ASX and Media Release

17 September, 2014

THUNDERBIRD MINERAL SANDS PROJECT UPDATE

KEY POINTS

- **Discovery of high grade extensions to mineralisation in up-dip and down-dip regions of world-class Thunderbird deposit**
- **Discovery has the potential to enhance already outstanding project economics**
- **Resource update scheduled for Q4 2014 and Pre-feasibility Study on schedule to be finalised late Q1 2015**

Sheffield Resources Limited ("Sheffield" "the Company") (ASX:SFX) today announced drilling results and a Pre-Feasibility Study progress update at its 100% owned, world-class Thunderbird Mineral Sands Project, located near Derby in northwest Western Australia.

Results from initial assay batches of the 2014 aircore drilling programme have been received, and relate to 37 extension, infill and groundwater monitoring drill holes (Figures 1 & 2). Significant results include:

Up-dip Extension

- **30m @ 8.56% HM** from 0m (THAC469), including **21m @ 10.9% HM** from 0m
- **33m @ 7.74% HM** from 0m (THAC468), including **10.5m @ 16.0% HM** from 1.5m
- **30m @ 7.77% HM** from 0m (THAC465), including **10.5m @ 14.3% HM** from 0m

Down-dip Infill & Extension

- **58.5m @ 8.33% HM** from 58.5m (THAC448), including **34.5m @ 10.5% HM** from 60m
- **52.5m @ 8.90% HM** from 36m (THAC442), including **39m @ 10.5% HM** from 39m
- **49.5m @ 9.71% HM** from 63m (THAC445), including **42m @ 10.9% HM** from 69m

(>3% HM cut-off, including >7.5% HM cut-off, refer to Table 1 and Appendix 1 for full details).

Results from the up-dip drilling demonstrate the continuity of thick, shallow, high grade mineralisation beyond the current resource envelope. Similarly, the results of down-dip drilling have extended the mineralisation to the southwest and demonstrate the strong continuity of mineralisation within part of the resource currently classified as Inferred (Figures 1 & 2, ASX release dated 14 April, 2014).

Significantly, these drilling results are outside the 32-year life-of-mine (LOM) optimised pit shell used in the April 2014 Scoping Study, and therefore have potential to improve the project's already outstanding economics.

Sheffield's Managing Director Bruce McQuitty said: "This is a terrific result, confirming the deposit extends both up-dip and down-dip and remains open.

"The discovery of additional high grade mineralisation in the up-dip region is particularly significant because our Scoping Study delivered higher margins in early production years from this region.

"We look forward to further results from recently completed drilling in the remainder of the up-dip region."

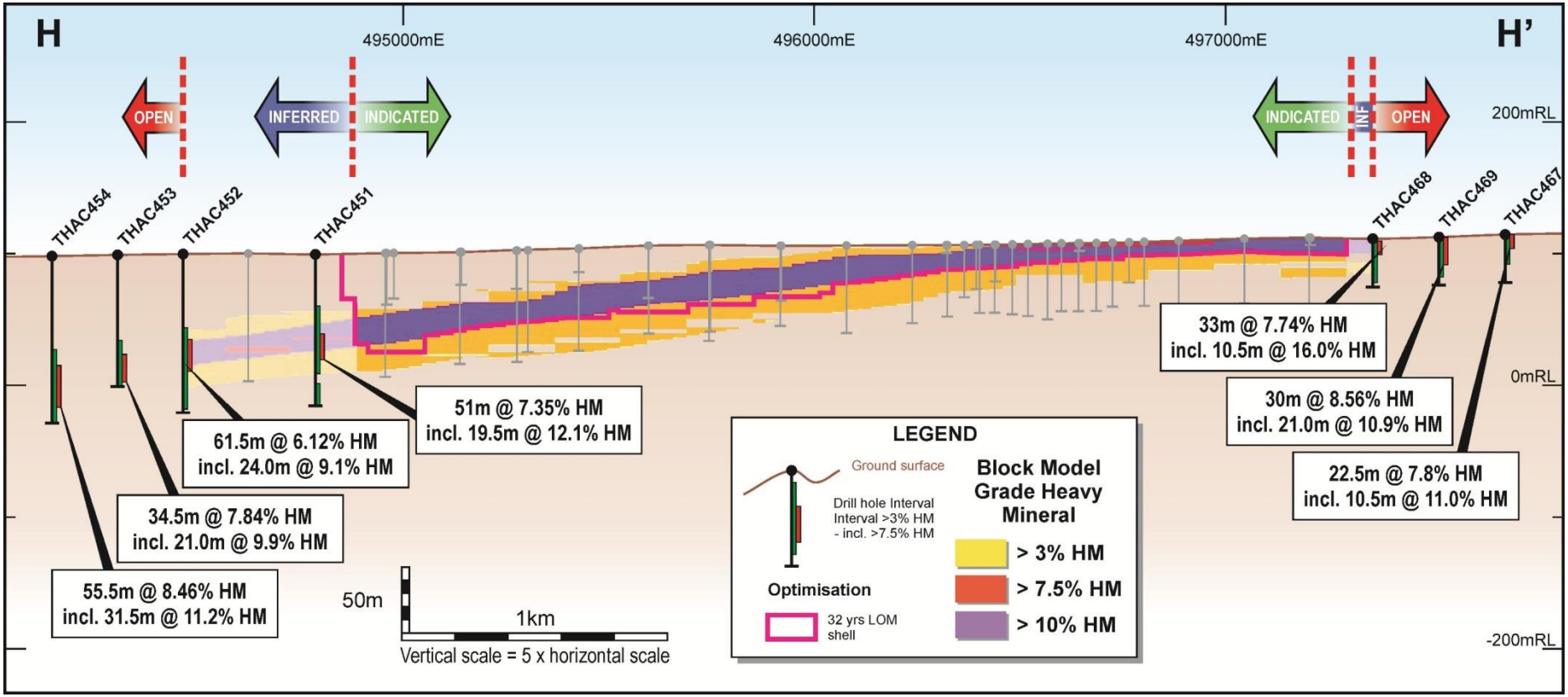

Figure 1: Cross-section H-H' through the Thunderbird deposit showing the resource and 32 year pit shell outline, resource classifications and drill holes in this ASX release

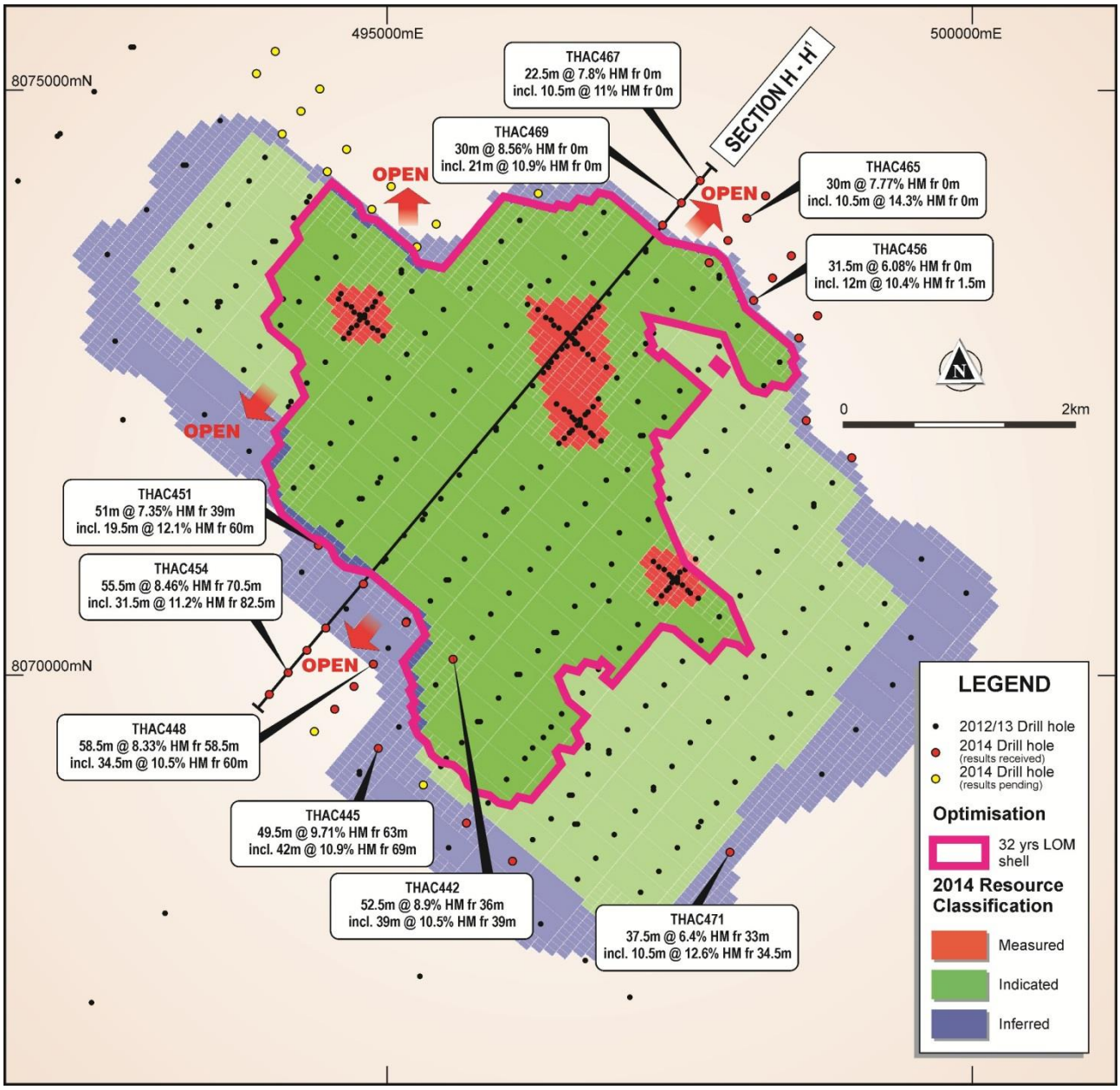

Figure 2: Plan view of Thunderbird Deposit 32-year pit shell outline on Mineral Resource Classifications showing location of drill holes in this ASX release

Thunderbird has total mineral resources of **2.62Bt @ 6.5% HM** (Measured, Indicated and Inferred) for **170Mt of contained HM,** including a high grade component of **740Mt @ 12.1% HM** (see full resources tabulation Appendix 2 and ASX release dated 19 March 2014).

The Thunderbird Scoping Study, released on 14 April 2014, showed the project has the potential to generate consistently strong cash margins from globally significant levels of production over an initial 32-year mine life.

Results from six groundwater monitoring drill holes were also received. These holes were drilled to the southeast of the resource and were routinely sampled and assayed. The best result was **37.5m @ 6.4% HM** from 33m depth, including **10.5m @ 12.6% HM** from 34.5m depth from drill hole THAC471, located on the margin of the current resource envelope (Figure 2, Table 1).

Drilling continues, with further results expected from additional up-dip and down-dip extension and infill drill holes in Q3-Q4 2014, ahead of a resource update scheduled for late Q4 2014.

Thunderbird Pre-feasibility

Pre-feasibility work is well advanced and is on schedule to be finalised during Q1 2015. Details of the work currently being undertaken are provided below.

Metallurgical Testwork and Process Engineering

Metallurgical testwork on a 15-tonne bulk sample is well advanced. Robbins Metallurgical is undertaking this work with full-scale or scalable equipment to confirm process design. Feed preparation, primary wet concentration, slimes settling and co-disposal tests, and concentrate upgrade stages have been completed, and mineral separation stages are underway.

All physical test work from this program and an updated engineering design is expected to be completed during Q4 2014.

Geotechnical Investigations

Fifteen geotechnical investigation drill holes have been completed using sonic coring. The aim of this program is to obtain sufficient geotechnical information for:

- Pit slope stability analyses and pit design;
- Assessment of the excavatability of mineralisation and waste; and
- Mining and overburden equipment selection.

The test drilling program has been designed to evaluate ground conditions largely within an optimised initial four year pit shell, and is 78% complete. The program is expected to be completed in early Q4 2014.

Infrastructure and Power Studies

Stage 1 of an infrastructure study is complete and has investigated possible transport and product export options. Stage 2 is underway and will focus on site infrastructure. An initial investigation of power (site maximum demand), and annual energy consumption has been undertaken based on Scoping Study engineering and process flow diagrams. Power supply options and potential service providers are also currently being investigated.

Hydrogeological Investigations

Three test production bores have been completed to a maximum 120 metres depth within, and adjacent to, the Thunderbird deposit. Pump testing of these bores has commenced and will be completed by the end of September. In addition, an airborne EM survey at Thunderbird is planned to assist in aquifer modelling. This work is expected to be finalised during Q4 2014.

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 style of mineralisation and type 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, Mineral Resources and Scoping Study 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:

- *"SHEFFIELD DOUBLES TOTAL MINERAL RESOURCES AT WORLD CLASS THUNDERBIRD HMS DEPOSIT"* 19 March 2014
- *"SCOPING STUDY HIGHLIGHTS THUNDERBIRD'S EXCEPTIONAL FINANCIAL RETURNS"* 14 April, 2014

These announcements are available 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 reporting of Exploration Results, estimates of Mineral Resources or results of Scoping Studies, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which any Competent Person's findings are presented have not been materially modified from the original market announcement.

SCOPING STUDY

The Scoping Study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

The Company believes it has a reasonable basis for making the forward looking statements in this report, including with respect to any production targets, based on the information contained in the announcement "SCOPING STUDY HIGHLIGHTS THUNDERBIRD'S EXCEPTIONAL FINANCIAL RETURNS", dated 14 April 2014, and with respect to the Mineral Resource for Thunderbird as at 19 March 2014, independently compiled by QG Pty Ltd, together with independent metallurgical, processing design, engineering, mining and marketing studies, product quality assessment, external commodity price and exchange rate forecasts and global operating cost data.

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.

Table 1: Thunderbird aircore drill results, 17 September, 2014

Up-dip Extension Drill Holes

Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)*	HM wt%	Slimes wt%	Osize wt%	Drill Hole Collar Information				
							Easting	Northing	RL	Depth (m)	Comment
THAC456	0.0	31.5	31.5	6.08	14.9	17.2	498132	8073206	113	42.0	
including	*1.5*	*13.5*	*12.0*	*10.4*	*15.0*	*20.0*					
THAC457	0.0	13.5	13.5	9.04	17.0	15.1	498293	8073398	115	36.0	
including	*0.0*	*12.0*	*12.0*	*9.39*	*17.5*	*15.7*					
and	19.5	34.5	15.0	3.41	17.5	6.6	498293	8073398	115	36.0	
THAC458	0.0	24.0	24.0	5.89	15.3	9.7	498453	8073589	117	42.0	
including	*1.5*	*7.5*	*6.0*	*9.39*	*16.0*	*23.9*					
THAC459	0.0	27.0	27.0	4.93	15.1	10.0	498675	8073076	119	36.0	
including	*0.0*	*9.0*	*9.0*	*8.99*	*12.8*	*12.4*					
THAC460	1.5	30.0	28.5	5.34	15.1	8.7	498515	8072885	117	36.0	
including	*1.5*	*12.0*	*10.5*	*10.9*	*14.6*	*11.6*					
THAC461	4.5	31.5	27.0	4.71	16.3	11.1	498578	8072178	115	42.0	
THAC462	9.0	30.0	21.0	3.30	11.8	12.6	498966	8071860	118	54.0	
THAC463	0.0	25.5	25.5	6.11	16.5	20.3	497749	8073528	112	36.0	
including	*3.0*	*12.0*	*9.0*	*9.38*	*16.4*	*25.0*					
THAC464	0.0	31.5	31.5	6.75	15.8	12.1	497910	8073719	114	36.0	
including	*3.0*	*12.0*	*9.0*	*12.7*	*13.9*	*19.1*					
THAC465	0.0	30.0	30.0	7.77	16.2	12.1	498070	8073911	117	42.0	
including	*0.0*	*10.5*	*10.5*	*14.3*	*14.4*	*20.3*					
THAC466	0.0	39.0	39.0	4.45	17.0	12.0	498231	8074102	119	42.0	
including	*1.5*	*6.0*	*4.5*	*10.8*	*18.3*	*21.9*					
THAC467	0.0	22.5	22.5	7.80	15.3	14.8	497672	8074232	115	36.0	
including	*0.0*	*10.5*	*10.5*	*11.0*	*12.9*	*20.5*					
THAC468	0.0	33.0	33.0	7.74	16.4	10.7	497350	8073849	112	36.0	
including	*1.5*	*12.0*	*10.5*	*16.0*	*15.5*	*11.8*					
THAC469	0.0	30.0	30.0	8.56	15.0	9.9	497511	8074041	113	36.0	
including	*0.0*	*21.0*	*21.0*	*10.9*	*14.0*	*12.6*					

Down-dip Infill & Extension drill holes

Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)*	HM wt%	Slimes wt%	Osize wt%	Drill Hole Collar Information				
							Easting	Northing	RL	Depth (m)	Comment
THAC442	36.0	88.5	52.5	8.90	11.7	8.6	495563	8070139	96	93.0	
including	*39.0*	*78.0*	*39.0*	*10.5*	*10.9*	*9.7*					
THAC443	no significant interval						495238	8069760	95	28.0	Hole ended above mineralisation
THAC444	48.0	111.0^	63.0	6.64	9.2	4.7	495243	8069765	95	111.0	Re-drill of THAC443
including	*52.5*	*85.5*	*33.0*	*8.82*	*7.3*	*5.5*					
THAC445	63.0	112.5	49.5	9.71	5.2	7.3	494924	8069378	95	129.0	
including	*69.0*	*111.0*	*42.0*	*10.9*	*5.2*	*7.5*					
THAC446	67.5	108.0	40.5	5.16	10.0	7.2	494549	8069712	97	125.5	
including	*84.0*	*88.5*	*4.5*	*12.4*	*9.5*	*10.5*					
THAC447	54.0	61.5	7.5	4.71	6.1	5.8	494713	8069906	98	127.5	
and	67.5	126.0	58.5	8.31	11.1	3.8	494713	8069906	98	127.5	
including	*70.5*	*102.0*	*31.5*	*11.5*	*11.3*	*4.5*					
THAC448	58.5	117.0	58.5	8.33	14.0	6.9	494880	8070099	98	129.0	
including	*60.0*	*94.5*	*34.5*	*10.5*	*12.0*	*10.7*					
THAC449	no significant interval						495158	8070454	97	39.0	Hole ended above mineralisation
THAC450	34.5	79.5	45.0	8.46	14.2	12.5	495163	8070459	97	126.0	
including	*45.0*	*69.0*	*24.0*	*12.8*	*11.3*	*12.2*					
and	85.5	90.0	4.5	3.79	13.0	7.9	495163	8070459	97	126.0	
THAC451	39.0	90.0	51.0	7.35	13.0	5.6	494794	8070784	100	114.0	
including	*60.0*	*79.5*	*19.5*	*12.1*	*12.5*	*5.0*					
and	97.5	114.0^	16.5	3.39	13.0	3.3	494794	8070784	100	114.0	
THAC452	55.5	117.0	61.5	6.12	13.2	5.1	494474	8070405	100	120.0	
including	*64.5*	*88.5*	*24.0*	*9.08*	*14.5*	*9.7*					
THAC453	64.5	99.0^	34.5	7.84	8.4	9.6	494312	8070218	100	99.0	
including	*75.0*	*96.0*	*21.0*	*9.86*	*5.0*	*11.0*					
THAC454	70.5	126.0^	55.5	8.46	9.7	5.1	494152	8070024	99	126.0	
including	*82.5*	*114.0*	*31.5*	*11.2*	*9.8*	*3.3*					

Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)*	HM wt%	Slimes wt%	Osize wt%	Drill Hole Collar Information				
							Easting	Northing	RL	Depth (m)	Comment
THAC455	no significant interval						493990	8069838	98	45.0	Hole ended above mineralisation
THAC470	54.0	111.0	57.0	6.61	13.9	3.1	494411	8071111	103	132.0	
including	*60.0*	*82.5*	*22.5*	*10.7*	*11.8*	*5.8*					
and	117.0	124.5	7.5	3.27	14.1	1.1	494411	8071111	103	132.0	
THAC477	no significant interval						496068	8068413	96	49.0	Hole ended above mineralisation
THAC478	60.0	103.5	43.5	9.31	8.6	5.7	495674	8068740	96	127.3	
including	*69.0*	*103.5*	*34.5*	*10.1*	*9.2*	*5.3*					

Groundwater monitoring drill holes

Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)*	HM wt%	Slimes wt%	Osize wt%	Drill Hole Collar Information				
							Easting	Northing	RL	Depth (m)	Comment
THAC471	33.0	70.5	37.5	6.40	12.2	4.7	497928	8068487	89	90.0	
including	*34.5*	*45.0*	*10.5*	*12.6*	*9.9*	*12.1*					
THAC472	1.5	55.5	54.0	3.33	15.6	7.9	500330	8068434	95	66.0	
THAC473	no significant interval						498402	8066137	86	60.0	
THAC474	39.0	69.0	30.0	3.97	11.2	7.2	499243	8067370	86	96.0	
THAC475	no significant interval						498604	8067921	91	23.5	Hole ended above mineralisation
THAC476	32.5	82.5	50.0	4.96	10.8	9.1	498599	8067926	91	84.0	Re-drill of THAC475
including	*40.5*	*54.0*	*13.5*	*7.69*	*7.5*	*15.9*					

*All intervals calculated using 3% HM lower cut, 4.5m minimum width, maximum 4.5m internal waste; "*including*" intervals >7.5% HM, 4.5m minimum width, maximum 4.5m internal waste. HM, Slimes and Oversize ("Osize") determined by Heavy Liquid Separation (HLS) using TBE (sg. 2.96g/cc); screen sizes: slimes 38µm and oversize ("Osize") +1mm. Planned hole coordinates, located by handheld GPS (+/- 15m X and Y accuracy), RL determined by projection to a DTM model created from regional (Landgate) spot heights. Easting and Northing coordinate system is MGA Zone 51 (GDA94), RL is AHD. All holes were drilled vertically. ^Hole ended in mineralisation.

Appendix 1: JORC (2012) Table 1 Report (17 September 2014 drilling results)

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg 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 (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.*	• HQ diameter aircore drilling used to collect 2-3kg samples at 1.5m intervals down-hole. • Mineral Sands Industry-standard drilling technique.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• Wallis Drilling aircore system HQ diameter holes. • Blade drill bit used for majority of drilling, where hard rock layers intersected and unable to drill with blade bit, reverse circulation (RC) hammer used to penetrate layer, then return to blade. • Wallis aircore system used as an industry standard for HMS deposits.
Drill sample recovery	• *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.*	• Sample quality (including wet vs. dry and qualitative recovery) is logged at the drill site. • Orientation process undertaken at the beginning of program to set up sampling system to collect 2-3kg sub-sample from 1.5m intervals. Remainder of sample (spoil) retained as 3m-composites for future analysis if required. • Sample weight recorded at laboratory • Drill system is optimised for HMS. • Duplicate samples are collected at the drill site (see below) to enable analysis of data precision
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean,*	• Sand is washed and panned then geologically logged on-site in 1.5m intervals, recording primary, secondary and oversize lithology, qualitative hardness, grainsize, rounding, sorting, washability, with visual estimates of HM, slimes and oversize %, and depth to water

Criteria	JORC Code explanation	Commentary
	channel, etc) photography. • *The total length and percentage of the relevant intersections logged.*	table. • Entire length of drillhole is logged, minimum interval length is 1.5m. • Logging is suitable such that interpretations of grade and deposit geology can be used, for example, to establish context of exploration results and support Mineral Resource estimation.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *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.*	Drill Site • 2-3kg sample collected at 1.5m intervals in numbered bags at the drill site via rotary splitter at cyclone discharge point. • Duplicate samples (field duplicates) collected at drill site 1 in every 40 samples. • Reference standard and blank material samples inserted 1 each in every 40 samples. • Sample submitted to external laboratory for heavy liquid separation (HLS) determination of weight per cent heavy mineral (HM), Slimes (SL) and Oversize (OS). Laboratory • 2-3kg drill sample sub-split via rotary splitter to approx. 200g for analysis. • HM, SL and OS calculated as percentage of total sample weight. • Laboratory repeats are conducted 1 in every 20 samples, and laboratory reference standard inserted 1 in every 40 samples. All • Spacing of duplicate, standard, blank and lab repeat samples are designed to identify sample misplacement or misallocation during sample collection and laboratory analysis. • Sample representivity and data precision has been determined as acceptable through analysis of results from field duplicate samples and laboratory repeats. • Visual estimates of HM, Slimes and OS logged at the drill site are compared against laboratory results to identify any major errors. • Analysis of duplicates show the data has acceptable precision, indicating sampling techniques are appropriate for the deposit style. • Techniques are considered appropriate for use in public reporting of exploration results and Mineral Resource estimation.

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.*	• Assay and laboratory procedures are industry standard for HMS, although laboratories methods and heavy liquid composition vary slightly. TBE (2.96g/ml) is used for these results. • Method produces a total grade as weight per cent of the initial sample. • Method does not determine the relative amounts of valuable (saleable or marketable) and non-valuable heavy mineral species. Mineralogical determination studies are planned. • QAQC sample frequency is described above. The HM reference sample used is a field-homogenised bulk sample with expected values and ranges determined internally from assay results. Blank material used is commercially available builder's sand. • Reference standards and blanks are examined for performance over time and within laboratory batches. Batches or sub-batches are re-analysed if unacceptable QAQC data are returned. • Analysis of reference standards, blanks and laboratory repeats show the data to be of acceptable accuracy and precision for use in public reporting of exploration results and Mineral Resource estimation.
Verification of sampling and assaying	• *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.*	• Significant intervals are reviewed by senior Sheffield personnel prior to release. • Twinned holes have been assessed from previous drilling campaigns with no issues identified, none have been examined from the current campaign, but are planned. • Data is logged electronically using "validation at point of entry" systems prior to storage in the Company's drillhole database, which is managed by Company personnel and an external consultancy. • Documentation related to data custody and validation are maintained on the Company's' server. • No assay data have been adjusted.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Drill hole collar locations reported are planned locations which have been located using a handheld GPS with expected accuracy of +/- 15m horizontal, they are suitable for reporting of exploration results. Actual hole locations will be surveyed using more accurate techniques prior to use in Mineral Resource estimation. • Coordinates are referenced to the Map Grid of Australia (MGA) zone 51 on the Geographic Datum of Australia (GDA94). • Vertical datum geoid model is AUSGEOID98 (Australia). • The reported RL has been determined by projection of hole collars to a regional (Landgate) DTM. Mineral Resource estimation will use this projected RL value,

Criteria	JORC Code explanation	Commentary
		hence this value is reported with the exploration results. The average difference from previous drilling campaigns is ~0.6m which is considered negligible given the nature of mineralisation, and size of the Thunderbird deposit.
Data spacing and distribution	• *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.*	• See figures in body of announcement for actual hole spacing. The nominal spacing of most drill holes is 250m x 500m. • Samples reported in the announcement have not been composited. Significant intervals are reported as indicated in the relevant table(s) in the body of the announcement. • Infill, extension and exploration holes are included in this announcement.
Orientation of data in relation to geological structure	• *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.*	• Mineralisation is flat-lying to less than 4deg. dip, vertical drill holes therefore approximate true thickness. Note cross sections in the body of the announcement are displayed with vertical exaggeration.
Sample security	• *The measures taken to ensure sample security.*	• Sample security is not considered a significant risk given the location of the deposit and bulk nature of mineralisation. • Nevertheless, the use of recognised transport providers, and sample dispatch procedures directly from the field to the laboratory are considered sufficient to ensure appropriate sample security.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No formal external audits or review of sample techniques or data have been conducted. • Audits are not considered necessary at this stage of the Project's development. Industry-standard methods are being employed.

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	• *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.*	• The exploration results reported are entirely within Exploration Licence E04/2083, located on the Dampier Peninsula about 60km west of Derby, and 25km north of the sealed Great Northern Hwy joining Derby and Broome • E04/2083 was granted on 05/09/2011 and is due to expire on 04/09/2016; it 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 3 years to date.
Exploration done by	• *Acknowledgment and appraisal of exploration by other parties.*	• The Dampier project area was explored by Rio Tinto ("Rio") between 2003 and

Criteria	Statement	Commentary
other parties		2009. Rio completed four broadly spaced aircore drill traverses, identifying heavy mineral concentrations at Thunderbird averaging 8.07% HM with 8.0% zircon. Rio surrendered the tenements following the 2008 global financial crisis. • Further details are included in Sheffield's ASX release entitled 'New Licence Granted Over High Grade Zircon Project' dated 7 September, 2011 (available from the company's website: www.sheffieldresources.com.au).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Dampier Project is within the Canning Basin in the Kimberley region of Western Australia. The Canning Basin is an intracratonic basin which contains Ordovician to Cretaceous deposits covered by Cenozoic sediments. • Thunderbird is a heavy mineral sand (HMS) deposit hosted by deeply weathered Cretaceous-aged formations. Valuable heavy minerals (VHM) contained within the deposit include ilmenite, zircon, leucoxene and rutile. The mineralisation is in a thick, broad anticlinal sheet-like body striking northwest. In the core of the anticline it is at surface, rolling at about 4deg. dip about the axis, extending under cover to the southwest. The areal extent, width, grade, geological continuity and grainsize of the Thunderbird mineralisation are interpreted to indicate an off-shore, sub-wave base depositional environment. • Five stratigraphic units have been defined by Sheffield geologists within the deposit area using a combination of surface mapping and drillhole lithological logs. These are referred to locally as the Fraser Beds, Reeves, Melligo, Thunderbird and Jowlaenga Formations. Of these the Thunderbird Formation is the most important, with the Thunderbird Formation representing the main mineralised unit. Also important, the Fraser Beds act as a distinct marker unit toward the base of the Thunderbird Formation, enabling confidence in interpretation of the extent, strike and dip of the stratigraphy. • The Thunderbird Formation is described as medium to dark brown/orange, fine to very fine well sorted loose sands. It is up to 90m thick (average 38m) and is very rich in heavy minerals (up to 40% HM). It is modelled over the Resource area as at least 8.5km along strike and more than 2.5km to 5.5km wide. • Within the Formation are layers of 20cm to 1m thick iron cemented sandstone. These layers are interpreted to have been formed by post-depositional chemical processes of ferruginisation from ancient water table movements with iron oxides leached from the sand (eg. ilmenite). They occur throughout but are patchy, with

Criteria	Statement	Commentary
		extents rarely continuous between holes at 60m and 250m spacing. • Also within the Formation is a continuous, very-high grade HM (>7.5%) zone named the GT Zone. This Zone is up to 29m thick (average 15m) over an area at least 7km x 3.5km, strikes approximately north-south, follows the dip of the Thunderbird Formation and is open along strike. The high-grade of HM in the GT zone is interpreted to result from deposition in off-shore higher wave energy shoals.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• Exploration results relating to the drillholes from previous drilling campaigns have been publicly released in numerous previous Company announcements referring to the Dampier Project and Thunderbird deposit. • Information relating to the number of drillholes, assayed samples, location accuracy, orientation etc. is included in this table, and in the body of the announcement. • Diagrams in the body of the announcement show the location of and distribution of drillholes in relation to the current Mineral Resource and Scoping Study results (eg. Optimised pit shell). • Where drill holes have been unable to reach planned depths this has been indicated in the comments column of Table 1 in the body of announcement.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and 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.*	• Criteria for calculating significant intervals are included at the end of Table 1 in the body of the announcement. Minimum widths, maximum internal waste intervals and cut-off grades have been selected to most-appropriately represent the mineralised body, taking into account overall deposit grade and geological continuity. No "high" or "top-cuts" are applied. High-grade components of significant intervals are detailed in Table 1 preceded by the term "*including*".
Relationship between mineralisation widths and intercept lengths	• *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').*	• Mineralisation is flat-lying to less than 4deg. dip, vertical drill holes therefore approximate true thickness. • Refer to diagrams in the body of the announcement for visual representation of drillhole orientation vs. deposit orientation, note the vertical exaggeration used.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• See body of announcement for plan and cross section views and tabulation of results (Table 1).

Criteria	Statement	Commentary
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All current drill hole results are reported in this announcement. Where results do not meet the criteria of significant interval these are reported in Table 1 as "no significant interval". • Where plan and cross section diagrams refer to results from previous announcements; those results have been reported in full in previous announcements. • All information considered material to the reader's understanding of the exploration results have been reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Sheffield has previously reported deposit information for Thunderbird including a Mineral Resource estimate (March 2014 Resource – Appendix 2 – see ASX release dated 19 March 2014) and Scoping Study results (see ASX release dated 14 April, 2014). • Where relevant this information has been included in the body of this announcement.
Further work	• *The nature and scale of planned further work (eg 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.*	• The limits to the Thunderbird mineralisation have not yet been defined. Future work may include drill testing of depth and strike extensions to the mineralisation. • Sheffield has completed a Scoping Study for the Thunderbird deposit (see ASX release dated 19 April, 2014). • Sheffield has commenced a Pre-Feasibility Study for Thunderbird, which is scheduled for completion in Q1 2015. • Where relevant this information has been included in the body of this announcement.

APPENDIX 2: THUNDERBIRD MINERAL RESOURCE 19 MARCH 2014

Table 1: Thunderbird deposit Mineral Resource[1]

		Mineral Resources						Mineral Assemblage[2]			
Resource Category	**Cut off (HM%)**	Material (Mt)	Bulk Density	HM %	Slimes %	Osize %	**In-situ HM (Mt)**	Zircon %	HiTi Leuc %	Leuc %	Ilmenite %
Measured	**3.0**	75	2.1	7.5	19	11	**6**	9.1	2.7	2.4	30
Indicated	**3.0**	1,805	2.1	6.8	17	9	**122**	8.3	2.7	2.9	28
Inferred	**3.0**	740	2.0	5.7	15	9	**42**	8.5	2.9	3.5	29
Total	**3.0**	**2,620**	**2.1**	**6.5**	**17**	**9**	**170**	**8.4**	**2.8**	**3.0**	**28**
Measured	**7.5**	30	2.2	12.2	18	14	**4**	8.7	2.6	2.2	30
Indicated	**7.5**	545	2.1	12.5	16	11	**68**	7.5	2.3	2.0	28
Inferred	**7.5**	165	2.0	10.9	14	10	**18**	7.6	2.5	2.2	29
Total	**7.5**	**740**	**2.1**	**12.1**	**16**	**11**	**89**	**7.6**	**2.4**	**2.1**	**28**

Table 2: Thunderbird deposit contained Valuable HM (VHM) Resource Inventory[1]

Resource Category	**Cut off (HM%)**	Zircon (kt)	HiTi Leucoxene (kt)	Leucoxene (kt)	Ilmenite (kt)	**Total VHM (kt)**
Measured	**3.0**	510	150	140	1,660	**2,450**
Indicated	**3.0**	10,170	3,350	3,550	34,110	**51,170**
Inferred	**3.0**	3,600	1,230	1,470	12,110	**18,420**
Total	**3.0**	**14,280**	**4,730**	**5,150**	**47,880**	**72,040**
Measured	**7.5**	330	100	80	1,130	**1,640**
Indicated	**7.5**	5,090	1,590	1,380	18,790	**26,850**
Inferred	**7.5**	1,360	440	400	5,160	**7,360**
Total	**7.5**	**6,790**	**2,130**	**1,860**	**25,080**	**35,860**

[1] All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus sum of columns may not equal.

[2] Estimates of Mineral Assemblage are presented as percentages of the Heavy Mineral (HM) component of the deposit, as determined by screening, magnetic separation, QEMSCAN and XRF. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: Ilmenite: 40-70% TiO_2 >90% Liberation; Leucoxene: 70-94% TiO_2 >90% Liberation; High Titanium Leucoxene (HiTi Leucoxene): >94% TiO_2 >90% Liberation; and Zircon: 66.7% ZrO_2+HfO_2 >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: Zircon: ZrO_2+HfO_2/0.667 and High Titanium Leucoxene (HiTi Leucoxene): TiO_2/0.94.

ABOUT SHEFFIELD RESOURCES

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

ASX Code – SFX	Market Cap @ 90.5cps - $121.5m
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.