

ASX and Media Release

1 August 2013

THUNDERBIRD PRODUCTS CONFIRMED AS HIGHLY MARKETABLE

KEY POINTS

- **Zircon determined as premium grade, suitable for the ceramic sector**
- **Primary ilmenite determined suitable for sulphate TiO₂ pigment manufacture, and sulphate or chloride slag**
- **Secondary ilmenite, rutile and High TiO₂ leucoxene determined suitable for welding electrode sector**
- **Extensive drilling programme continues at Thunderbird**

Sheffield Resources (“Sheffield”, “the Company”) (ASX:SFX) today announced the results from a review (‘Product Assessment Report’) of the quality of planned products from the Thunderbird deposit by mineral sands specialist consultants TZ Minerals International Pty Ltd (“TZMI”).

The review by TZMI forms part of a Scoping Study underway on the world-class Thunderbird Heavy Mineral Sand deposit located near Derby in the Canning Basin region of Western Australia (Figure 1).

The Scoping Study is focusing on a coherent high grade core to the Thunderbird deposit of **517Mt @ 10.1% HM** (Indicated and Inferred)¹ containing 3.6Mt of zircon, 0.8Mt of rutile, 2.2Mt of leucoxene and 15.2Mt of ilmenite (at 7.5% HM cut-off). This zone averages 20m thickness.

TZMI’s Product Assessment considers the specifications and scoping level volumes of Thunderbird products, in comparison with other competing products in the marketplace, and assesses likely target markets.

TZMI’s work follows development of processing flowsheets based on metallurgical testwork, and analysis of final products of zircon, primary and secondary ilmenite, rutile and high-titanium leucoxene. This work was conducted by consultants Robbins Metallurgical of Brisbane.

Managing Director, Bruce McQuitty said TZMI’s confirmation of the marketability of the Thunderbird products was another key step for the Thunderbird deposit.

“Thunderbird is one of the largest and highest grade mineral sands deposits to be discovered in the last decade and zircon and ilmenite are expected to be the most important products by value and volume, respectively. This confirmation by a leading mineral sands specialist consultant that the Thunderbird products will achieve wide acceptance in the broadest market sectors is extremely pleasing, and further underpins our confidence in the Project.”

Scoping Study Update

The Thunderbird Scoping Study is progressing very well and will be extended to incorporate a resource upgrade, aimed at increasing the component of the mineral resource in the Indicated category. The Study will be completed post the anticipated resource upgrade which is scheduled for Q4 2013. Sheffield cautions that it is uncertain if further exploration will result in an increase in Indicated Resources.

¹ Refer to Appendix 1 for full details of the Thunderbird Mineral Resource.

The current 2013 drilling programme comprises infill and extension drilling at Thunderbird and an initial test of the Argo deposit, located 12km to the west. A 15 tonne sample will be composited from the Thunderbird infill drilling for further enhancing metallurgical testwork and to obtain products for market soundings.

Level two environmental survey work to support the environmental approvals process is also in progress.

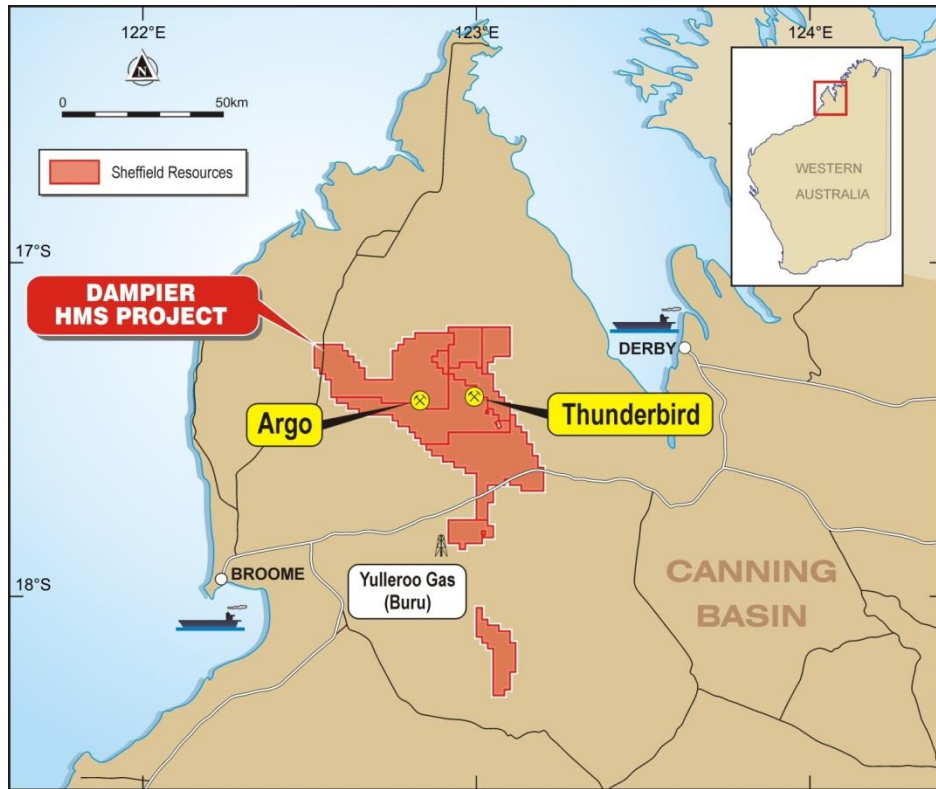


Figure 1: Thunderbird Deposit Location Plan

Product Assessment Results

Zircon

Thunderbird primary zircon product (Table 1) meets the premium classification for the requirements of the ceramic zircon sector, and the product is readily saleable.

Table 1: Zircon Specifications

ZrO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃ %	P ₂ O ₅ %
66.2	0.05	0.09	0.10	0.14

Primary Ilmenite

The Primary ilmenite product (Table 2) is a suitable feedstock for the sulphate-route TiO₂ pigment process, or as a feed for either titanium sulphate- or chloride-slag manufacture. The low levels of alkalis and chromium also make this an attractive feedstock for blending with ilmenites with higher levels of these contaminants.

Confirmation of the marketability of the primary ilmenite negates the requirement for a roasting step which will result in considerable capital and operating cost savings.

Table 2: Primary Ilmenite Specifications

TiO ₂ %	FeO%	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	Cr ₂ O ₃ %	MgO%	MnO%	ZrO ₂ %	CaO%
50.1	8.0	36.4	1.6	0.3	0.05	0.2	1.5	<0.01	<0.01

Secondary Ilmenite, High-TiO₂ Leucoxene and Rutile Products

Specifications for these products are shown in Tables 3, 4 and 5. The specifications, and likely volumes of these products, indicate they are likely to be best suited to the welding electrode market.

Table 3: Secondary Ilmenite Specifications

TiO ₂ %	FeO%	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	Cr ₂ O ₃ %	MgO%	MnO%	ZrO ₂ %	CaO%	P ₂ O ₅ %	SO ₃ %
60.1	-	33.9	2.0	0.4	0.15	0.1	1.3	0.2	<0.01	0.06	0.07

Table 4: Hi-TiO₂ Leucoxene Specifications

TiO ₂ %	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	Cr ₂ O ₃ %	MgO%	MnO%	ZrO ₂ %	CaO%	P ₂ O ₅ %	SnO ₂ %	Nb ₂ O ₅ %	V ₂ O ₅ %
91.9	1.2	2.2	0.2	0.08	<0.01	0.03	2.5	0.03	0.09	0.17	0.6	0.2

Table 5: Rutile Specifications

TiO ₂ %	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	Cr ₂ O ₃ %	MgO%	MnO%	ZrO ₂ %	CaO%	P ₂ O ₅ %	SnO ₂ %	Nb ₂ O ₅ %	V ₂ O ₅ %
94.6	0.5	1.8	0.2	0.09	<0.01	<0.01	1.5	<0.01	0.03	0.26	0.37	0.3

ENDS

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COMPETENT PERSONS' STATEMENT

The information in this announcement that relates to resource estimation is based on information compiled by Mr Trent Strickland. Mr Strickland is a full time employee of Quantitative Group (QG) and a Member of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Strickland has sufficient experience in the minerals industry to satisfy the requirements to act as the competent person for this estimate as defined in the 2004 Edition of the Australasian Code for Reporting of Mineral Resources and Ore Reserves. Mr Strickland consents to the inclusion in this report of the Thunderbird Mineral Sands resource estimate.

The information in this announcement that relates to reporting of resource and exploration results is based on information compiled under the guidance of Mark Teakle. Mr Teakle is a full time employee of the Company. Mr Teakle is a Member of the Australasian Institute of Geoscientists and the Australasian Institute of Mining and Metallurgy 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 Teakle 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", "strategy" and similar expressions.

APPENDIX 1: THUNDERBIRD MINERAL RESOURCE AT 18 DECEMBER 2012

Table 1: Thunderbird Mineral Resource (at 2% and 7.5% HM cut-off)¹

Resource Category	Cut off (HM%)	Mineral Resources					In-situ HM (Mt)*	Mineral Assemblage ²			
		Material (Mt)*	Bulk Density	HM %	Slimes % ³	Osize %		Zircon %	Rutile %	Leuc. %	Ilmenite %
Indicated	2.0	299	2.1	7.2	19	14	21.5	6.9	1.6	4.3	29
Inferred	2.0	1,075	2.1	5.8	17	16	61.9	6.9	1.6	4.3	29
Total	2.0	1,374	2.1	6.1	17	15	83.4	6.9	1.6	4.3	29
Indicated	7.5	138	2.1	11.5	18	16	15.8	6.9	1.6	4.3	29
Inferred	7.5	379	2.1	9.6	16	19	36.5	6.9	1.6	4.3	29
Total	7.5	517	2.1	10.1	16	18	52.3	6.9	1.6	4.3	29

Table 2: Thunderbird prospect contained Valuable HM (VHM) Resource Inventory (at 2% and 7.5% HM cut-off)

Resource Category	Cut off (HM%)	Zircon (kt)*	Rutile (kt)*	Leuc. (kt)*	Ilmenite (kt)*	Total VHM (kt)*
Indicated	2.0	1,483	344	924	6,256	9,007
Inferred	2.0	4,270	990	2,661	18,007	25,927
Total	2.0	5,753	1,334	3,585	24,262	34,934
Indicated	7.5	1,089	252	678	4,592	6,611
Inferred	7.5	2,521	585	1,571	10,631	15,307
Total	7.5	3,609	837	2,249	15,223	21,918

*Tonnes have been rounded to reflect the relative uncertainty of the estimate.

¹ This estimate is classified and reported in a manner compliant with the JORC code and guidelines (JORC, 2004). ² The Mineral Assemblage is represented as the percentage of the Heavy Mineral (HM) component of the deposit, as determined by QEMSCAN. TiO₂ minerals defined according to the following ranges: Rutile >95% TiO₂; Leucosene 70-95% TiO₂; Ilmenite 40-70% TiO₂.

ABOUT SHEFFIELD RESOURCES

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

ASX Code – SFX

Market Cap @ 35.5cps - \$42.0m

Issued shares – 118.3m

Cash - \$8.5m (at 30 June 2013)

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 Canning Basin region, contains the large, high grade zircon-rich Thunderbird HMS deposit.

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 discovery.

IRON

Sheffield holds four exploration licences prospective for iron in the North Pilbara region, all near existing iron ore mine sites or major development projects and within potential trucking distance of Port Hedland. Following its recent sale of the South Pilbara Iron tenements, Sheffield continues to seek to unlock value on its remaining Pilbara iron tenements through consolidation and/or further exploration.

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.