ASX and Media Release

25 February, 2015

THREE NEW MINERAL SANDS DISCOVERIES IN CANNING BASIN

KEY POINTS

- **Regional exploration drilling outlines three new mineral sands discoveries to north and south of Thunderbird**
- **High valuable heavy mineral assemblage (up to 15% zircon and 61% leucoxene+HiTi)**
- **Very high in situ grades (up to 1.1% zircon and 5.7% combined titanium minerals) from Night Train prospect**
- **Canning Basin is emerging as a major new mineral sands province**
- **Sheffield significantly expands its tenure position in the Canning Basin**

Sheffield Resources Limited ("Sheffield" "the Company") (ASX:SFX) advises of three new mineral sands discoveries from reconnaissance aircore drilling at its 100% owned Dampier Mineral Sands Project, located near Derby in northwest Western Australia.

The new prospects - named Night Train, Nomad and Seagull - were discovered by wide-spaced drilling on broad regional traverses targeting interpreted palaeoshoreline positions to the north and south of Thunderbird. Significant results from each prospect include:

Night Train (northern end)

- **9m @ 6.33% HM** from 22.5m (DAAC052), including **7.5m @ 7.23% HM** from 24m
- **7.5m @ 4.08% HM** from 18m (DAAC048)
- **4.5m @ 2.69% HM** from 12m (DAAC050)
- mineral assemblage: **15% zircon, 16% ilmenite, 53% leucoxene and 8% HiTi leucoxene**

Nomad

- **15m @ 2.51% HM** from 30m (DAAC021), including **4.5m @ 4.48% HM** from 34.5m
- **13.5m @ 2.99% HM** from 34.5m (DAAC022), including **6m @ 4.81% HM** from 36m
- **15m @ 2.67% HM** from 31.5m (DAAC027), including **4.5m @ 5.27% HM** from 33m
- mineral assemblage: **10% zircon, 27% ilmenite, 4% leucoxene, 4% HiTi leucoxene**

Seagull

- **4.5m @ 5.43% HM** from 16.5m (DAAC059)
- **3m @ 6.23% HM** from 27m (DAAC057)
- mineral assemblage: **13% zircon, 43% ilmenite, 9% leucoxene, 4% HiTi leucoxene**

(refer to Tables 1-2 and Appendix 1 for full details)

Night Train has a strike length of more than 8km and a mineralised width of at least 1km. Nomad has a potential strike length of 9km, as indicated by an associated linear magnetic trend, and a mineralised width of 1km. The deposit has a 200m wide higher grade zone with geometry typical of a strandline. Seagull has a sheet-like geometry over an area of approximately 2km x 2.5km. Mineralisation remains open at each prospect.

Significantly, the northern end of Night Train has a high value mineral assemblage totalling **92% VHM**. This results in very high in situ grades in some drill intersections, e.g. **7.5m @ 1.1% zircon** and **5.7% combined titanium minerals** from 24m in DAAC052. By comparison, these grades are even higher than the average in situ grade of the high grade component of the Thunderbird resource (0.92% zircon, 3.8% combined titanium minerals (see Appendix 2)).

The results relate to a low cost 3,000m aircore drilling program, undertaken in October 2014, which opportunistically utilised existing tracks and fence lines and covered only a small portion of the total Dampier project area. Many exploration targets remain untested and will be subject to a more extensive, focused exploration drilling program during the 2015 field season.

Sheffield's Managing Director Bruce McQuitty said the three discoveries demonstrated the potential of the Dampier project to yield high value deposits in addition to Thunderbird.

"Our regional exploration is targeting high grade, shallow deposits with high value mineral assemblage which may compliment the Thunderbird project and enhance its already strong economics," Mr McQuitty said.

"To have three prospects identified from such a limited drilling foray beyond Thunderbird is a great result for our shareholders.

"The Canning Basin is emerging as Australia's next major mineral sands province. We have already discovered one of the world's largest and highest grade deposits and we expect that there are many more discoveries to be made in the region. We have a great track record of discovery, a strong tenure position and many more targets to be drilled outside the work we are doing at Thunderbird."

The discoveries follow an updated Mineral Resource for the world class Thunderbird deposit, announced on 12 December 2014, of **3.205Bt @ 6.8% HM** (Measured, Indicated and Inferred), containing 95Mt of Valuable Heavy Mineral (VHM). The resource includes a high grade component of **1.080Bt @ 11.8% HM** with high in situ grades of 0.92% zircon, 3.3% ilmenite, 0.25% leucoxene and 0.28% HiTi leucoxene (see resources tabulation in Appendix 2).

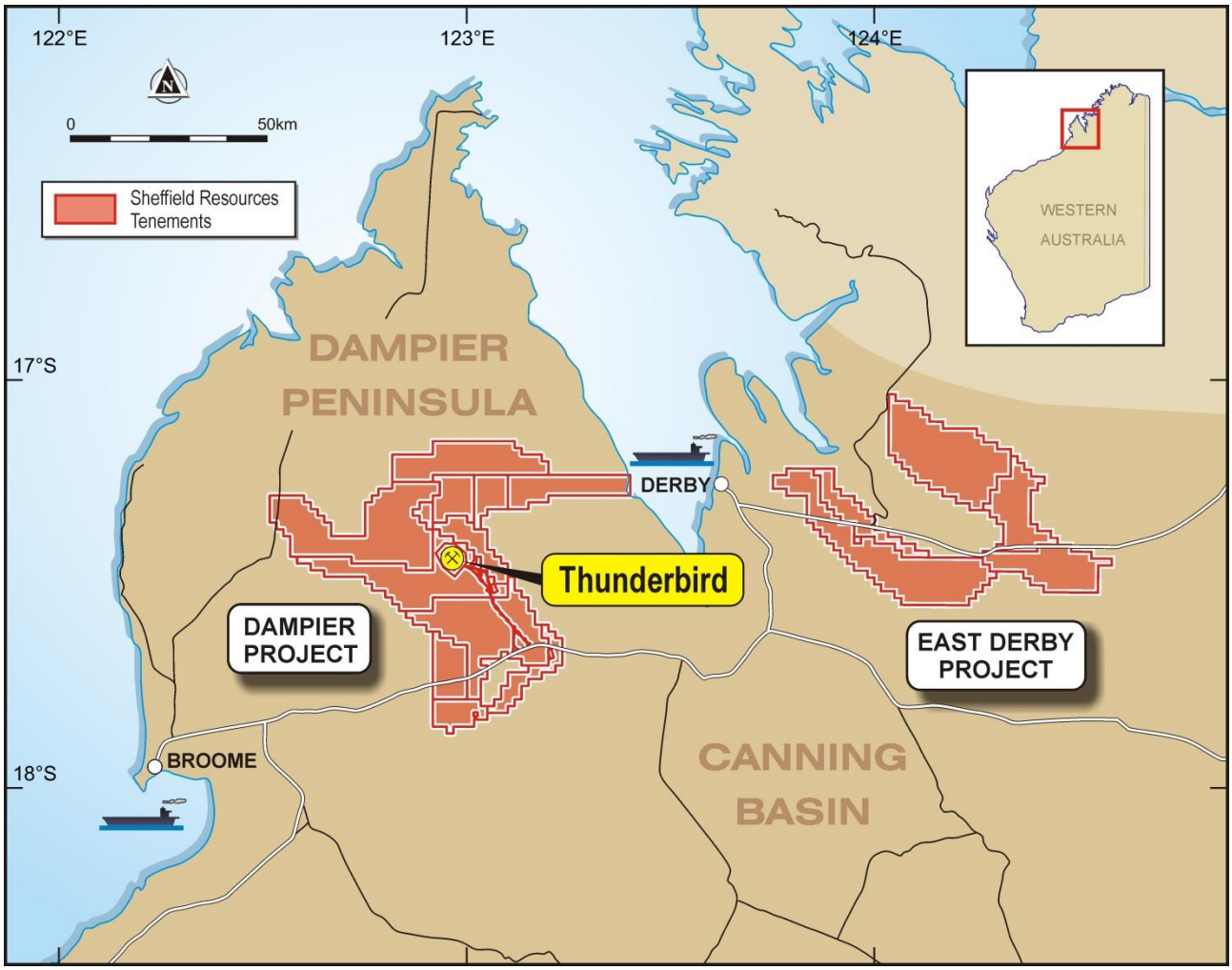

Figure 1: Location of Sheffield's tenements in the Canning Basin

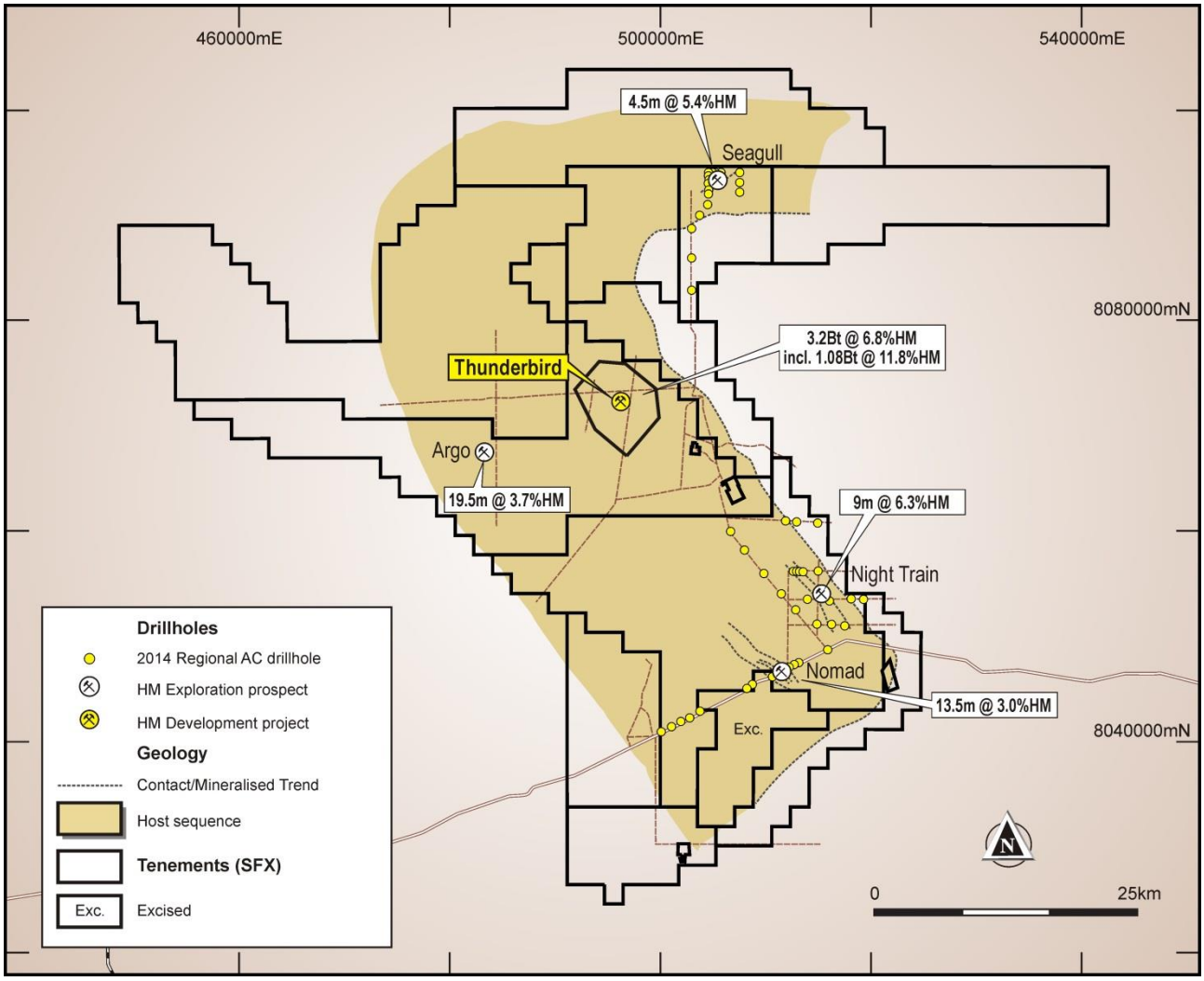

Figure 2: Dampier Mineral Sands Project with location of new discoveries and AC drill holes completed in the regional exploration program

Prospect Details

Night Train is located 20km to the southeast of the Thunderbird deposit, and just 2.5km from the proposed Thunderbird access/haul road. The prospect is currently defined by just six drill holes over an 8km strike length, with an average mineralised thickness of 10m. Mineralisation is open along strike and down-dip to the southwest (see Figures 3 & 4).

Two composite samples from Night Train were analysed for mineral assemblage (see Table 2). Significantly the sample composited from the northern line featuring the highest grade intervals, returned values of 15% zircon, 16% ilmenite, 53% leucoxene and 8% HiTi leucoxene resulting in an extremely high Valuable Heavy Mineral (VHM) grade of 92%. Slimes and oversize are low (10.1% and 1.2%, respectively).

Further drilling of this exciting new discovery is a high priority in 2015.

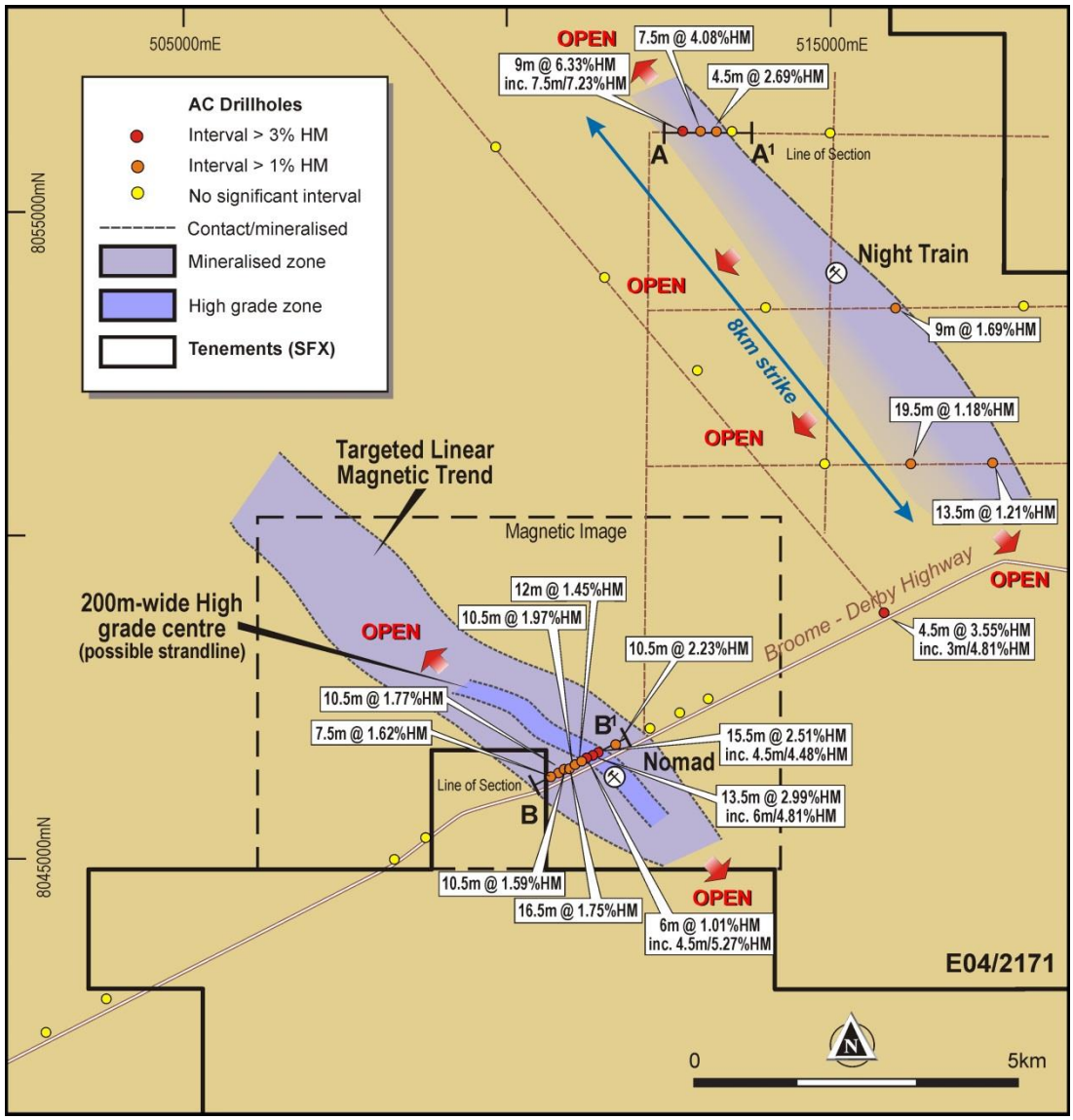

Figure 3: Plan view of Nomad and Night Train prospects with significant intervals

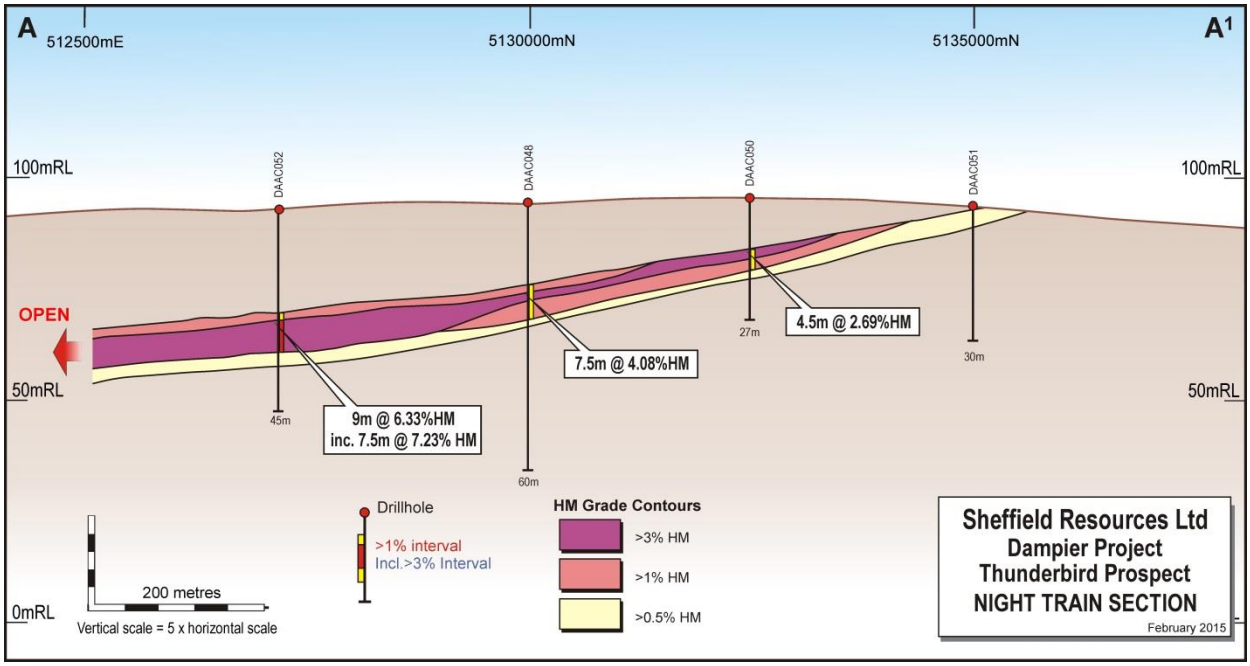

Figure 4: Night Train prospect cross-section

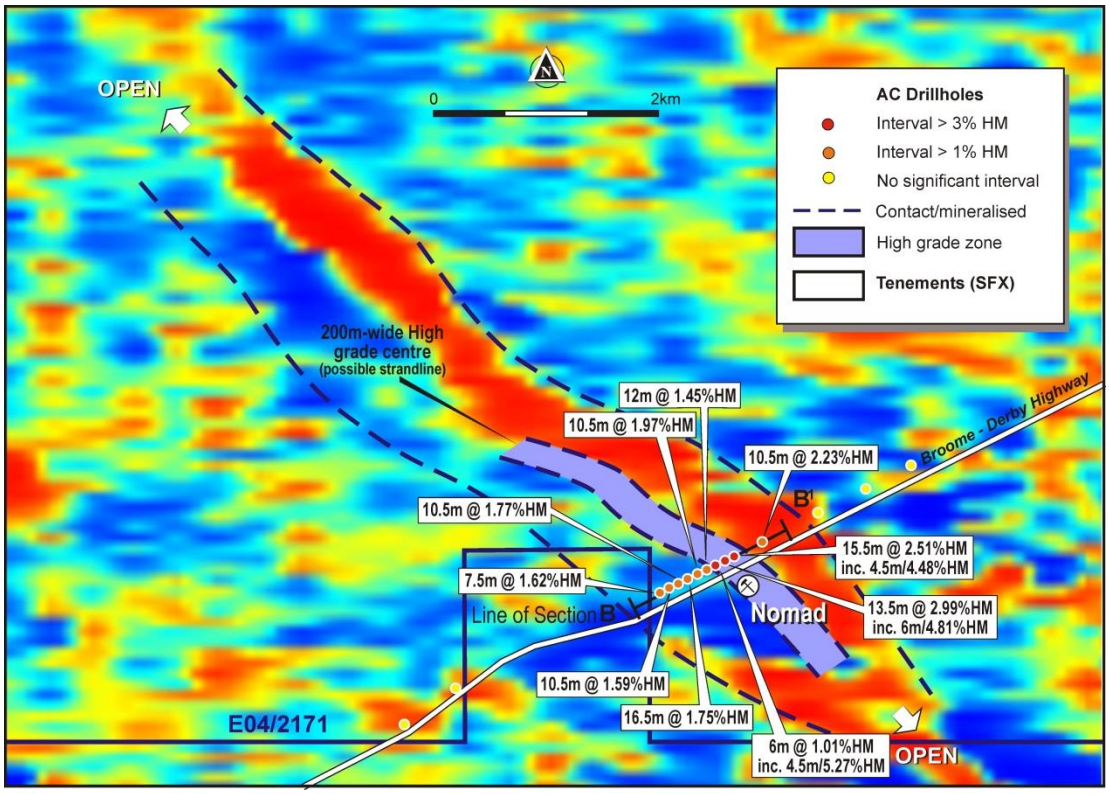

Figure 5: Nomad prospect aeromagnetic image and drilling results

Nomad was discovered by drilling a linear magnetic trend identified from the re-processing of aeromagnetic survey data. A 1km wide mineralised zone has been defined by 10 holes which were part of a drill traverse adjacent to the Broome-Derby Highway. Within this zone is a 200m-wide higher-grade zone which may represent "strandline" style mineralisation. The high grade zone is coincident with the linear magnetic feature, which extends up to 9km along strike to the northwest, representing an immediate drilling target (see Figures 3, 5 & 6).

Three composite samples analysed for mineral assemblage averaged 10% zircon, 27% ilmenite, 4% leucoxene, and 4% HiTi leucoxene, with values up to 39% ilmenite and 12% zircon (see Table 2). Total VHM ranges from 37% to 61% with an average of 45%. Slimes are moderate (average15%) and oversize is low (average 1.2%).

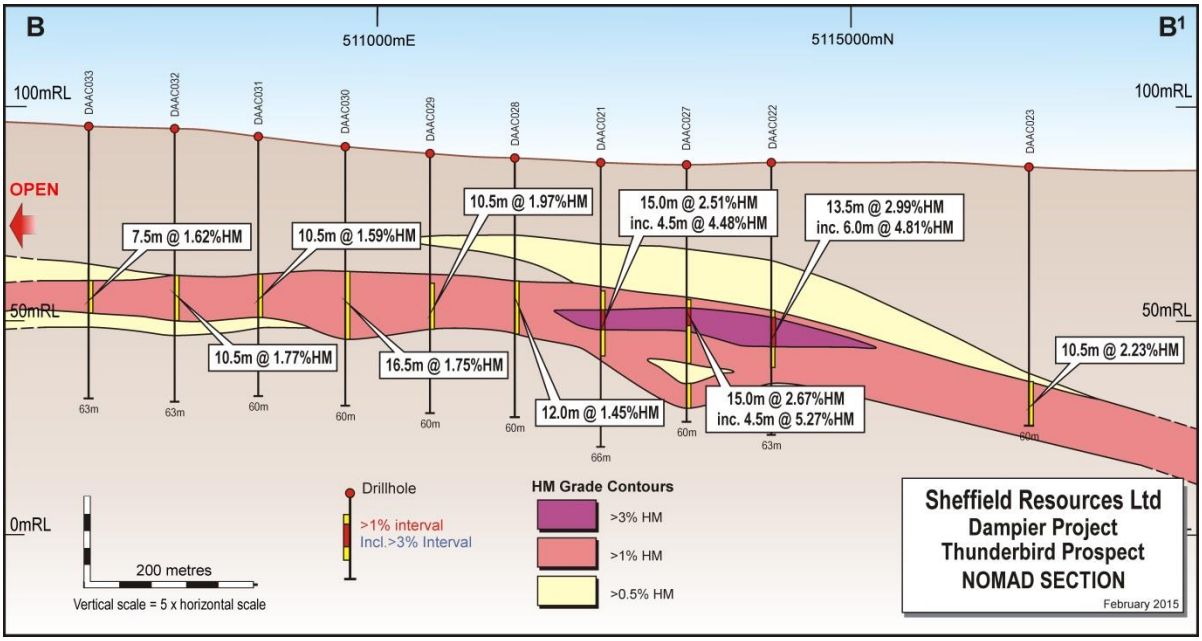

Figure 6: Nomad prospect cross-section

Seagull is located 20km to the north of Thunderbird. The mineralisation is defined by 10 holes drilled along a reconnaissance drill access track (see Figures 7 & 8). The average mineralised width is 4m, defined across a strike of 2.5km. The mineralisation at Seagull occurs stratigraphically beneath the Thunderbird shoreline position and dips at a low angle to the northwest. This implies that the Thunderbird host horizon should exist further to the northwest.

One composite sample analysed from Seagull returned values of 13% zircon, 43% ilmenite, 9% leucoxene and 4% HiTi leucoxene for a total of 69% VHM.

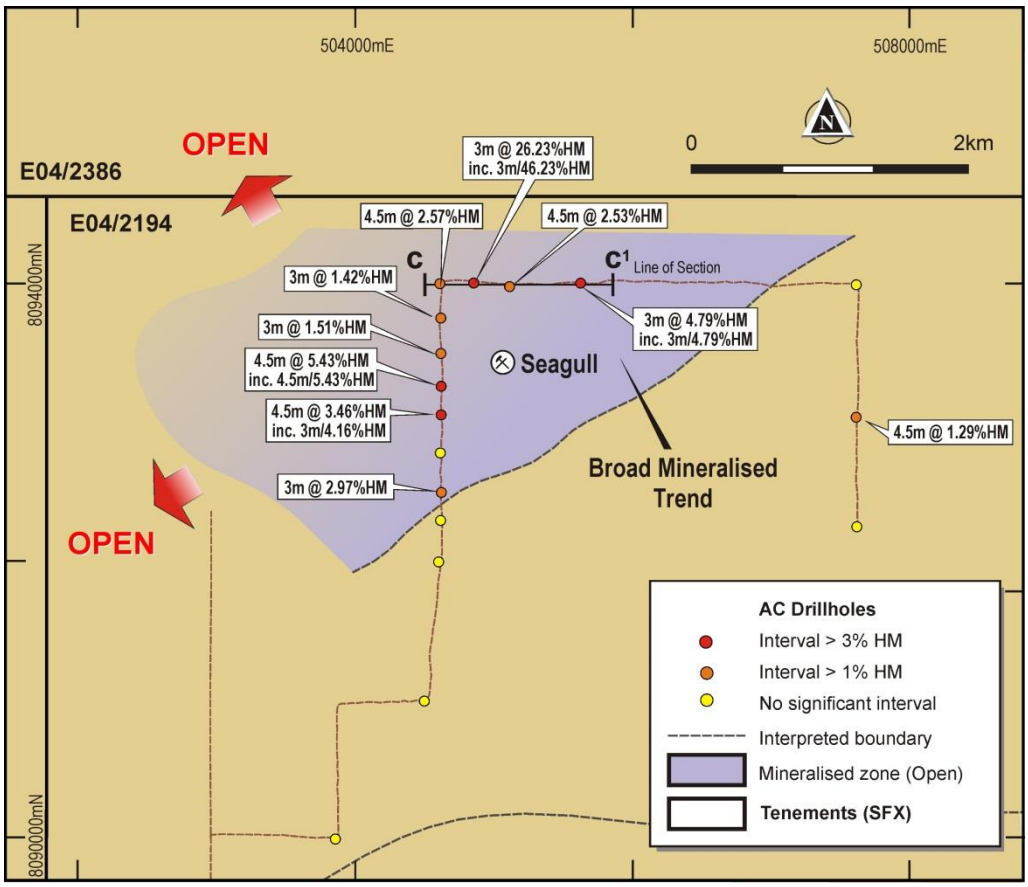

Figure 7: Plan view of Seagull prospect with significant intervals

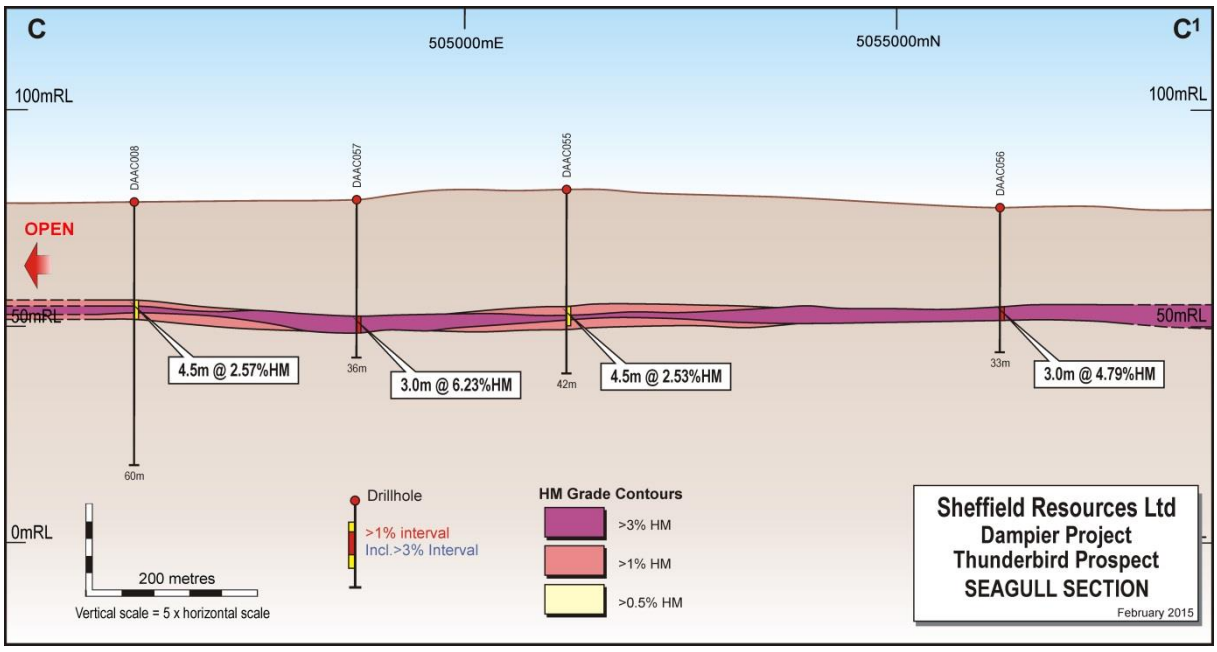

Figure 8: Seagull prospect cross-section

Further Work

Further exploration is planned during the 2015 field season (April to September) and will comprise closer-spaced drilling to define and extend mineralisation identified at Night Train and Nomad, and test down-dip from Seagull.

In addition, Sheffield plans to continue regional reconnaissance drilling across the Dampier project tenements, with up to 120 drill holes designed on wide-spaced traverses across prospective units.

New Project – East Derby

Sheffield has lodged five new Exploration Licence applications covering a total of 1,840km^2 of highly prospective ground to the east of Derby (Figure 1). Together with the Dampier project (2,800km^2) this brings Sheffield's total tenement holding in the Canning Basin to 4,640km^2.

The East Derby project is targeting several highly prospective palaeoshorline positions with an interpreted strike length of over 120km. The project is well located with respect to ports and infrastructure and is serviced by major roads and a network of station tracks.

The East Derby project further consolidates Sheffield's ground holding in the emerging Canning Basin mineral sands province.

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:

- *"THUNDERBIRD HIGH GRADE RESOURCE SURPASSES ONE BILLION TONNES"* 12 December 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 regional exploration aircore drill results, 25 February, 2015

Night Train Prospect

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
DAAC017	no significant interval						509,842	8,056,000	94	60.0	
DAAC018	no significant interval						511,508	8,054,000	97	60.0	
DAAC019	no significant interval						512,959	8,052,550	87	35.0	
DAAC040	no significant interval						500,185	8,040,954	83	90.0	
DAAC041	no significant interval						514,903	8,051,102	74	60.0	
DAAC042	12.0	16.5	4.5	2.08	12.2	6.3	516,251	8,051,112	71	60.0	
and	40.5	60.0	19.5	1.18	10.5	3.0					
DAAC043	4.5	18.0	13.5	1.21	16.0	0.4	517,508	8,051,127	61	60.0	
DAAC044	no significant interval						519,360	8,053,554	50	29.0	
DAAC045	no significant interval						518,006	8,053,548	57	44.0	
DAAC046	19.5	28.5	9.0	1.69	13.1	0.1	516,009	8,053,532	76	57.0	
DAAC047	no significant interval						514,002	8,053,523	87	60.0	
DAAC048	18.0	25.5	7.5	4.08	9.2	1.5	512,998	8,056,228	94	60.0	
DAAC049	no significant interval						515,001	8,056,207	74	45.0	
DAAC050	12.0	16.5	4.5	2.69	8.9	21.0	513,247	8,056,229	95	27.0	
DAAC051	no significant interval						513,499	8,056,226	93	30.0	
DAAC052	22.5	31.5	9.0	6.33	9.4	0.8	512,717	8,056,236	93	45.0	
including	*24.0*	*31.5*	*7.5*	*7.23*	*9.7*	*0.9*					

Nomad Prospect

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
DAAC021	30.0	45.0	15.0	2.51	14.1	0.3	511,236	8,046,555	87	66.0	
including	*34.5*	*39.0*	*4.5*	*4.48*	*12.6*	*0.4*					
DAAC022	34.5	48.0	13.5	2.99	12.9	0.3	511,416	8,046,641	87	63.0	
including	*36.0*	*42.0*	*6.0*	*4.81*	*13.7*	*0.4*					
DAAC023^	49.5	60.0	10.5	2.23	15.1	3.4	511,686	8,046,775	86	60.0	Hole ended in mineralisation
DAAC024	no significant interval						512,225	8,047,037	85	46.0	
DAAC025	no significant interval						512,674	8,047,262	87	48.0	
DAAC026	no significant interval						513,123	8,047,486	87	53.0	
DAAC027	31.5	46.5	15.0	2.67	13.7	0.7	511,326	8,046,598	87	60.0	
including	*33.0*	*37.5*	*4.5*	*5.27*	*14.4*	*1.7*					
and	51.0	57.0	6.0	1.01	11.3	0.3					
DAAC028	28.5	40.5	12.0	1.45	19.0	0.5	511,147	8,046,510	88	60.0	
DAAC029	30.0	40.5	10.5	1.97	15.1	0.8	511,057	8,046,466	89	60.0	
DAAC030	28.5	45.0	16.5	1.75	15.1	2.2	510,967	8,046,422	90	60.0	
DAAC031	31.5	42.0	10.5	1.59	15.7	1.9	510,877	8,046,377	93	60.0	
DAAC032	34.5	45.0	10.5	1.77	15.3	2.9	510,787	8,046,334	94	63.0	
DAAC033	36.0	43.5	7.5	1.62	17.1	0.3	510,697	8,046,290	95	63.0	

Seagull Prospect

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
DAAC006	no significant interval						504,620	8,092,000	89	60.0	
DAAC007	13.5	18.0	4.5	3.46	17.4	3.4	504,620	8,093,040	85	57.0	
including	*15.0*	*18.0*	*3.0*	*4.16*	*17.5*	2.6					
DAAC008	22.5	27.0	4.5	2.57	19.6	1.6	504,620	8,094,000	79	60.0	

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
DAAC009	no significant interval						507,620	8,094,000	76	60.0	
DAAC010	28.5	33.0	4.5	1.29	29.9	7.2	507,620	8,093,040	89	60.0	
DAAC011	no significant interval						507,620	8,092,250	83	60.0	
DAAC053	7.5	10.5	3.0	2.97	15.5	13.3	504,626	8,092,542	86	60.0	
DAAC054	18.0	21.0	3.0	1.51	12.5	23.0	504,627	8,093,510	80	33.0	
DAAC055	27.0	31.5	4.5	2.53	24.0	3.9	505,119	8,093,992	82	42.0	
DAAC056#	22.5	25.5	3.0	4.79	21.8	8.0	505,621	8,094,009	77	33.0	Same at 1% and 3% cut off
DAAC057#	27.0	30.0	3.0	6.23	21.3	0.7	504,876	8,094,015	79	36.0	Same at 1% and 3% cut off
DAAC058	21.0	24.0	3.0	1.42	22.8	8.2	504,614	8,093,754	79	30.0	
DAAC059#	16.5	21.0	4.5	5.43	12.8	3.9	504,634	8,093,263	82	27.0	Same at 1% and 3% cut off
DAAC060	no significant interval						504,619	8,092,801	84	21.0	
DAAC061	no significant interval						504,623	8,092,291	88	18.0	

Regional 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
DAAC020	42.0	46.5	4.5	3.55	5.7	1.4	515,829	8,048,817	76	60.0	Single hole adjacent to Broome-Derby Hwy, between Night Train and Nomad prospect (see Fig. 1)
including	*42.0*	*45.0*	*3.0*	*4.81*	*6.7*	*1.5*					
DAAC001	no significant interval						502,955	8,082,855	64	60.0	
DAAC002	no significant interval						502,954	8,085,847	57	60.0	
DAAC003	no significant interval						502,947	8,088,751	57	60.0	
DAAC004	no significant interval						503,860	8,090,000	68	60.0	
DAAC005	no significant interval						504,498	8,090,998	83	60.0	
DAAC012	no significant interval						515,000	8,060,810	66	60.0	
DAAC013	no significant interval						513,000	8,060,841	72	60.0	
DAAC014	no significant interval						512,000	8,060,965	79	60.0	
DAAC015	no significant interval						506,668	8,060,000	99	48.0	

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
DAAC016	no significant interval						508,000	8,058,211	94	64.5	
DAAC034	no significant interval						508,749	8,045,355	99	23.0	
DAAC035	no significant interval						508,262	8,044,999	94	11.0	
DAAC036	no significant interval						503,810	8,042,843	111	18.0	
DAAC037	no significant interval						502,871	8,042,329	110	39.0	
DAAC038	no significant interval						501,973	8,041,879	101	48.0	
DAAC039	no significant interval						501,082	8,041,417	90	49.0	

*All intervals calculated using 1% HM lower cut, 3m minimum width, maximum 3m internal waste; "*including*" intervals >3% HM, 3m minimum width, maximum 3m 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. Drill hole collar locations were determined by handheld GPS with expected accuracy of +/- 15m horizontal. RL determined by projection to a regional DTM model created from SRTM data. Easting and Northing coordinate system is MGA Zone 51 (GDA94), RL is AHD. All holes were drilled vertically. ^Hole ended in mineralisation. # Interval same at 3% and 7.5% HM cutoff.

Table 2: Thunderbird regional exploration aircore mineral assemblage composites, 25 February, 2015

Prospect	Composite	Hole ID	Depth From (m)	Depth To (m)	Composite			Mineral Assemblage			
					HM wt%	SL wt%	OS wt%	Ilmenite %	Leucoxene %	HiTi Leucoxene %	Zircon %
Seagull	**DACP001**	DAAC007	13.5	18	4.16	15.4	6.0	**43**	**8.5**	**4.2**	**13.1**
		DAAC008	22.5	27							
		DAAC053	7.5	10.5							
		DAAC054	16.5	21							
		DAAC058	19.5	22.5							
		DAAC059	15	21							
		DAAC060	12	13.5							
Nomad	**DACP002**	DAAC030	28.5	40.5	1.90	16.0	2.4	**39**	**4.8**	**5.3**	**12.0**
		DAAC031	31.5	42							
		DAAC032	34.5	45							
		DAAC033	36	43.5							
Nomad	**DACP003**	DAAC021	30	45	2.58	15.3	0.5	**28**	**3.5**	**3.9**	**10.0**
		DAAC028	28.5	40.5							
		DAAC029	30	40.5							
Nomad (strand)	**DACP004**	DAAC022	34.5	45	4.21	13.7	0.8	**21**	**4.4**	**3.3**	**8.3**
		DAAC027	31.5	46.5							
Night Train (north)	**DACP005**	DAAC048	18	25.5	7.38	10.1	1.2	**16**	**53**	**7.8**	**14.8**
		DAAC052	22.5	31.5							
Night Train (south)	**DACP006**	DAAC042	12	16.5	1.84	14.4	2.1	**22**	**10**	**5.4**	**11.6**
		DAAC043	4.5	18							
		DAAC046	19.5	28.5							

Appendix 1: JORC (2012) Table 1 Report (25 February, 2015 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.*	• NQ 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).*	• Aircore system NQ diameter holes. • Blade drill bit used for majority of drilling • Where hard rock layers were intersected and unable to drill with blade bit, a pencil (open-hole) hammer was used to penetrate the layer, then changed back to blade. • 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. • 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. • The sample quality is considered appropriate, for example, to establish context of exploration results and support Mineral Resource estimation.
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.*	• Every drill sample is washed and panned, then geologically logged on-site in 1.5m intervals, recording primary, secondary and oversize lithology, qualitative hardness, grainsize, rounding, sorting, and

Criteria	JORC Code explanation	Commentary
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	washability, visual estimates of HM%, SL% and OS%, and depth to water table. • The entire length of the drill hole is logged; minimum (nominal) 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.*	**<u>HM%, SL% OS% Determination</u>** 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. **<u>HM Assemblage Determination</u>** • Heavy Mineral Concentrate (HMC) from individual samples is combined according to HM grade and weight into (nominal) 25g – 50g composite samples for HM assemblage determination. • Weighed HMC is split via a micro-riffle to ensure HM%, SL% and OS% of the final

Criteria	JORC Code explanation	Commentary
		composite sample can be correctly calculated. • HM assemblage determination was by a combination of screening, magnetic separation, QEMSCAN™ and XRF assay to determine the component mineralogy. • This is considered an industry standard method, typically optimised according to the HM characteristics of individual deposits. • For these samples a similar method to that developed for the Thunderbird Mineral Sands Deposit was applied. • No repeat samples were conducted, nonetheless the data is considered to be of suitable quality for the reporting of exploration results.
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.*	**HM%, SL% OS% Determination** • 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. • 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.

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	• *…continued*	**HM Assemblage Determination** • HM assemblage determination was by a combination of screening, magnetic separation, QEMSCAN™ and XRF assay to determine the component mineralogy of the HMC. • This method is considered an industry standard, typically optimised according to the HM characteristics of individual deposits. • For these samples a similar method to that developed for the Thunderbird Mineral Sands Deposit was applied. • HMC was magnetically separated into highly-susceptible (H/S), magnetic 1, magnetic 2 and non-magnetic fractions, with each fraction weighed. The magnetic 1 & 2 fractions were combined and analysed by QEMSCAN™ for mineral determination as follows: - Ilmenite: 40-70% TiO_2 >90% Liberation - Leucoxene: 70-90% TiO_2 >90% Liberation - High Titanium Leucoxene (HiTi Leucoxene): >90% TiO_2 >90% Liberation - 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 - High Titanium Leucoxene (HiTi Leucoxene): TiO_2/0.90 • Reference material was not used, the method design and comparison to visual observation is considered sufficient to establish acceptable accuracy of the data for the reporting of exploration results.
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 using identical techniques with no issues identified. • Data is logged electronically using "validation at point of entry" systems prior to storage in the Company's drill hole 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 were determined by handheld GPS with expected accuracy of +/- 15m horizontal. • RL was determined by projection to a regional DTM model created from SRTM data. • Coordinates are referenced to the Map Grid of Australia (MGA) zone 51 on the Geographic Datum of Australia (GDA94),

Criteria	JORC Code explanation	Commentary
		RL are AHD. • The quality and accuracy of the topographic control is considered sufficient for the reporting of exploration results.
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 drill hole spacing. • Significant intervals are reported as indicated in the relevant table(s) in the body of the announcement. • Details of samples composited for mineral assemblage determination are included in the body of the 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 generally flat-lying, vertical drill holes therefore approximate true thickness and perpendicular intersection of mineralisation. • Note 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, 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 from Exploration Licences E04/2194 and E04/2171, located on the Dampier Peninsula about 60km west of Derby, and 25km north of the sealed Great Northern Hwy joining Derby and Broome. • E04/2194 was granted on 01/11/2012 and is due to expire on 31/10/2017. E04/2171 was granted on 21/02/2013 and is due to expire on 20/02/2018. Both tenements are 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 three prospects referred to in this announcement have not been subject to

Criteria	Statement	Commentary
other parties		any previous on-ground exploration. • The greater Dampier project area was explored by Rio Tinto ("Rio") between 2003 and 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 those 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. • The prospects identified are within deeply weathered Cretaceous-aged formations. • Five stratigraphic units have been defined for the area by Sheffield geologists at the nearby Thunderbird Deposit using a combination of surface mapping and drill hole 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 at the deposit. Further details on the Thunderbird Deposit geology are available in the ASX announcement "THUNDERBIRD HIGH GRADE RESOURCE SURPASSES ONE BILLION TONNES" dated 12 December 2014 and available n the Company's website: www.sheffieldresources.com.au. • The exact stratigraphic position of the three prospects referred to in this announcement is unknown, however most are likely to be within the Reeves, Thunderbird or Jowlaenga formations, comprising loose fine to very-fine grained sands and silts.
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.*	• 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.

Criteria	Statement	Commentary
	• *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.*	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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 mineralisation, taking into account the early-stage, reconnaissance nature of the drill program. No "high" or "top-cuts" are applied. Higher-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 (e.g. 'down hole length, true width not known').*	• Mineralisation is generally 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 drill hole 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 (Tables 1 & 2).
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". • 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 information for the Thunderbird Deposit including a Mineral Resource estimate (March 2014 Resource – Appendix 2 – see ASX release dated 12 December 2014) and Scoping Study results (see ASX release dated 14 April, 2014). • Where relevant this information has been referred to 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*	• Refer to the Further Work section in the body of announcement.

Criteria	Statement	Commentary
	drilling areas, provided this information is not commercially sensitive.	

APPENDIX 2: THUNDERBIRD MINERAL RESOURCE 12 DECEMBER 2014

Table 1: Thunderbird Deposit Mineral Resource

Resource Category	Cut-off HM%	Mineral Resources		Valuable HM Grade (In-situ)[1]			
		Material Million Tonnes	HM %	Zircon %	HiTi Leucoxene %	Leucoxene %	Ilmenite %
Measured	3.0	75	7.9	0.71	0.21	0.19	2.4
Indicated	3.0	2,550	7.0	0.60	0.19	0.22	2.0
Inferred	3.0	580	5.6	0.47	0.16	0.20	1.5
Total	**3.0**	**3,205**	**6.8**	**0.58**	**0.19**	**0.21**	**1.9**
Measured	7.5	35	12.7	1.1	0.32	0.27	3.7
Indicated	7.5	920	11.9	0.93	0.29	0.26	3.3
Inferred	7.5	125	10.8	0.83	0.25	0.24	3.0
Total	**7.5**	**1,080**	**11.8**	**0.92**	**0.28**	**0.25**	**3.3**

Table 2: Thunderbird Deposit contained Valuable HM (VHM) Resource Inventory

Resource Category	**Cut off (HM%)**	Zircon (kt)	HiTi Leucoxene (kt)	Leucoxene (kt)	Ilmenite (kt)	**Total VHM (kt)**
Measured	**3.0**	500	200	200	1,800	**2,600**
Indicated	**3.0**	15,900	5,200	6,500	50,400	**78,100**
Inferred	**3.0**	2,800	1,000	1,300	9,000	**14,100**
Total	**3.0**	19,300	6,300	8,000	61,100	**94,800**
Measured	**7.5**	400	100	100	1,300	**1,800**
Indicated	**7.5**	8,600	2,600	2,400	30,700	**44,300**
Inferred	**7.5**	1,100	300	300	3,800	**5,400**
Total	**7.5**	10,000	3,100	2,800	35,700	**51,500**

[1] The In-situ grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage. All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus sum of columns may not equal. Refer to Sheffield's ASX announcement dated 12 December, 2014 for further details.

ABOUT SHEFFIELD RESOURCES

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

ASX Code:	SFX	Market Cap @ 75cps	$100.8m
Issued shares:	134.4m	Cash: $4.7m	(at 31 December 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 currently undertaking a pre-feasibility study on Thunderbird.

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 has over 2,000km^2 of tenure in the Fraser Range region, including the Red Bull project which is 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

Oxley, located in WA's Mid-West region, is a large scale, unconventional hard rock potash project with potential to generate products for the fertiliser market.