights averaging approximately 3kg. In certain locations after composite samples are received additional 1m sampling may be completed</li> <li>• At the on-site laboratory, the original sample is dried at 80° for up to 24 hours and weighed on submission to laboratory. Sample is then crushed through Jaques crusher to nominal -10mm (DD samples only). Second stage crushing Boyd crusher to nominal -4mm. Where required samples are split to less than 2kg through linear splitter. Sample splits are weighed at a frequency of 1/20 and entered into the job results file. Pulverising is completed using LM2 mill to 90% passing 75µm. Two lots of pulp packets are retained for on-site laboratory services whilst the pulverised residue is shipped to Ultra Trace in Perth for further analysis.</li> <li>• Sample preparation at Ultra Trace in Perth involves the original samples being dried at 80° for up to 24 hours and weighed. DD Samples are then crushed through Jaques crusher to nominal -10mm. Second stage crushing uses Boyd crusher to nominal -4mm. All RC and AC samples are Boyd crushed to -4mm. Samples are then split to less than 2kg through linear splitter and excess retained. Sample splits are weighed at a frequency of 1/20 and entered into the job results file. Pulverising is completed using LM5 mill to 90% passing 75µm.</li> <li>• Sandfire has protocols that cover auditing of sample preparation at the laboratories and the collection and assessment of data to ensure accurate steps in producing representative samples for the analytical process. Key performance indices include contamination index of 90% (that is 90% blanks pass); Crush Size index of P95-10mm; Grind Size index of P90-75µm and Check Samples returning at worse 20% precision at 95% confidence interval and bias of 5% or better.</li> <li>• Duplicate analysis has been completed and identified no issues with sampling representatively.</li> <li>• The sample size is appropriate for the VHMS and Gold mineralisation styles.</li> </ul>

Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>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.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Samples submitted to Ultra Trace in Perth are assayed using Mixed 4 Acid Digest (MAD) 0.3g charge and MAD Hotbox 0.15g charge methods with ICPOES or ICPMS. The samples are digested and refluxed with a mixture of acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric acids and conducted for multi elements including Cu, Pb, Zn, Ag, As, Fe, S, Sb, Bi, Mo, Re, Mn, Co, Cd, Cr, Ni, Se, Te, Ti, Zr, V, Sn, W and Ba. The MAD Hotbox method is an extended digest method that approaches a total digest for many elements however some refractory minerals are not completely attacked. The elements S, Cu, Zn, Co, Fe, Ca, Mg, Mn, Ni, Cr, Ti, K, Na, V are determined by ICPOES, and Ag, Pb, As, Sb, Bi, Cd, Se, Te, Mo, Re, Zr, Ba, Sn, W are determined by ICPMS. Samples are analysed for Au, Pd and Pt by firing a 40g of sample 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.</li> <li>Samples submitted to the on-site laboratory have 0.4g of sample plus 9.0g flux combined and fused into a glass bead. XRF is used to analyse for a suite of elements (including Cu, Fe, SiO<sub>2</sub>, Al, Ca, MgO, P, Ti, Mn, Co, Ni, Zn, As, and Pb). Pulps are dispatched to Ultra Trace in Perth for ICPOES or ICPMS for extended elements (including Cu, Fe, As, Pb, S, Zn, Fe, Ag, Sb, Bi, Cd, Cl, F, and Hg). Au, Pt, and Pd analysed by FA/ICP AES/MS on a 40g assay charge (assay charge is variable depending on Sulphur content).</li> <li>Sandfire DeGrussa QAQC protocol is considered industry standard with standard reference material (SRM) submitted on regular basis with routine samples.</li> <li>SRMs and blanks are inserted at a minimum of 5% frequency rate. A minimum of 2% of assays are routinely re-submitted as Check Assays and Check Samples through blind submittals to external and primary laboratories respectively. Adhoc umpire checks are completed annually.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>Significant intersections have been verified by alternative company personnel.</li> <li>There are no twinned holes drilled for the DeGrussa deposit.</li> <li>Primary data are captured on field tough book laptops using Logchief™ Software. The software has validation routines and data is then imported into a secure central database.</li> <li>The primary data is always kept and is never replaced by adjusted or interpreted data.</li> </ul>



Location of data points	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Sandfire DeGrussa Survey team undertakes survey works under the guidelines of best industry practice.</li> <li>• Underground drilling collar surveys are carried out using Trimble S6 electronic theodolite and wall station survey control. Re-traverse is carried out every 100 vertical meters within main decline. Downhole surveys are completed by gyroscopic downhole methods at regular intervals.</li> <li>• Downhole survey completed by gyroscopic downhole methods at regular intervals in the mine area or by electronic multishot systems in regional exploration.</li> <li>• MGA94 Zone 50 grid coordinate system is used.</li> <li>• A 1m ground resolution DTM with an accuracy of 0.1m was collected by Digital Mapping Australia using LiDAR and a vertical medium format digital camera (Hasselblad). The LiDAR DTM and aerial imagery were used to produce a 0.1m resolution orthophoto that has been used for subsequent planning purposes.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• UG DD drilling was at a nominal 40m x 30m grid with additional holes in areas of potential complexity to remove bias.</li> <li>• DD Data spacing and distribution are sufficient to establish geological and grade continuity. This latest drilling has not been included in the Mineral Resources.</li> <li>• No sample compositing have been applied to the Exploration Results.</li> <li>• RC drilling is at a nominal 100m line spacing at Cow Hole Bore.</li> <li>• AC drill spacing is initially at 800m x 100m line spacing with infill to 400m x 100m in areas of geological or geochemical interest.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The majority of the DD drillholes are orientated to achieve intersection angles as close to perpendicular to the mineralisation as practicable.</li> <li>• No significant sampling bias occurs in the data due to the orientation of drilling with regards to mineralised bodies.</li> <li>• In regional exploration holes are oriented to achieve high angles of intersection. DD drilling is used as required to determine structural orientations in regional programs.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All samples are prepared onsite under the supervision of Sandfire Geological staff.</li> <li>• Samples are transported to the Perth Ultra Trace laboratory by Toll IPEC or Nexus transport companies in sealed bulka bags, or to the onsite laboratory by company personnel.</li> <li>• The laboratories receipt received samples against the sample dispatch documents and issues a reconciliation report for every sample batch.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The sampling techniques and data collection processes are of industry standard and have been subjected to multiple internal and external reviews.</li> </ul>

## Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>M52/1046, E52/1698, E52/1699, E52/1715, E52/2208, E52/2209, E52/2358 and E52/2401 are wholly owned by Sandfire Resources NL, with no known third party ownership encumbrances.</li> <li>All tenements are current and in good standing.</li> <li>The mentioned tenements are currently subject to 3 Native Title Claims by the Gingirana People (WC06/002), the Yungunga-Nya People (WC99/046) and the Nharnuwangga Wajarri Ngarlawangga People (WC99/013). Sandfire currently has Land Access Agreements in place with the Gingirana and Yugunga-Nya Native Title Claimants which overlay the DeGrussa Copper deposit and has allowed mining and exploration activities to commence on their traditional land.</li> </ul>
Exploration done by other parties	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>There has been no significant previous historical drilling by parties other than Sandfire Resources N.L. within the leases.</li> </ul>
Geology	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The Degrussa Copper Mine is a Volcanogenic Massive Sulphide deposit located with the Proterozoic Bryah Basin of Western Australia.</li> <li>In some area zones of regional land holding it is currently interpreted that there is shear zones located on the contact between dolerite and sediments hosting an auriferous quartz vein stockworks with some coincident copper mineralisation.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>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: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> </ul> <p><i>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.</i></p>	<ul style="list-style-type: none"> <li>Refer to Appendix 1 of this accompanying document.</li> <li>All DD drillholes are downhole gyroscopically surveyed at completion with Total Station survey pickup of drill collars.</li> <li>Electronic multishot downhole surveys are completed for RC drilling and with a subset of holes gyroscopically surveyed for internal checks.</li> <li>AC drill holes are not down hole surveyed</li> </ul>

Data aggregation methods	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Where aggregate intercepts incorporate short lengths of high grade results and 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.</i></li> <li><i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>Significant Resource intersections are calculated using a 0.5% Cu cut-off grade and may include up to a maximum of 3.0m of internal dilution, with a minimum composite grade of 1.0% Cu.</li> <li>Cu grades used for calculating significant intersections are uncut.</li> <li>Reported intersections are based on a regular sample interval of 1m or 5m composites in regional drilling subject to the location of geological boundaries.</li> <li>Minimum and maximum sample intervals used for intersection calculations are 0.3m and 1.3m respectively.</li> <li>No metal equivalents are used in the intersection calculation.</li> <li>Where core loss occurs; the average length-weighted grade of the two adjacent samples are attributed to the interval for the purposes of calculating the intersection. The maximum interval of missing core which can be incorporated with the reported intersection is 1.0m.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li><i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li><i>If the geometry of the mineralisation with respect to the drill-hole angle is known, its nature should be reported.</i></li> <li><i>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').</i></li> </ul>	<ul style="list-style-type: none"> <li>Estimated true width is presented in the Table in Appendix 1 where possible</li> <li>Underground drilling is based on the DeGrussa local mine grid.</li> <li>Where the geometry of the mineralisation is known; estimated true widths of mineralisation will be estimated and reported. Where the geometry is uncertain; no true width of mineralisation will be estimated or reported.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Appropriate maps and cross-sections with scale are included within the body of the accompanying document</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>The accompanying document is considered to represent a balanced report.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>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.</li> </ul>
Further work	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>Exploration drilling will continue to target projected lateral and depth extensions of known mineralisation. Additionally regional anomalism will be investigated as required to determine the opportunity to identify economic mineralisation.</li> </ul>