

# Sandfire - Enterprise Farm-In at Doolgunna, Exploration Update

- Three reverse circulation (RC) drill holes (EFRC0027-0029) completed for 1,237m along Vulcan - Vulcan West - Morck Well trend.
- > 25 aircore drill holes completed for 1,795m at Mt Leake.
- Geology in EFRC0028 is interpreted to be VMS host sediment trending between Vulcan West and Morck Well.
- The intersection of moderate quantities of pyrite (albeit thin intersections) and lesser jasper and trace chalcopyrite confirms this trend as a highly prospective package of sediments to host VMS mineralisation.
- Moving loop EM and ground gravity surveying to continue to target the prospective Karalundi Formation across the Vulcan West - Morck Well trend.

Sandfire Resources NL (ASX: SFR; "Sandfire") are exploring Enterprise Metals Ltd's (ASX: ENT, "Enterprise") 100% owned Doolgunna Project tenements under a Farm-in and Joint Venture Agreement, and Sandfire will earn a 75% interest upon discovery of a minimum of 50,000 tonnes contained copper (or equivalent).

Enterprise notes that the RC and Diamond Core (DD) drill holes and results referred to in Auris Minerals Ltd (ASX: AUR) release to the ASX on 29 January 2019 regarding the Auris - Sandfire "Morck Well JV" highlight the prospectivity of the "*Morck Well target horizon*" which contains the zones of sulfide and supergene copper mineralisation previously reported to the ASX by Auris. Figure 1 below shows the location of the "*Sandfire - Enterprise Farm-In*" ground with respect to Enterprise's Vulcan West Prospect and Morck Well.



#### Figure 1. Location of the "Sandfire - Enterprise Farm-In" tenements

Sandfire Resources NI have reported the following information to Enterprise regarding exploration completed on the Enterprise Farm-In and Joint Venture tenements in the Quarter ending 31 December 2018.

Geology intersected in **EFRC0028 and EFRC0029** corresponds with the current geological interpretation and intersected the interpreted host sediment horizon trending between Morck Well and Vulcan West. In addition to prospective geology, the intersection of moderate quantities of pyrite (albeit thin intersections) and lesser jasper and trace chalcopyrite further confirms this trend as a highly prospective package of sediments to host VMS mineralisation.

Figure 2 below shows the location of Sandfire's drill holes EFRC0027-28-29 with respect to the **Sandfire - Enterprise E52/2049**.



#### Figure 2. Location of Vulcan West and Morck Well

#### **Reverse Circulation Drilling**

Three Reverse Circulation (RC) exploration drill holes were completed for a total advance of 1,237m. Drilling was targeted at a subtle DHEM anomaly at Vulcan and a continuation of systematic targeting along the Morck Well – Homestead – Vulcan West prospective trend.

**EFRC0027** was completed to an end of hole depth of 353m, and was targeting a weak, subtle DHEM anomaly identified in EFRC0014, after a recent review of all electromagnetic survey data throughout the project area. Drilling intersected siltstone and sedimentary breccia to 60m, followed by a thick package of dolerite and magnetic dolerite to 329m, before mafic derived breccia with trace disseminated pyrite to the end of hole. No significant assays were reported.

**EFRC0028** intersected dolerite to 132m, followed by a thick package of interbedded sedimentary breccia, siltstone and lithic wacke to 201m, including trace disseminated chalcopyrite between 181m and 193m. A thick sequence of interbedded, variably haematitic and magnetic, exhalite sediments with trace disseminated chalcopyrite followed to 352m, before intersecting interbedded lithic wackes, quartz wackes, siltstone, sedimentary breccia and minor carbonaceous sediments to 424m. The drill hole was completed in dolerite from 424m to the end of hole. The only significant assay reported was 5m at 494ppm Cu, 6.8ppm Sn from 190-195m.

**EFRC0029** intersected dolerite to 202m, followed by sediments (mostly chlorite altered) to the end of hole. Strongly chlorite altered basalts and magnetite-rich exhalite sediments with moderate disseminated pyrite and significant jasper were intersected between 225m and 235m. Hematite and magnetite-rich exhalite sediments with trace amounts of disseminated pyrite were also intersected between 397-398m and 418-432m. The drill hole was completed in chlorite altered siltstone. No significant assays were reported.

The locations of completed RC drilling are shown in Table 1.

Hole ID	Prospect	EOH Depth (m)	Easting	Northing	Date Completed
EFRC0027	Vulcan	353.0	728620.0	7162337.8	21/10/2018
EFRC0028	Vulcan West	448.0	720910.0	7155599.1	29/10/2018
EFRC0029	Vulcan West	436.0	721253.0	7155828.0	11/11/2018

Table 1. RC drilling completed at the Enterprise Project during Q4, 2018.

#### **Aircore Drilling**

25 AC drill holes (EFAC3120 to EFAC3144) were completed for a total of 1,795m at Mt Leake. Drilling was completed on a 400 x 100m line and hole spaced pattern and infilled gaps in existing coverage and extended drill lines that did not intersect the stratigraphic contact above and below the Karalundi Fm. Drilling intersected mostly quartz arenite, wacke and siltstone of the Doolgunna Fm, with lesser sediments and minor dolerite of the Karalundi Fm also intersected. No significant assays were received during the reporting period. The locations of the drill holes are displayed in Figure 3.





#### **Geophysics**

The first phase of <u>high-resolution gravity data</u> collection was completed along the Karalundi Fm trend. Sandfire report that the data is successfully achieving its goal of mapping the stratigraphy beneath variable cover. Final merged grids, 3D inversions and 2D signal processing are pending.

The **MLEM survey** continues to the SW into the Mount Leake, Ruby and White Well Prospects, now with two systems (three crews) on constant rotation. **DHEM** of newly drilled holes is ongoing. Follow-up of the anomalous EM signal in **EFRC0014 (via EFRC0027)** has been unsuccessful to date. A resurvey of EFRC0014 has been recommended.

#### **Geological Understanding**

Geology intersected in EFRC0028 and EFRC0029 correspond with the current geological interpretation and intersected the interpreted host sediment horizon trending between Morck Well and Vulcan West. In addition to prospective geology, the intersection of moderate quantities of pyrite (albeit thin intersections) and lesser jasper and trace chalcopyrite further confirms this trend as a highly prospective package of sediments to host VMS mineralisation.

#### **Ongoing and Forecast Work**

Drilling of the infill and line extension programme is approximately 30% complete and will undergo a review to assess re-targeting after the drilling completed to date proving the geological interpretation to be largely accurate.

#### ABOUT THE SANDFIRE- ENTERPRISE DOOLGUNNA FARM-IN & JV

Sandfire Resources NI (ASX: SFR) entered into a Farm-in Agreement with Enterprise Metals Limited in October 2016 to earn up to a 75% interest in Enterprise's Doolgunna Project by sole funding exploration on the tenements to define a JORC (2012) compliant mineral resource of 50,000 tonnes of contained copper or copper equivalent.

The Enterprise tenements cover over 60km of strike of the southern boundary of the Bryah Basin and the northern part of the Yerrida Basin. The southern Bryah Basin contains the Karalundi Formation which hosts the DeGrussa and Monty copper-gold deposits. Sandfire considers that the Enterprise tenements offer the potential for new copper-gold discoveries.

#### ABOUT ENTERPRISE METALS LTD

Apart from the Doolgunna Project, Enterprise has two other major gold and/or base metal projects in Western Australia. The Fraser Range Ni-Cu-Co Project, in which Enterprise holds a 30% interest free carried to bankable feasibility stage, is managed and operated by Constellation Resources Limited, which holds a 70% interest and is currently planning to raise \$7million and list on the ASX via an Initial Public Offering (IPO).

Enterprise's wholly owned Murchison Au-Cu-Zn Project covers ~830km<sup>2</sup> and is centered 30km north of Cue and 35km north-east of the Big Bell Gold Mine. The project covers the northern and north-eastern extensions of the same greenstone belts and shear zones that host the Big Bell and Cuddingwarra gold deposits and extensions of the Chieftain (or "Mt Magnet") and Emily Well shear zones, which also host gold mineralisation.

Enterprise also owns 12 million shares in **Alto Metals Limited** (ASX: AME; "Alto"). Alto holds a 100% interest in Sandstone Exploration Pty Ltd, the holder of tenements covering the ~820km<sup>2</sup> and the majority of the Archaean Sandstone Greenstone Belt, which has produced over 1.3 million ounces of gold. Enterprise's 12 million Alto shares have a current fair market value of ~\$0.0.47M based on the AME share price of 3.9 cents/share at market close on 29 January2018.

#### **Further Information**

Dermot Ryan Director +61 6381 0392 <u>admin@enterprisemetals.com.au</u>

#### **Competent Persons statement**

The information in this report that relates to Exploration Results is based on information supplied by Sandfire Resources NL and compiled by Mr Dermot Ryan, who is an employee of Xserv Pty Ltd and a Director and security holder of the Company. Mr Ryan is a Fellow of the Australasian Institute of Mining and Metallurgy and a Fellow of the Australian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralization and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Ryan consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

## JORC CODE 2012 EDITION TABLE 1 REPORT ENTERPRISE FARM-IN PROJECT

## (Information provided by Sandfire Resources NL)

### **SECTION 1 - Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections.)

Criteria	Commentary			
Sampling techniques	AC samples are collected using spear techniques for both composite and single metre samples. RC samples are collected by a cone splitter for single metre samples or a sampling spear for first pass composite samples using a face sampling hammer with a nominal 140mm hole.			
	Sampling is guided by Sandfire protocols and Quality Control (QC) procedures as per industry standard.			
	AC and RC samples are crushed to -4mm through a Boyd crusher and representative subsamples pulverised via LM5.			
	Pulverising is to nominal 90% passing -75 $\mu$ m 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	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.			
	AC drill collars are surveyed using a GPS. All RC drilling was completed with a Schramm T685 drill rig using a sampling hammer with a nominal 140mm hole diameter.			
	RC drill collars are surveyed using RTK GPS with down hole surveying.			
	Downhole surveying is undertaken using a gyroscopic survey instrument.			
Drill sample	AC and RC sample recoveries are logged and captured into the database.			
recovery	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 and RC samples collected are of good quality with minimal wet sampling in the project area.			
	No sample recovery issues are believed to have impacted on potential sample bias. When grades are available the comparison can be completed.			
Logging	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.			
	Logging is both qualitative and quantitative depending on field being logged.			
	All chip trays are photographed.			
	All drill holes are fully logged.			
Sub-sampling techniques	No core drilled as part of this report			
and sample	AC samples consist of 5m composite spear samples produced from 1m sample piles.			
preparation	Additional 1m sampling is completed depending on results from 5m composite samples or where mineralisation is observed while drilling is occurring. RC 1m samples are split using a cone or riffle splitter. The majority of RC samples are dry. On occasions that wet			
	samples are encountered they are dried prior to splitting with a riffle splitter.			
	All samples are sorted, dried at 80° for up to 24 hours and weighed. AC samples are Boyd crushed to - 4mm and			
	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.			
	1:20 grind quality checks are completed for 90% passing 75% $\mu m$ criteria to ensure representativeness of subsamples.			
	Sampling is carried out in accordance with Sandfire protocols as per industry best practice. No field duplicates have been taken for AC drilling.			
1				

Criteria	Commentary			
	The sample sizes are considered appropriate for the VHMS and Gold mineralisation types.			
Quality of assay data and laboratory tests	The sample sizes are considered appropriate for the VHMS and Gold mineralisation types. 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 RC drilling downhole Electromagnetic (DHEM) Geophysical Surveys have been completed for Sandfire by Merlin Geophysical Solutions. MT-200 and MT-400P transmitters, DigiAtlantis probe and receiver			
	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	Significant intersections have been verified by alternative company personnel. None of the drill holes in this report are twinned. 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. The primary data is always kept and is never replaced by adjusted or interpreted data.			
Location of data points	All AC holes are surveyed in the field using a Garmin GPS Map 64. Estimated accuracy of this device is +/- 4m's. All RC drill collars are accurately surveyed using an RTK GPS system within +/-S0mm of accuracy (X,Y,Z). Downhole surveys are completed by gyroscopic downhole methods at regular intervals. Coordinate and azimuth are reported in MGA 94 Zone 50.			
	Topographic control was established LiDar laser imagery technology.			
Data spacing and distribution	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 dependent on results. In areas of observed mineralisation and adjacent to it, hole spacing on drill may be narrowed to 50m. RC drilling is completed as required to test geological targets. A set pattern is adopted once a zone of economic mineralisation has been broadly defined.			
	AC and RC 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	There is no significant orientation based sampling bias known at this time in the Vulcan West project area.			
geological structure	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	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	No external audits or reviews of the sampling techniques and data have been completed on this project.			

## **SECTION 2 - Reporting of Exploration Results**

Criteria	Commentary
Mineral tenement and land tenure status	The Vulcan West project area encompasses E52/2049 and the Mt Leake area is within E52/3347, both of which qre owned by Enterprise Metals Limited. Sandfire is currently farming into the project with the right to earn 75% interest in the project area. (Refer to terms of Farm-In Agreement dated 12 <sup>th</sup> October 2016). 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. All tenements are current and in good standing.
Exploration done by other parties	Aside from Sandfire Resources and Enterprise Metals Limited there has been no recent exploration undertaken on the Vulcan West Project. Exploration work on E52/2049 of the Doolgunna Project by Enterprise included a detailed fixed wing airborne magnetic survey in 2007, re- assaying of pulps from a 1km x 1km spaced Maglag geochemical survey in 2009, a heli borne VTEM survey in 2009, 100m x 100m soil sampling and multielement geochemical analysis, and a 400m line spaced Slingram Moving Loop EM (MLEM) survey conducted in 2015
Geology	The Vulcan West 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	Refer to Table 1 and Figures 2 and 3 in the main body of this release: RC Drilling completed at Enterprise Project During Q4,2018.
Data aggregation methods	Only one significant RC analysis is reported in this release. EFRC0028: 5m at 494ppm Cu, 6.8ppm Sn from 190-195m.
	No significant AC analyses are reported in this release.
	No metal equivalents are used in the intersection calculations.
Relationship between mineralisation	Any 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	The geometry of any mineralisation, relative to the drillhole, is unknown at this stage.
	Any intersections reported in this release are downhole intervals. True widths are not known.
Diagrams	Appropriate maps are included within the body of the accompanying document.
Balanced reporting	The accompanying document is considered to represent a balanced report.
Other substantive exploration data	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	Additional work including downhole geophysics and surface geophysics is being planned.