



ASX and Media Release

19 September 2012

EXCEPTIONAL RESULTS FROM NEW MINERAL SANDS DISCOVERY

KEY POINTS

- Latest drill results from Thunderbird show an increase in heavy mineral (HM) grade
- Internal zone of high-grade mineralisation up to 32.5m thick, averaging 9.0% HM
- High grade zone intersected over an area of 12km² and remains open

Mineral sands explorer Sheffield Resources ("Sheffield") (ASX:SFX) today announced further exceptional drill results from its Dampier heavy mineral sand (HMS) project near Derby in the Kimberley Region of Western Australia.

The Thunderbird discovery is the first target to be drilled by Sheffield within the Dampier HMS project area, with drill results to date underpinning the significance of the discovery, in terms of both the grade and scale of mineralisation.

The latest results from 47 holes have returned high grade mineralised intervals of up to 42 metres in width, including:

- **32.1m @ 10.1% HM** from 9m (THAC048), including **28.5m @ 10.9% HM** from 10.5m
- **40.5m @ 7.8% HM** from 3m (THAC047), including **18m @ 13.4% HM** from 4.5m
- **41.5m @ 7.3% HM** from 9m (THAC057), including **32.5m @ 8.6% HM** from 18m
- **42m @ 6.3% HM** from 21m (THAC025), including **31.5m @ 7.6% HM** from 24m
- **27m @ 8.6% HM** from surface (THAC040), including **22.5m @ 9.8% HM** from 1.5m
- **30m @ 6.9% HM** from surface (THAC044), including **18m @ 9.2% HM** from surface
- **33m @ 7.1% HM** from surface (THAC053), including **15m @ 12.1% HM** from surface
- **31m @ 7.4% HM** from 4.5m (THAC039), including **19.5m @ 10.1% HM** from 9m
- **26m @ 9.6% HM** from 15m (THAC064), including **24.5m @ 10.1% HM** from 16.5m
- **17m @ 12.2% HM** from 22.5m (THAC049)

(Refer to Table 1 for full details).

These results extend the thick, high-grade mineralised intervals first reported by Sheffield at the prospect (see ASX release 3 September, 2012), and outline an internal high-grade zone (at 5% HM cut-off) up to 32.5m thick (average 15m), with grades averaging 9.0% HM. The high grade zone has so far been outlined over an area of 12km², but importantly remains open in all directions. Approximately half of the area outlined to date has less than 3m of overburden.

Managing Director, Bruce McQuitty said while the initial results from Thunderbird were excellent, the latest drill results are exceptional.

"These results have exceeded our expectations, increasing both the grade and scale of the Thunderbird discovery."

"There are a very few mineral sands projects worldwide with similar grades, however none that we are aware of that can boast the widths we are outlining at Thunderbird, with the added advantage of such low overburden."

"This is a very thick, very high grade and very exciting find."

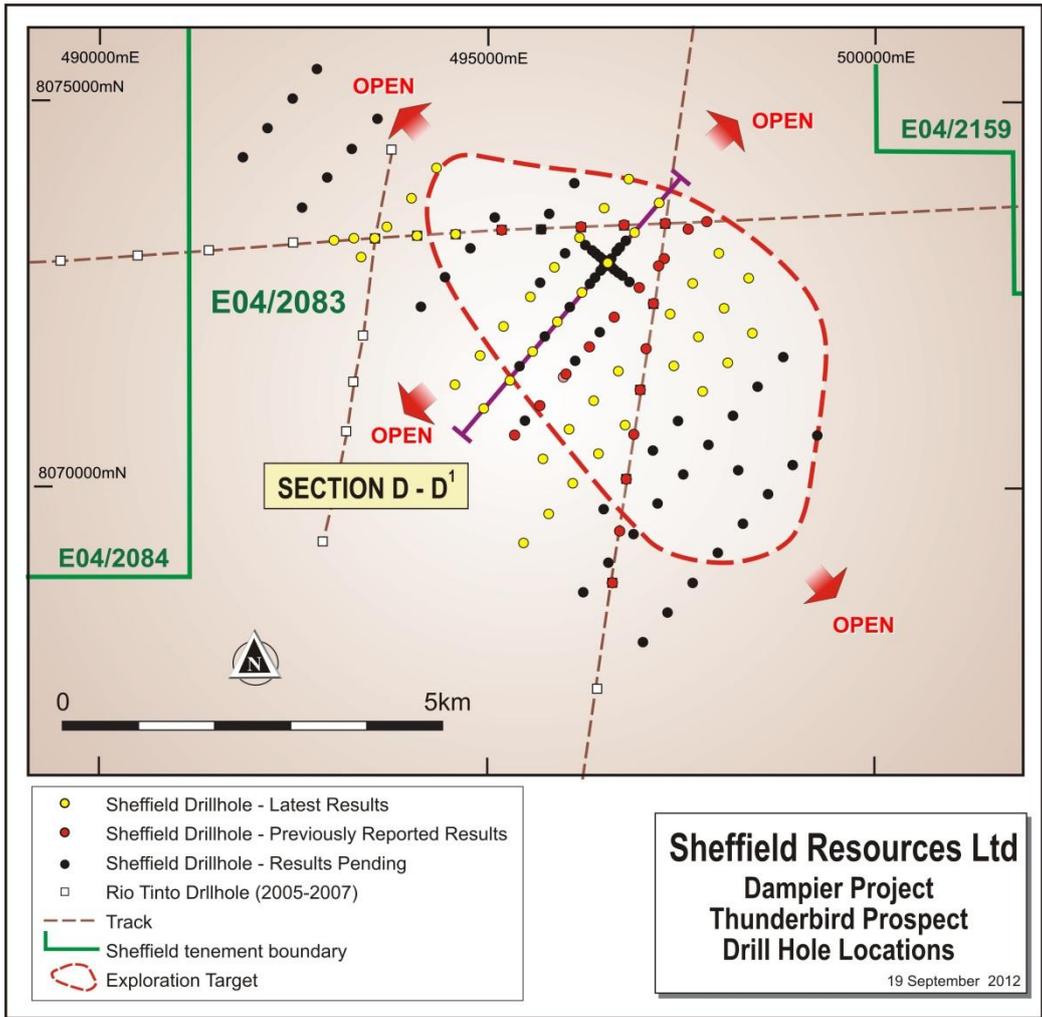


Figure 1: Thunderbird prospect drill collar plan

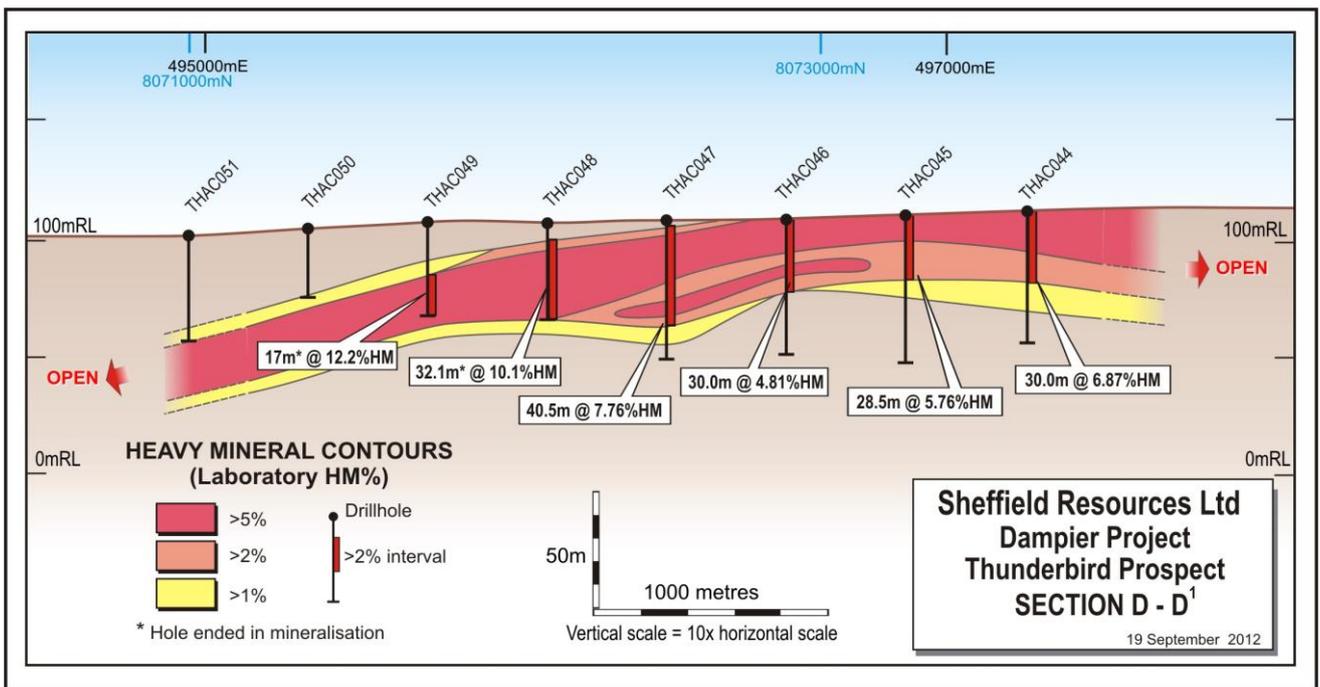


Figure 2: Cross-section D-D' from latest drill results received (refer to Figure 1 for section location).

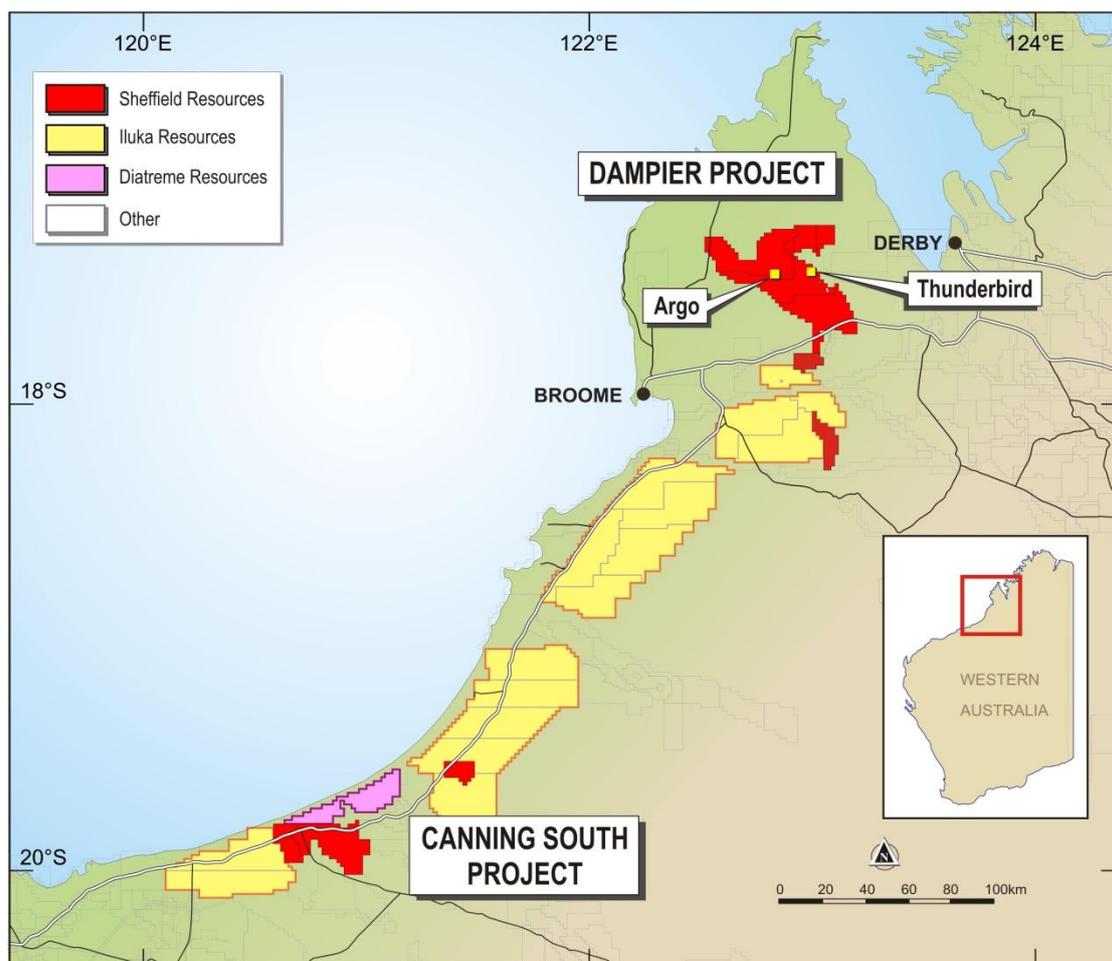


Figure 3: Sheffield's tenements and those of other mineral sands explorers in the Canning Basin

About the Thunderbird Prospect

The Dampier project contains two significant heavy mineral sands prospects: a large, shallow eastern zone, named Thunderbird; and a smaller, deeper western zone, named Argo (Figure 3).

Sheffield's current drilling programme targets the Thunderbird prospect over an 8km strike length. The drilling pattern is nominally 500m x 500m at the centre of the target area to 500m x 1,000m at the strike extremities (Figure 1).

Drill results released to date relate to an area about 5km long by 4km wide (20km²). At a 2% HM cut-off, the main mineralised zone varies in thickness from 4.5m to 43.6m, with an average of 25m. There is a higher-grade core (>5% HM) to the mineralised zone which varies in thickness from 4.5m to 32.5m, with an average thickness of 15m. The mineralisation shows excellent continuity and remains open in all directions (Figures 1 and 2). It is hosted in fine loose sand, with minor 30-50cm bands of cemented sand and ironstone which have occasionally prevented drill holes from reaching target depth.

Overburden thickness averages 10m, increasing with the dip of the mineralised unit towards the southwest. Significantly, over half of the mineralisation outlined to date (2.5km across strike) has less than 3m of overburden.

Further information on the Thunderbird prospect is contained in the Company's ASX releases of 7 September 2011, 8 November 2011, 12 July 2012 and 3 September 2012.

Results Tabulation

Results of heavy liquid separation (HLS) are tabulated below. HLS using TBE, screen sizes: slimes - 45µm, oversize +1mm. Planned hole coordinates are shown (survey pickup pending), coordinate system is MGA Zone 51 (GDA94), all holes drilled vertically.

Table 1: Latest Thunderbird aircore drill results. Intervals calculated using >2% HM, including intervals >5% HM, 4.5m minimum width, maximum 4.5m internal waste.

Hole ID	Easting	Northing	Depth From (m)	Depth To (m)	Interval Width (m)	HM wt%	Slimes wt%	Osize wt%
THAC025	494584	8073269	21.0	63.0	42.0	6.29	17.1	23.7
<i>including:</i>			24.0	55.5	31.5	7.60	18.0	21.0
THAC032	494010	8073735	19.5	24.0	4.5	2.75	9.3	1.3
THAC034	493689	8073352	46.5	54.0	7.5	2.19	33.5	27.2
THAC034	493689	8073352	63.0	76.5	13.5	3.71	14.1	24.2
THAC037*	495221	8072067	15.0	47.9	32.9	5.77	15.0	9.9
<i>including:</i>			30.0	45.0	15.0	9.50	17.3	14.0
THAC038	495542	8072450	15.0	43.5	28.5	5.92	14.9	17.5
<i>including:</i>			22.5	37.5	15.0	8.60	15.2	18.8
THAC039*	495864	8072833	4.5	35.5	31.0	7.39	17.1	21.2
<i>including:</i>			9.0	28.5	19.5	10.1	16.7	17.3
THAC040	496185	8073216	0.0	27.0	27.0	8.61	18.3	20.1
<i>including:</i>			1.5	24.0	22.5	9.77	16.6	19.3
THAC041	496507	8073599	0.0	30.0	30.0	5.76	23.7	17.1
<i>including:</i>			0.0	10.5	10.5	9.33	15.8	25.2
			22.5	30.0	7.5	5.97	13.9	13.9
THAC042	496828	8073982	0.0	36.0	36.0	5.15	16.7	20.9
<i>including:</i>			3.0	10.5	7.5	12.4	15.7	30.9
THAC043	497208	8073664	0.0	5.2	5.2	7.36	14.7	44.4
THAC044	497206	8073661	0.0	30.0	30.0	6.87	17.0	18.0
<i>including:</i>			0.0	18.0	18.0	9.22	17.0	11.9
THAC045	496887	8073281	0.0	28.5	28.5	5.76	16.9	21.7
<i>including:</i>			0.0	10.5	10.5	11.2	13.3	34.1
THAC046	496565	8072898	0.0	30.0	30.0	4.81	18.2	29.8
<i>including:</i>			0.0	12.0	12.0	7.59	15.5	33.5
			18.0	22.5	4.5	5.75	18.3	29.6
THAC047	496244	8072515	3.0	43.5	40.5	7.76	18.4	18.5
<i>including:</i>			4.5	22.5	18.0	13.4	16.3	29.5
			33.0	39.0	6.0	5.06	19.3	11.2
THAC048*	495922	8072132	9.0	41.1	32.1	10.1	16.8	18.2
<i>including:</i>			10.5	39.0	28.5	10.9	17.0	16.9
THAC049*	495601	8071749	22.5	39.5	17.0	12.2	16.3	18.1
THAC053	497985	8073020	0.0	33.0	33.0	7.05	16.5	17.3
<i>including:</i>			0.0	15.0	15.0	12.1	14.3	21.1

Hole ID	Easting	Northing	Depth From (m)	Depth To (m)	Interval Width (m)	HM wt%	Slimes wt%	Osize wt%
THAC054	497648	8072634	0.0	34.5	34.5	3.64	17.2	17.3
<i>including:</i>			1.5	15.0	13.5	5.52	16.4	22.1
THAC055*	496683	8071485	7.5	22.0	14.5	9.16	11.6	27.8
<i>including:</i>			9.0	22.0	13.0	9.83	11.9	26.3
THAC056	497356	8072234	0.0	27.0	27.0	4.40	20.6	17.6
<i>including:</i>			0.0	15.0	15.0	5.83	18.1	22.7
THAC057*	496362	8071102	9.0	50.5	41.5	7.33	16.4	11.1
<i>including:</i>			18.0	50.5	32.5	8.62	17.9	12.2
THAC058*	496041	8070719	18.0	34.5	16.5	7.65	14.8	5.8
<i>including:</i>			27.0	34.5	7.5	12.5	15.9	11.9
THAC059*	495719	8070336	28.5	38.5	10.0	10.1	14.8	21.6
<i>including:</i>			30.0	38.5	8.5	11.5	13.7	23.1
THAC060	498360	8072696	0.0	27.0	27.0	4.39	18.2	12.9
<i>including:</i>			1.5	10.5	9.0	8.20	14.4	31.4
THAC061	498039	8072313	0.0	19.5	19.5	3.81	19.6	8.6
THAC061	498039	8072313	31.5	36.0	4.5	2.64	15.9	5.3
THAC062	497717	8071930	0.0	7.5	7.5	6.41	19.1	16.7
<i>including:</i>			1.5	6.0	4.5	8.75	18.2	21.6
THAC062	497717	8071930	13.5	39.0	25.5	2.97	21.2	14.2
THAC063	497396	8071547	6.0	27.0	21.0	4.41	19.8	8.5
<i>including:</i>			7.5	12.0	4.5	7.51	15.0	23.3
THAC064*	496753	8070781	15.0	41.0	26.0	9.60	15.1	7.4
<i>including:</i>			16.5	41.0	24.5	10.1	15.0	7.8
THAC065*	496432	8070398	10.5	34.0	23.5	6.27	14.4	8.9
<i>including:</i>			24.0	34.0	10.0	11.5	12.3	18.4
THAC069	498420	8071985	7.5	25.5	18.0	2.22	21.7	5.9
THAC070	498098	8071602	12.0	22.5	10.5	2.24	21.0	9.7
THAC070	498098	8071602	39.0	43.5	4.5	2.20	22.2	6.5
THAC071	497777	8071219	4.5	19.5	15.0	4.13	14.8	21.3

* hole ended in mineralisation

ENDS

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COMPETENT PERSONS' STATEMENT

The information in this announcement that relates to exploration results is based on information compiled by David Boyd. Mr Boyd is a full time employee of the Company. Mr Boyd is a Member of the Australasian Institute of Geoscientists and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity to which they are undertaking to qualify as Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code")'. Mr Boyd consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

FORWARD LOOKING STATEMENTS

Some statements in this announcement 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 "expected", "planned", "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 @ 49cps - \$46.9m

Issued shares – 95.7m

Cash - \$9.3m (at 30/6/2012)

The Company has over 6,000km² of highly prospective tenure, all situated within the state of Western Australia.

HEAVY MINERAL SANDS

The Dampier project, located near Derby in WA's Kimberley region, contains the large, high grade zircon-rich Thunderbird HMS deposit which is currently being drilled.

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 525km² Red Bull project is located in the highly prospective Fraser Complex within 20km of Sirius Resources NL's (ASX:SIR) Nova Ni-Cu discovery.

IRON

Sheffield has identified iron mineralisation on three of its tenements in the Pilbara iron ore province. Thick hematite mineralisation was intersected in first pass RC drilling at the Three Pools project, 20km north of Newman.

TALC

Sheffield's large Moora Talc Belt project contains numerous talc occurrences and is located near Imery's long-life Three Springs talc mine in WA's Mid-West region. The Company is targeting high purity talc, similar to that produced from the simple quarrying operation at Three Springs.