



SheffieldResources  
LIMITED

## ASX and Media Release

24 January 2012

# NEW FIND IS ZIRCON AND RUTILE RICH

## KEY POINTS

- **Mineral assemblage testwork (QEMSCAN) indicates zircon and rutile comprise over 25% of the heavy mineral assemblage at the recently discovered Drummond Crossing prospect (average of 14.9% zircon and 10.2% rutile)**
- **Exploration Target of 35Mt-70Mt at 1.5%–2.5% HM outlined by Sheffield's drilling**
- **Mineralisation is dunal style, occurs at surface and is open to the north and south**
- **Resource drilling planned for April**

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**Mineral Sands explorer Sheffield Resources ("Sheffield") (ASX:SFX)** today announced excellent results from mineral assemblage testwork, and an Exploration Target<sup>1</sup> for its recently discovered Drummond Crossing prospect, located just 20km north of Eneabba in Western Australia's Mid-West region (Figure 1).

QEMSCAN<sup>2</sup> results confirm a valuable heavy mineral (VHM) assemblage comprising **14.9% Zircon, 10.2% Rutile, 4.4% Leucoxene and 51% Ilmenite**, based on the average of 5 representative composite samples (Table 1). The QEMSCAN results also indicate a favourable coarse VHM grain size, with median diameter (D<sub>50</sub>) ranging from 145µm to 165µm.

Sheffield has outlined an Exploration Target<sup>1</sup> of **35-70Mt at 1.5-2.5% HM** for the near-surface dunal style mineralisation at Drummond Crossing. The Exploration Target is derived from interpreted mineralised volumes of 19 to 36 million m<sup>3</sup> and a bulk density of 1.9t/m<sup>3</sup>, and is based on drilling results announced by the Company on 21 November 2011.

Managing Director, Bruce McQuitty said Drummond Crossing was a significant new discovery.

*"This is a terrific result; 25% of the heavy mineral assemblage at Drummond Crossing consists of zircon and rutile, both of which are currently fetching record prices."*

*"The high value of the mineral assemblage at Drummond Crossing adds to the significance of this discovery for Sheffield. We will now proceed to a resource drill out in Q2, 2012."*

The Exploration Target at Drummond Crossing follows the announcement of Mineral Resources for the nearby Yandanooka, Ellengail and West Mine North deposits (ASX releases dated 16 August, 25 October, and 7 November 2011) and highlights the growing importance of the broader Eneabba region for Sheffield (Figure 1).

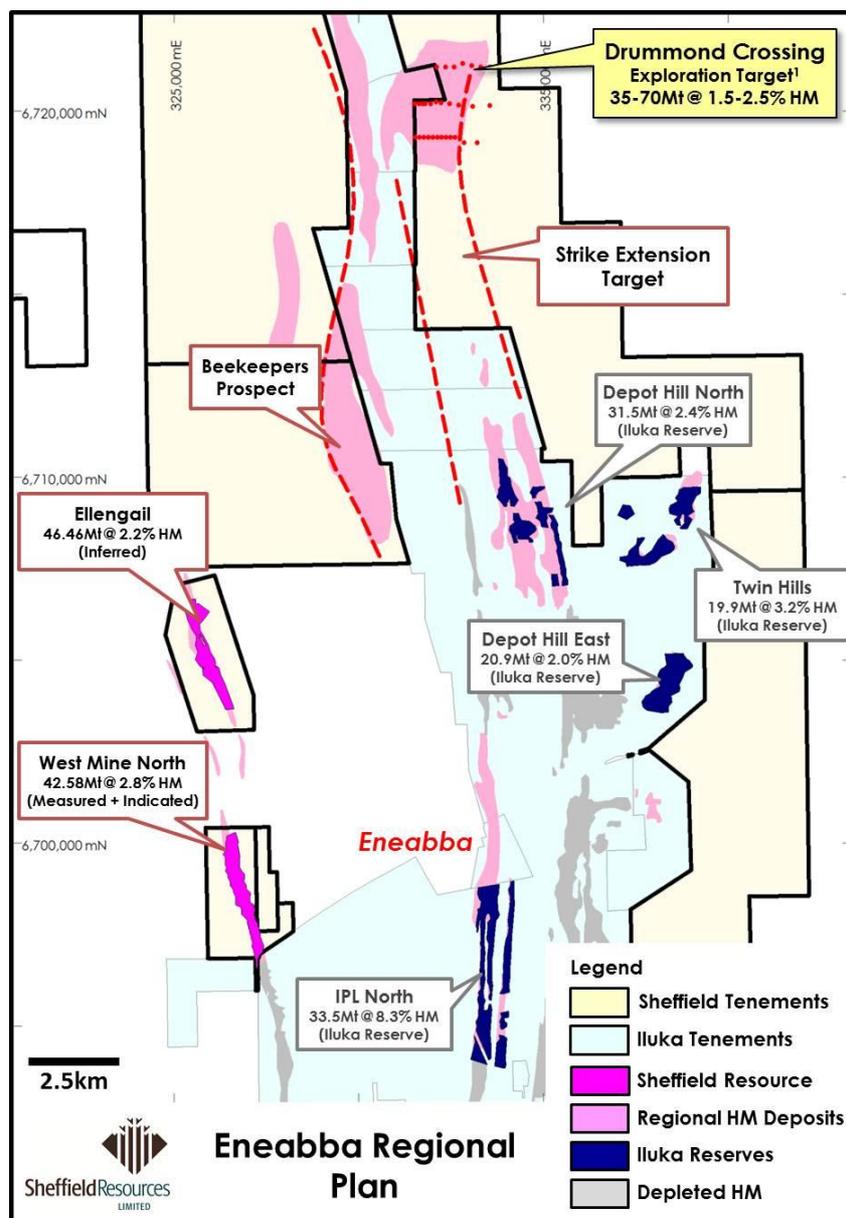
Recent announcements by Iluka Resources Ltd (ASX:ILU) dated 12 October 2011 and 8 December 2011 suggest current prices in the order of US\$2,420 per tonne for zircon and US\$2,430-US\$2,497 for rutile.

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<sup>1</sup>Sheffield Resources has not yet reported Mineral Resources for Drummond Crossing and any discussion in relation to targets and Mineral Resources is conceptual in nature. There has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. Figures have been rounded to reflect the implied level of accuracy.

<sup>2</sup>The Mineral Assemblage is represented as the percentage of the Heavy Mineral (HM) component of the deposit, as determined by QEMSCAN particle analysis. TiO<sub>2</sub> minerals are defined according to the following ranges: Rutile >95% TiO<sub>2</sub>; Leucoxene 85-95% TiO<sub>2</sub>; Ilmenite <55-85% TiO<sub>2</sub>.

Iluka recently announced revised reserves for four of its Eneabba deposits to the south of Drummond Crossing, two of which (Twin Hills and Depot Hill East) have a similar setting, grade and areal extent to the Drummond Crossing Exploration Target (Figure 1).



**Figure 1: Eneabba regional plan showing the location of Drummond Crossing, Sheffield's tenure and current Mineral Resources<sup>1</sup> with respect to other deposits in the region<sup>1</sup>.**

The Company advises that resource estimation work on its McCalls deposit is nearing completion, and scoping study work continues at its advanced North Perth Basin HMS projects.

ENDS

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<sup>1</sup> Sheffield's Mineral Resources are detailed in ASX announcements dated 7 November 2011 (West Mine North) and 25 October 2011 (Ellengail). Iluka's reserve figures are quoted from its ASX announcement dated 16 November, 2011.

### About Drummond Crossing

Sheffield's Drummond Crossing prospect is located 20km north of Eneabba in Western Australia's Mid-West region (Figure 1).

Drummond Crossing is interpreted to be a dunal style heavy mineral sand deposit occurring at surface on the Gingin escarpment, immediately east of the Eneabba palaeo-shoreline position. The mineralisation extends up to 3.5km N-S by 1.5km E-W, and averages 9m thickness (locally up to 28.5m thick). The deposit is open to the north and south (Figures 2-3).

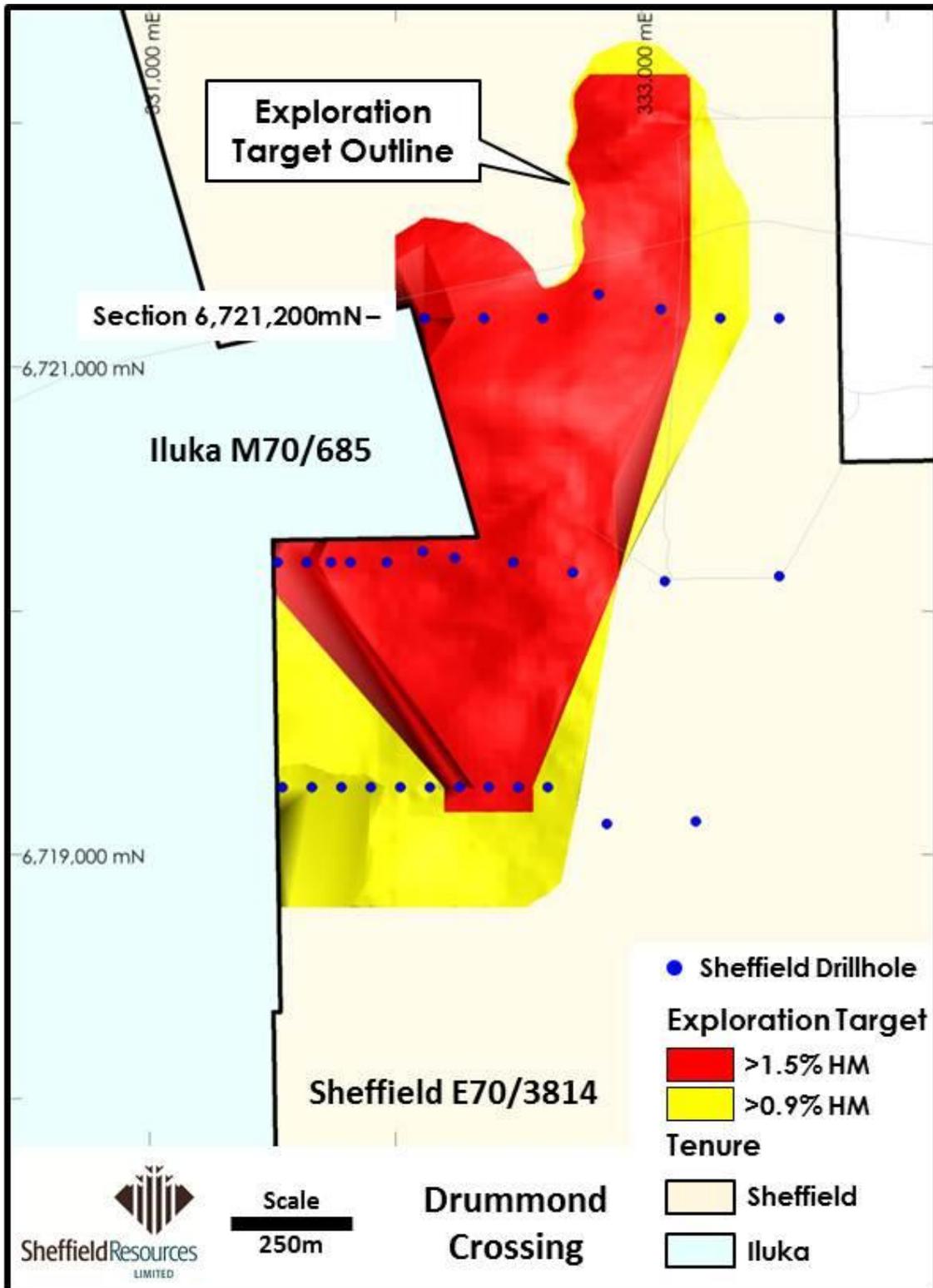
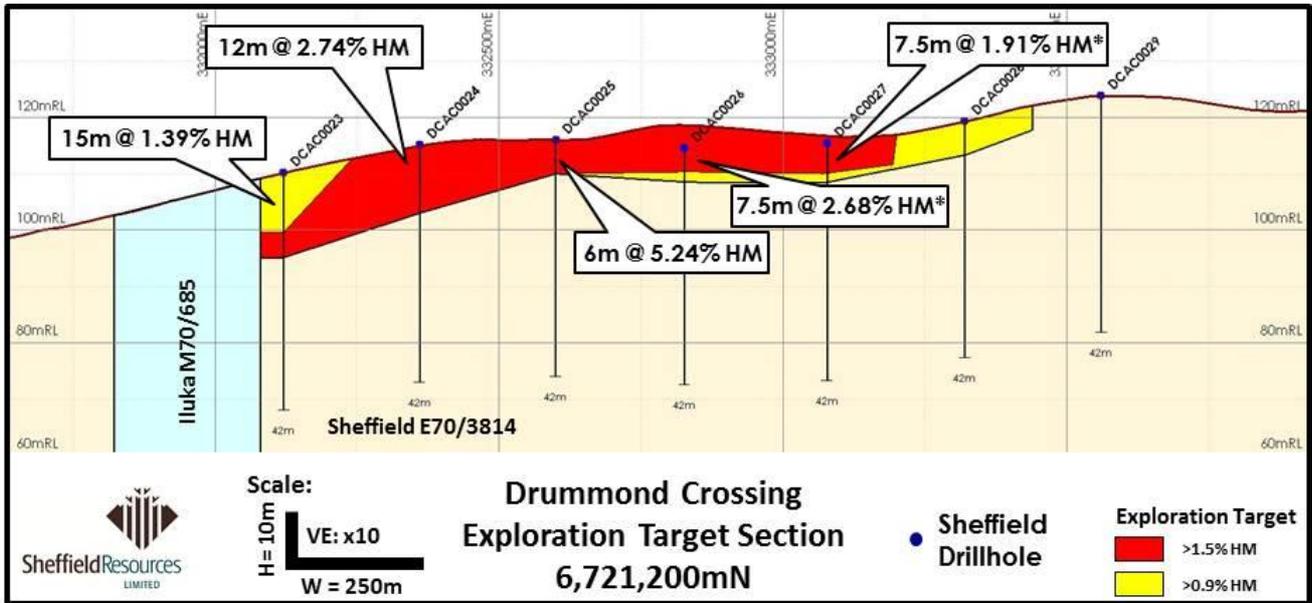


Figure 2: Drummond Crossing drill hole plan with HM contours (average grade >3m thickness).



\*DCAC0026 and 0027 plotted off-section

Figure 3: Exploration Target cross section 6,721,200mN - looking north (note 10x vertical exaggeration).

Heavy Mineral assemblage results determined by QEMSCAN are detailed in Table 1. Visual examination of HM concentrates indicate a small component of clay coatings however it is expected that these can be removed through light attrition and will not present an issue with mineral separation.

Table 1: Results of QEMSCAN mineral assemblage analysis.

Sample	Name	SADCWP001	SADCWP002	SADCWP003	SADCWP004	SADCWP005	AVERAGE
Mineral Mass %	Zircon	12.92	14.00	18.20	15.33	14.14	14.9
	Rutile	10.42	11.55	10.44	10.23	8.16	10.2
	Rutile Coated	0.00	0.00	0.00	0.00	0.00	0.0
	Leucoxene	2.95	5.08	4.35	4.11	5.46	4.4
	Leucoxene Coated	0.00	0.00	0.00	0.11	0.42	0.1
	Ilmenite	53.17	51.33	50.58	55.12	44.78	51.0
	Ilmenite Coated	0.34	0.30	0.20	0.59	5.80	1.4
	Si bearing Ti Oxide	2.88	3.11	3.59	3.84	3.29	3.3
	Quartz	0.44	0.33	0.42	0.28	0.39	0.4
	Chromite	0.01	0.01	0.05	0.00	0.00	0.0
	REE-bearing	0.35	0.47	0.65	0.55	0.57	0.5
	Staurolite	5.85	5.60	2.71	3.71	4.23	4.4
	Andalusite	7.19	5.74	4.97	4.09	5.88	5.6
	Tourmaline	2.21	1.71	1.31	0.68	2.76	1.7
	Kaolinite	0.12	0.12	0.22	0.36	2.39	0.6
	Fe Oxide	0.76	0.09	0.76	0.11	0.79	0.5
	Other Silicates	0.22	0.08	0.92	0.36	0.35	0.4
	Other	0.17	0.48	0.64	0.51	0.60	0.5
	<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>100.01</b>	<b>99.98</b>	<b>100.01</b>	<b>100.0</b>

Total particle chemistry is used in the mineral classification. TiO<sub>2</sub> minerals are defined according to the following ranges: Rutile >95% TiO<sub>2</sub>; Leucoxene 85-95% TiO<sub>2</sub>; Ilmenite <55-85% TiO<sub>2</sub>. "Coated" refers to particles which have >80% coatings and are treated as "other" minerals in the assemblage. Refer to Table 2 for details of composite samples.

**Table 2: QEMSCAN composite drill hole details** (coordinates are MGA Zone 50 GDA94 projection).

Sample	Hole ID	Easting	Northing	Depth From (m)	Depth To (m)
SADCWP001	DCAC0023	332120	6721200	3.0	10.5
SADCWP001	DCAC0024	332360	6721200	1.5	9.0
SADCWP001	DCAC0028	333320	6721200	0.0	6.0
SADCWP002	DCAC0013	331520	6720200	1.5	9.0
SADCWP002	DCAC0016	331816	6720200	1.5	7.5
SADCWP002	DCAC0019	332241	6720217	0.0	7.5
SADCWP003	DCAC0009	332500	6719276	0.0	7.5
SADCWP003	DCAC0003	331780	6719276	3.0	6.0
SADCWP003	DCAC0005	332020	6719276	0.0	7.5
SADCWP003	DCAC0009	332500	6719276	0.0	7.5
SADCWP004	DCAC0025	332600	6721200	1.5	6.0
SADCWP004	DCAC0014	331640	6720200	1.5	4.5
SADCWP005	DCAC0017	331965	6720200	0.0	3.0
SADCWP005	DCAC0010	332620	6719276	1.5	6.0
SADCWP005	DCAC0027	333078	6721238	1.5	4.5
SADCWP005	DCAC0028	333320	6721200	1.5	4.5

#### **COMPETENT PERSONS' STATEMENT**

The information in this announcement that relates to exploration results is based on information compiled by Bruce McQuitty. Mr McQuitty is a full time employee of the Company. Mr McQuitty 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 McQuitty 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 AND EXPLORATION TARGET 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", "prospective", and similar expressions.

The terms "Target" and "Exploration Target", where used in this announcement, should not be misunderstood or misconstrued as an estimate of Mineral Resources and Reserves as defined by the JORC Code (2004), and therefore the terms have not been used in this context. Exploration Targets are conceptual in nature and it is uncertain if further exploration or feasibility study will result in the determination of a Mineral Resource or Reserve.

## ABOUT SHEFFIELD RESOURCES

Sheffield Resources Limited (**Sheffield**) is a rapidly emerging heavy mineral sands (HMS) company with significant additional iron and talc assets.

ASX Code – SFX

Market Cap @ 34cps - \$20m

Issued shares – 58.7m

Cash - \$3.3 (at 30/9/2011)

The Company has over 6,000km<sup>2</sup> 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 has the potential to become Sheffield's flagship HMS project. It contains a large zircon-rich HMS deposit formerly explored by Rio Tinto.

Sheffield's North Perth Basin tenement package of over 2,500km<sup>2</sup> contains eight advanced exploration projects: West Mine North, Ellengail, Yandanooka, Durack, Beekeepers, Drummond Crossing and Irwin which are located near Eneabba; and the large McCalls deposit - a former BHP project located near Gingin. These projects are well located close to existing mineral sands operations and to a network of highways and railway lines connecting to the Geraldton and Fremantle/Kwinana ports. Sheffield's strategy is, subject to exploration success, to build multiple HMS projects capable of supporting a flexible mobile mining plant.

### IRON

Sheffield's Pilbara iron ore projects consist of 5 granted tenements and 8 tenement applications, 6 of which are subject to ballot with multiple competing parties. Sheffield's strategy is to target hematite mineralisation adjacent to infrastructure in the world class Pilbara iron province and to build up consolidated tenement holdings over time. High grade iron mineralisation has been identified on three of the Company's tenements.

### TALC

Sheffield has 1,152km<sup>2</sup> of tenure over the 175km-long Moora Talc Belt which represents a dominant ground position over a region that has, for the last 50 years, been exclusively controlled by major mining companies.

The Moora Talc Belt includes the large Three Springs mine which is owned by Imerys subsidiary Luzenac Australia Pty Ltd. Three Springs is renowned for producing high purity talc and is a relatively simple "dig-and-deliver" operation.

Sheffield's large tenement holding contains numerous talc occurrences and has the potential to become a strategic talc asset. Sheffield therefore represents a unique opportunity for investors to gain exposure to one of the few high-grade talc explorers in the world.