



RED BULL DRILLING UPDATE

KEY POINTS

- Diamond drill hole RBDD004, targeting a large, strong bedrock conductor, completed at 771m depth
- 5m thick interval of graphitic and sulphidic schist from 728m depth interpreted as probable conductive source – to be confirmed by down-hole EM survey
- Disseminated and blebby sulphides of probable magmatic origin identified in mafic host rocks in upper section of drill hole
- No assays available to date, full results expected within the next 4-6 weeks

Sheffield Resources (“Sheffield”, “the Company”) (ASX:SFX) today announced the completion of diamond drill hole RBDD004, drilled to test the large, strong bedrock conductor “RBD1” at its Red Bull Nickel-Copper Project. Red Bull is within 20km of Sirius Resources NL’s (ASX:SIR) Nova Nickel-Copper deposit, in the Fraser Range region of Western Australia.

The RBD1 conductor was identified from Moving and Fixed Loop Transient Electromagnetic (MLTEM & FLTEM) ground geophysical surveys (see ASX release dated 7 July 2014).

Drill hole RBDD004 was designed to intersect the modelled conductor plate at around 680m down-hole depth. A 123m interval of mafic granulite with trace disseminated sulphides was intersected from 600m to 723m depth. Although a favourable host lithology for magmatic nickel deposits, the low level of sulphides in this unit mean that it is unlikely to have sourced the conductor.

A 5m thick interval of graphitic and sulphidic schist was intersected from 728m depth. Whilst deeper than indicated by the model, it is interpreted to be the most likely source of the conductor (Figure 1).



Figure 1: Graphite-biotite-feldspar-pyrrhotite schist. NQ drillcore from RBDD004, 732.1m depth.



Figure 2: Blebby pyrrhotite and chalcopyrite of probable magmatic origin. HQ drill core from RBDD004, 96m depth.

A down-hole EM survey has commenced with the aim of confirming the graphitic schist as the conductor source or to determine the existence of additional off-hole conductors.

A summary geological log of the target zone is provided below:

- 539.48m - 721.82m: mafic granulite (comprising feldspar-biotite-pyroxene+/- occasional garnet (with sporadic trace disseminated magmatic pyrrhotite +/- chalcopyrite and pyrite).
- 721.82m - 722.95m: intercalated mafic granulite and feldspar-biotite-garnet gneiss.
- 722.95m - 728.0m: feldspar-biotite-garnet gneiss.
- 728.0m - 733.02m: graphite-biotite-feldspar-pyrrhotite schist (visual estimates of 5-10% graphite, 2-5% pyrrhotite blebs, veinlets and disseminations).
- 733.02 - 771.4m: mafic granulite to end of hole (771.4m).

Further intervals of mafic granulite were observed in the drill core. Intervals of mafic granulite from 87.27m-101.87m and 104.2m-106.98m contained trace amounts of blebby and disseminated magmatic sulphides comprising pyrrhotite +/- chalcopyrite. Significantly, the blebs of sulphide commonly comprise complex intergrowths of chalcopyrite and pyrrhotite with patterns typical of magmatic sulphides (Figure 2). This is a favourable indication for the formation of magmatic nickel-copper sulphide deposits.

It is important to note that these are only estimates from visual examination of the drill core; the core has not yet been assayed.

ENDS

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COMPLIANCE STATEMENTS

EXPLORATION RESULTS

The information in this report that relates to Exploration Results is based on information compiled by Mr David Boyd, a Competent Person who is a Member of Australian Institute of Geoscientists (AIG). Mr Boyd is a full-time employee of Sheffield Resources Ltd and has sufficient experience that is relevant to the styles of mineralisation and types of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Boyd consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

PREVIOUSLY REPORTED INFORMATION

This report includes information that relates to Exploration Results which were prepared and first disclosed under the JORC Code 2012. The information was extracted from the Company's previous ASX announcements as follows:

- *"LARGE Ni-Cu-Co ANOMALIES IDENTIFIED IN THE FRASER RANGE"*, 11 February, 2014
- *"LARGE BEDROCK CONDUCTOR IDENTIFIED AT RED BULL Ni-Cu PROJECT, FRASER RANGE"*, 7 July 2014
- *"DRILLING OF LARGE CONDUCTOR COMMENCES AT RED BULL Ni-Cu PROJECT, FRASER RANGE"*, 25 August, 2014.

These announcements are available to view on Sheffield Resources Ltd's web site www.sheffieldresources.com.au.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

FORWARD LOOKING STATEMENTS

Some statements in this report regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward-looking statements include, but are not limited to, statements concerning the Company's exploration programme, outlook, target sizes and mineralised material estimates. They include statements preceded by words such as "anticipated", "expected", "target", "scheduled", "intends", "potential", "prospective" and similar expressions.

ABOUT SHEFFIELD RESOURCES

Sheffield Resources Limited (**Sheffield**) is a rapidly emerging heavy mineral sands (HMS) company.

ASX Code – SFX

Market Cap @ \$1.03ps - \$138.2m

Issued shares – 134.2m

Cash - \$10.9m (at 30 June 2014)

Sheffield's projects are all situated within the state of Western Australia and are 100% owned by the Company.

HEAVY MINERAL SANDS

The Dampier project, located near Derby in WA's northwest, contains the large, high grade zircon-rich Thunderbird HMS deposit. Sheffield is undertaking a pre-feasibility study on Thunderbird and is targeting first production in 2017.

The Eneabba project comprises multiple HMS deposits and is located near Eneabba approximately 140km south of the port of Geraldton in WA's Mid-West region.

Sheffield is also evaluating the large McCalls chloride ilmenite project, located 110km to the north of Perth.

NICKEL-COPPER

Sheffield's Red Bull project is located in the highly prospective Fraser Complex within 20km of Sirius Resources NL's (ASX:SIR) Nova Ni-Cu deposit.

IRON

Sheffield's Panorama and Mt Vettel DSO iron projects are located in the North Pilbara region, near existing iron ore mines and within potential trucking distance of Port Hedland.

POTASH

The Oxley potash project is located in the northern part of the Proterozoic Moora Basin, approximately 38km northeast of Three Springs. Sheffield is exploring the Oxley Potash project for unconventional hard rock potash mineralisation suitable for open pit mining.

Appendix 1: JORC (2012) Table 1 Report, Red Bull Diamond Drilling Complete, 9 September 2014.

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> 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. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information. 	<ul style="list-style-type: none"> No sampling conducted to date
Drilling techniques	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> Diamond drillcore HQ diameter 0-119m, NQ diameter from 119m to eoh. Core is orientated using downhole orientation tool and referenced to downhole gyroscopic survey.
Drill sample recovery	<ul style="list-style-type: none"> Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. 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. 	<ul style="list-style-type: none"> Drillcore recovery is logged downhole.
Logging	<ul style="list-style-type: none"> 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. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	<ul style="list-style-type: none"> Drill core has been geologically logged to a summary/preliminary level to date, more detailed logging will follow.
Sub-sampling	<ul style="list-style-type: none"> If core, whether cut or sawn and whether 	<ul style="list-style-type: none"> No sampling conducted to date

Criteria	JORC Code explanation	Commentary
techniques and sample preparation	<p>quarter, half or all core taken.</p> <ul style="list-style-type: none"> • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled. 	
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> • The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • 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. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. 	<ul style="list-style-type: none"> • No assaying conducted to date
Verification of sampling and assaying	<ul style="list-style-type: none"> • The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data. 	<ul style="list-style-type: none"> • No sampling or assaying conducted to date
Location of data points	<ul style="list-style-type: none"> • 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. • Specification of the grid system used. • Quality and adequacy of topographic control. 	<ul style="list-style-type: none"> • Drillhole was located with a differential GPS, sub-m accuracy X and Y, sub-10m accuracy RL at 514,550mE 6,454,543mN 231mADHRL. • Downhole surveying was completed using a north-seeking gyroscopic instrument. Average orientation was -66.1° dip to 217.8° azimuth (true north). • Coordinates are GDA94 MGA Zone 51, RL is referenced to AHD.
Data spacing and distribution	<ul style="list-style-type: none"> • Data spacing for reporting of Exploration Results. • 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. • Whether sample compositing has been applied. 	<ul style="list-style-type: none"> • Single hole drilled to test a conductive source identified though ground geophysics with an area 350m x 1200m.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. 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. 	<ul style="list-style-type: none"> Drillhole was located to optimise depth of conductive source intersection and location within the modelled plate. Preliminary examination of the core shows the core to have moderate foliation at a high angle to the core axis within the target zone.
Sample security	<ul style="list-style-type: none"> The measures taken to ensure sample security. 	<ul style="list-style-type: none"> No sampling conducted to date.
Audits or reviews	<ul style="list-style-type: none"> The results of any audits or reviews of sampling techniques and data. 	<ul style="list-style-type: none"> No audits conducted to date.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	Statement	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. 	<ul style="list-style-type: none"> Data reported is from Exploration Licence E69/3052 which was granted on 27/07/2012 and is due to expire on 26/07/2017. The tenement is held 100% by Sheffield Resources Ltd. There are no known or experienced impediments to obtaining a licence to operate in the area. Sheffield has been operating successfully in the region for more than 2 years.
Exploration done by other parties	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> The Red Bull Project area was explored by Gold Partners between 1995 and 1999. An aeromagnetic interpretation was completed showing the extent of magnetic units followed up by 3,943m of air core drilling exploring for base metal mineralisation potential.
Geology	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<ul style="list-style-type: none"> Sheffield is exploring primarily for magmatic-hosted Ni-Cu sulphide. Details are included in the body of this, and previously released announcements.
Drill hole Information	<ul style="list-style-type: none"> 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"> easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. 	<ul style="list-style-type: none"> RBDD004 located at 514,550mE 6,454,543mN 231mADHRL. Average orientation is -66.1° dip towards 217.8° (true north). Hole length is 771.4m downhole. Graphitic schist intersected at 728.0m - 733.02m downhole, likely to be the source of the target conductor. Further analysis is required to confirm this.
Data	<ul style="list-style-type: none"> In reporting Exploration Results, weighting 	<ul style="list-style-type: none"> None applied.

Criteria	Statement	Commentary
<i>aggregation methods</i>	<p>averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</p> <ul style="list-style-type: none"> 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. The assumptions used for any reporting of metal equivalent values should be clearly stated. 	
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). 	<ul style="list-style-type: none"> Only visual results have been presented here, no assays have been completed to date. The modelled conductive source has a large areal size/extent (~350x1200m), striking ~WNW-ESE, with a shallow-moderate N/NE dip/plunge (~25-35degrees). Downhole geophysical surveying is underway and will confirm & refine this interpretation.
<i>Diagrams</i>	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The information presented is based on visual observations of the drill core. It is interpreted that the graphitic schist is the source of the targeted conductor, however further work is required to confirm this. At this stage it is not considered that this is a significant discovery, and so detailed plans and cross sections have not been included in the announcement.
<i>Balanced reporting</i>	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> This announcement is an update for an exploration program which is still underway, and has been made to fulfil the Company's continuous disclosure obligations. Visual observations only are reported here, no assay or other analytical information is available to date and it is possible that the interpretation may change based upon further information which will be reported at the appropriate time. In the case of previously-announced results, the initial announcement is referenced. Terms like "best", "strongest" or "significant" are used to highlight those results considered most important in the context of the announcement. Some statements in this report regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward-looking statements include, but are not limited to, statements concerning the Company's exploration programme, outlook, target sizes and mineralised material estimates. They include statements preceded by words such as

Criteria	Statement	Commentary
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> 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. 	<p>"anticipated", "expected", "target", "scheduled", "intends", "potential", "prospective" and similar expressions.</p> <ul style="list-style-type: none"> None applicable.
<i>Further work</i>	<ul style="list-style-type: none"> The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	<ul style="list-style-type: none"> Included in the body of announcement.