



ASX RELEASE

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## **NEW MASSIVE SULPHIDE DISCOVERY NORTH OF DEGRUSSA OPENS UP DOOLGUNNA POTENTIAL**

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### **HIGHLIGHTS**

- First two RC drill holes targeting a newly discovered large EM anomaly centred 160 metres north-west of the recently discovered high-grade DeGrussa mineralisation intersect significant widths of massive sulphide mineralisation:
  - DGRC 114: Visible chalcopyrite in sulphides intersected from 135 to 170 metres downhole**
  - DGRC 115: Visible chalcopyrite in sulphides intersected from 92 to 122 metres downhole**
- Drilling indicates that the large EM conductor is a much larger body of sulphide mineralisation.
- Mineralisation appears to plunge to the south and remains open to the east, offering significant discovery upside adjacent to the DeGrussa mineralisation.
- Further opens up the potential for multiple volcanogenic massive sulphide (**VMS**) style deposits within Sandfire's tenement holdings at Doolgunna.
- Exploration continuing including ongoing drilling at DeGrussa and the newly discovered mineralisation to the north-west.

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Sandfire Resources NL (ASX: **SFR, Sandfire**) is pleased to advise that the first two drill holes targeting the large geophysical anomaly located immediately north-west of the recently discovered DeGrussa mineralisation at its 100%-owned Doolgunna Project in Western Australia have **both intersected significant widths of massive sulphide mineralisation**, indicating the potential for a much larger body of sulphide mineralisation adjacent to the DeGrussa discovery (see Figure 1).

The DeGrussa prospect, which comprises a zone of high-grade copper sulphide mineralisation with associated base and precious metals, was discovered last month following Reverse Circulation (**RC**) drilling to test a 220 metre long zone of previously discovered oxide gold mineralisation. Four holes intersected high-grade massive sulphide mineralisation near the south-western end of the oxide gold zone (Figure 1).

A new program of RC drilling commenced at Doolgunna on 9 June, including three vertical deep RC drill holes to test the larger EM target to the north of DeGrussa, DGRC 114-116.

This priority target was identified from a recently completed ground electromagnetic (**EM**) survey. A fixed loop EM survey completed over an 800 metre strike length over the recently identified gold and base metal mineralisation at DeGrussa identified the second larger conductor.

This large chargeable anomaly obscured the first conductor associated with the recently drilled DeGrussa mineralisation does not show up on the EM survey data.

Hole DGRC 114 was drilled targeting the central portion of this strong conductor, while holes DGRC 115 and DGRC 116 were drilled 125 metres to the east and 125 metres to the west respectively along a section through the middle of the conductor.

While assay results are still awaited, geological logging of the two mineralised holes completed to date has returned very encouraging results including the presence of visible chalcopyrite in the massive sulphides.

**DGRC 114: Visible chalcopyrite in sulphides intersected from 135 to 170m downhole  
Estimated true width 25 metres**

**DGRC 115: Visible chalcopyrite in sulphides intersected from 92 to 122m downhole  
Estimated true width 20 metres**

A third hole, DGRC 116, was drilled to a depth of 240 metres but did not intersect sulphide mineralisation to this depth.

Samples have been despatched to the laboratory for analysis and assay results are expected within two weeks.

### **New Discovery**

While exploration drilling is still at an early stage, Sandfire's geological team believes that these new results are highly significant and indicate the potential for a much larger body of sulphide mineralisation located adjacent to the recently identified DeGrussa mineralisation (see ASX releases of 18 May 2009 and 21 May 2009).

Geological logging of the drill samples suggests that the mineralisation intersected at this new large conductor is consistent with a VMS deposit. This type of mineralisation typically occurs in clusters of deposits or occurrences, although the exact relationship between the mineralisation at DeGrussa and the newly discovered area is still to be determined.

Initial indications are that the first two drill holes have defined a large body of sulphide mineralisation extending over a strike length of at least 200 metres and with a true thickness of up to 25 metres. The mineralisation remains open to the east and appears to plunge steeply to the south.

The Company is very encouraged by the early success achieved from the new round of drilling at the Doolgunna Project, which has provided early confirmation that the newly discovered body to the north-west is mineralised.

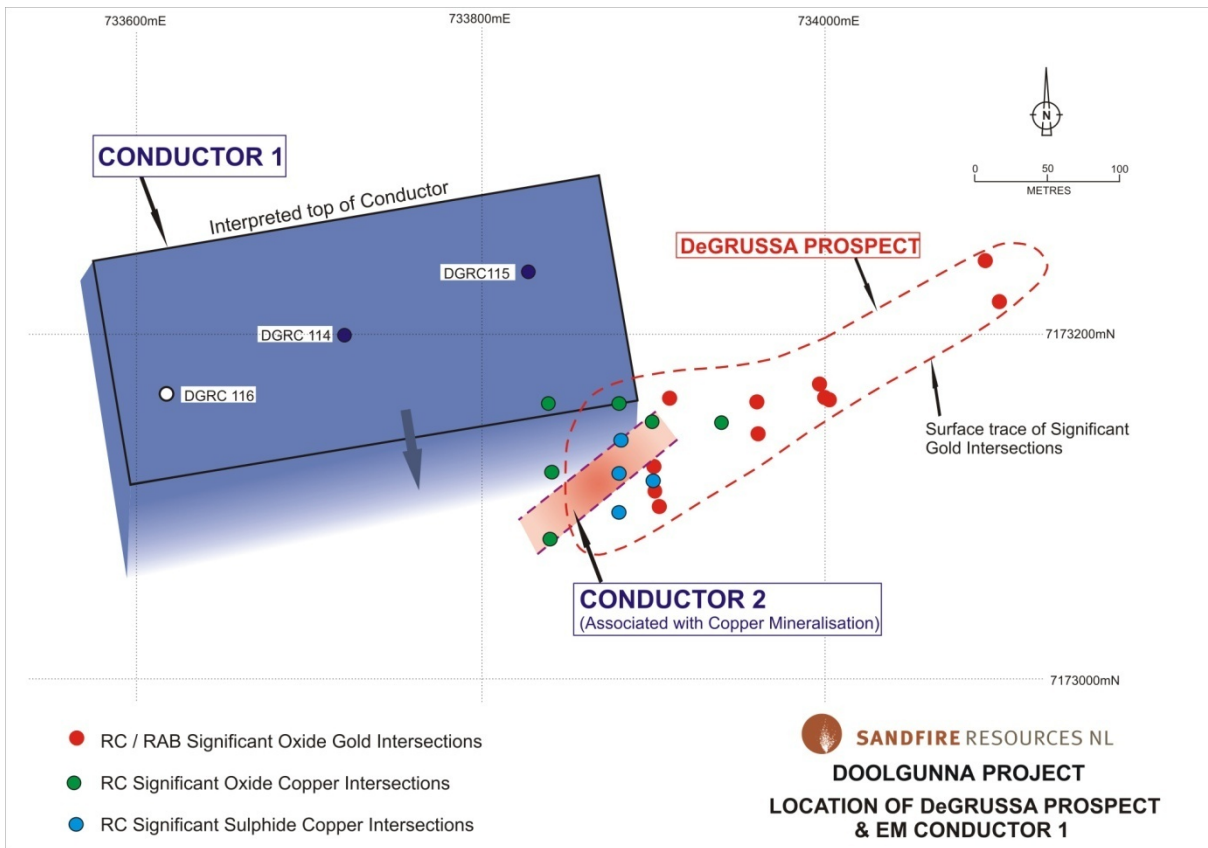
This further opens up the potential of Sandfire's tenement holdings at Doolgunna for potential large-scale VMS deposits, with DeGrussa and the newly discovered area located within a highly prospective geological setting. Most of the prospective stratigraphy is concealed by thick sequences of recent surficial sediments not readily explored by traditional prospecting techniques.

This exciting regional potential will be tested by the planned airborne EM survey to be carried out in late June. This survey will be carried out over approximately 150 square kilometres of the Narracoota Volcanics and surrounds, most of which are concealed below transported recent sediments.

The Doolgunna Project is located 130 kilometres north of Meekatharra in Western Australia. The Project area is located near current and previously mined gold deposits such as Plutonic, Fortnum, Peak Hill, Harmony and Harbour Lights. The discovery of VMS-style base metal mineralisation in this district represents an exciting new development for the area.

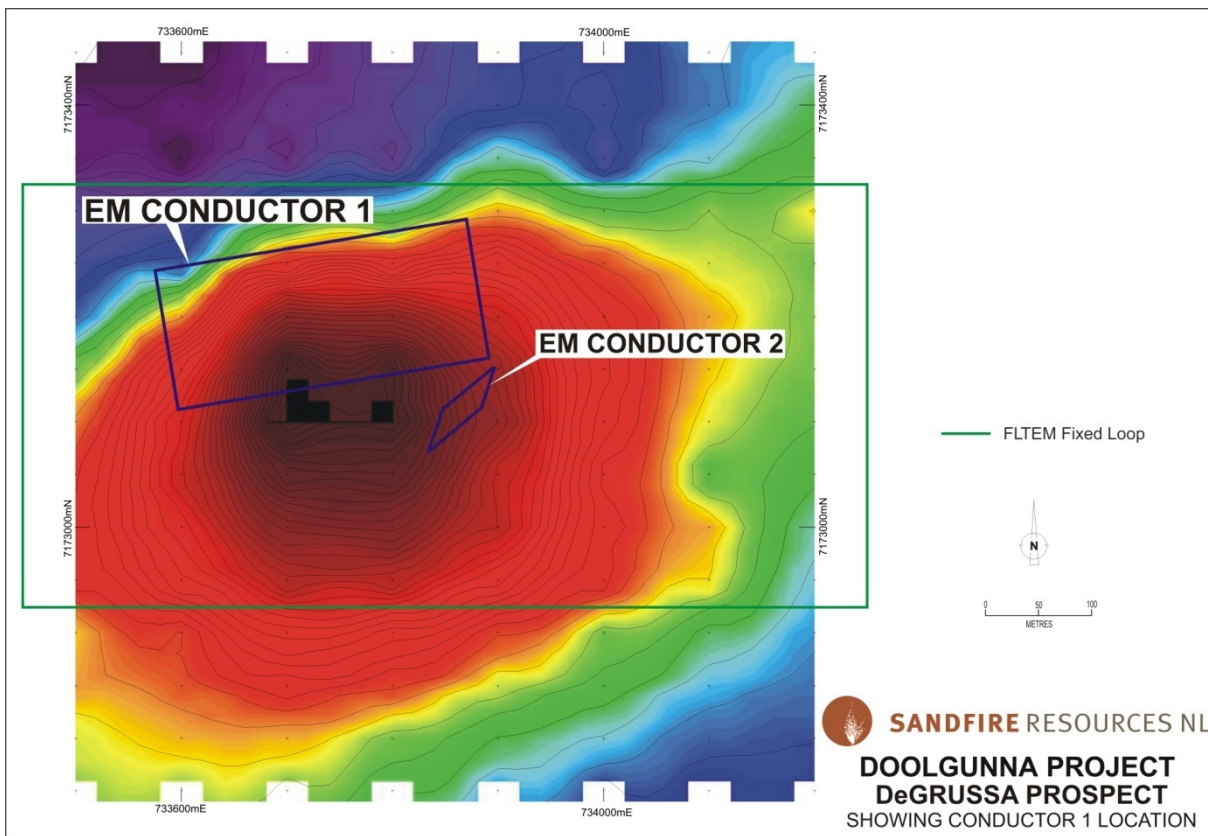
#### **Ongoing Work**

1. Further RC drilling to test for extensions to the mineralisation at the new conductor both laterally along strike and down-dip. This drilling will initially be designed on a step-out basis to gain an understanding of the overall dimensions of the deposit.
2. RC drilling to deepen the four previously drilled holes testing for sulphide mineralisation at depth at DeGrussa and drilling a fifth hole to test the line of mineralisation to the southwest.
3. An extensive airborne EM survey to be carried out in late June 2009 over approximately 150 square kilometres of the Narracoota Volcanics and surrounds, most of which are concealed below transported recent sediments.
4. A substantial program of diamond core drilling commencing in early July 2009 to test the DeGrussa mineralisation at depth and along strike from the known area of basemetal mineralisation, together with further downhole and ground-based EM surveys.



**Figure 1**

DeGrussa mineralisation showing newly identified conductor to the north (Conductor 1)



**Figure 2**

Newly identified large chargeable anomaly identified from Fixed Loop EM survey

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Competent Person's Statement

The information in this report that relates to Exploration Results is based on information compiled by John Evans who is a Fellow of the Australasian Institute of Mining and Metallurgy. John Evans has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves. John Evans consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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