ASX and Media Release

20 February 2012

4.4 BILLION TONNE MAIDEN RESOURCE AT McCALLS HMS PROJECT

KEY POINTS

- **Maiden Inferred Mineral Resource of 4.4 billion tonnes (Bt) @ 1.2% heavy mineral**
- **Mineral assemblage comprises 43 million tonnes (Mt) of high-TiO_2 ilmenite and 3.5Mt of zircon**
- **Potential for consistent, long-term supply of chloride-grade ilmenite to the pigment industry**
- **Scoping study commenced, further drilling planned for Q2 2012**

Successful mineral sands explorer, Sheffield Resources ("Sheffield") (ASX:SFX) today announced a maiden Inferred Resource of 4.4Bt @ 1.2% HM for 53Mt of contained HM (Table 1) at its McCalls heavy mineral sand (HMS) project, 110km north of Perth near Gingin in Western Australia.

Managing Director, Bruce McQuitty said the mineral resource had far exceeded expectations in terms of size and the contained tonnages of zircon and ilmenite.

"The key feature of the deposit is that it contains over 40 million tonnes of chloride grade ilmenite. As such it ranks as one of the largest accumulations of chloride grade ilmenite in the world."

"We regard McCalls as a strategic asset with potential to deliver a consistent long term supply of feedstock for chloride route or synthetic rutile processing," he said.

"This sizable maiden Resource at McCalls, together with our large-scale zircon-rich Dampier project and a growing (HMS) resource base at Eneabba, firmly positions Sheffield as a fast-emerging and significant Australian mineral sands company."

Table 1: McCalls Project Mineral Resource[1] at a 0.9% HM cutoff.

Domain	Resource Category	Material (Mt)*	Bulk Density	HM %	Slimes %[3]	Osize %	**Insitu HM (Mt)***	Mineral Assemblage[2] Zircon %	Rutile %	Leuc. %	Ilmenite %
McCalls	Inferred	4,431	2.3	1.2	26.5	1.4	**53**	6.6	2.0	4.9	80.8
Total	**All**	**4,431**	**2.3**	**1.2**	**26.5**	**1.4**	**53**	**6.6**	**2.0**	**4.9**	**80.8**

Table 2: McCalls Deposit contained Valuable HM (VHM) (0.9% HM cutoff).

Resource Category	Zircon (kt)*	Rutile (kt)*	Leuc. (kt)*	Ilmenite (kt)*	**Total VHM (kt)***
Inferred	3,491	1,063	2,576	42,911	**50,041**

[1] The contained HM tonnages shown in Table 2 are sourced from Table 1

**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. TiO_2 minerals defined according to the following ranges: Rutile >95% TiO_2; Leucoxene 85-95% TiO_2; Ilmenite <55-85% TiO_2. McCalls is reported below a 35% Slimes upper cutoff.*

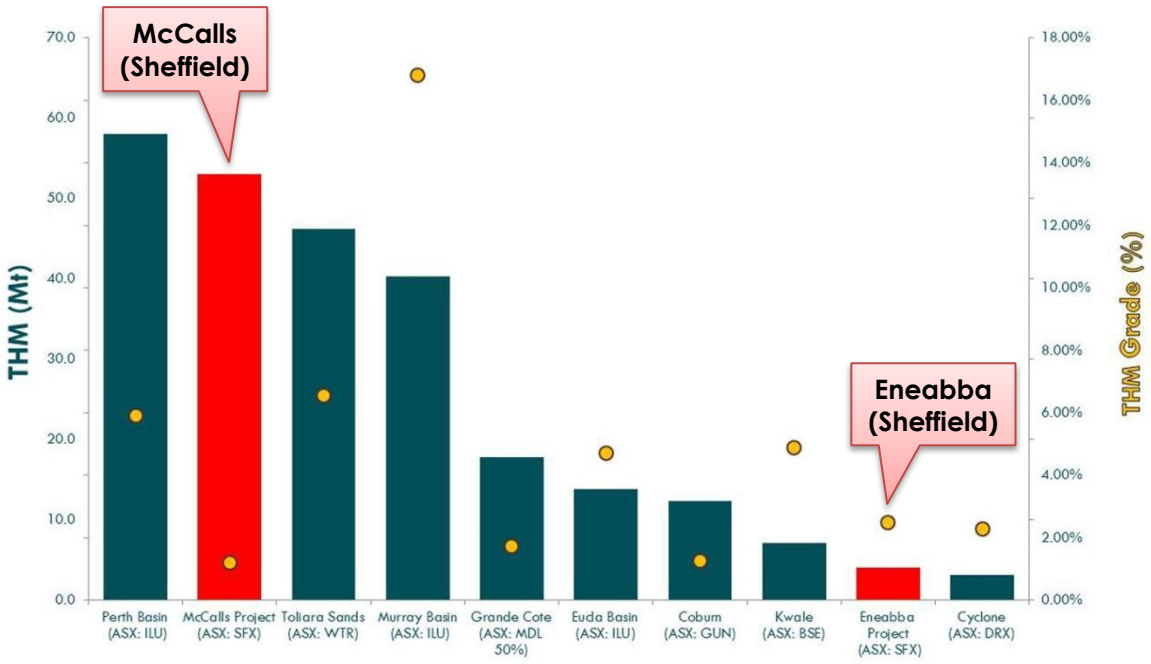

Figure 1: Comparison of Sheffield's mineral resources against those of peer companies *(resources data sourced by Sheffield from recent ASX releases)*

McCalls now ranks alongside some of the world's largest mineral sands deposits in terms of contained heavy mineral (Figure 1).

Ilmenite dominates the heavy mineral assemblage at **80.8%**, as determined by QEMSCAN average particle chemistry, along with a significant **zircon** component of **6.6%**. Additional rutile (2%) and leucoxene (4.9%) bring the **valuable heavy mineral component to 94.3%**.

Ilmenite characterisation studies conducted on a single sample composited from Sheffield's drilling produced concentrates containing between 60% and 66% TiO_2, indicating potential suitability for chloride-route or synthetic rutile processing (see ASX release 27 October 2011). The work also demonstrated the heavy mineral has properties well suited to conventional mineral processing methods.

Chloride Ilmenite Market Outlook

Market research leaders TZMI forecast a significant long term supply deficit from 2013 out to 2020 due to a combination of rising demand and depletion of existing resources (Figure 2). McCalls therefore has the potential to contribute significantly into this predicted gap in global supply.

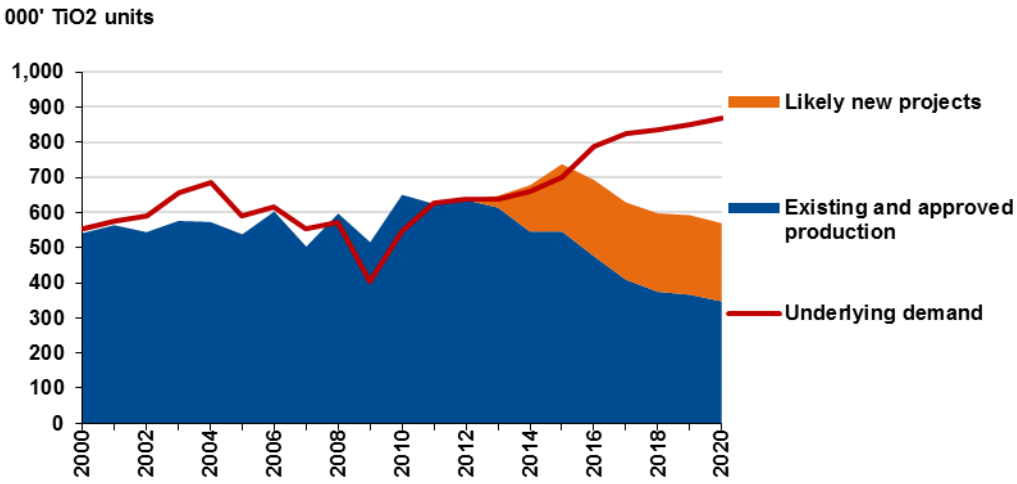

Figure 2: Global supply/demand outlook for chloride ilmenite: 2006-2020 *(© TZMI 2012, not to be reproduced without permission)*

The McCalls deposit is well located with respect to existing infrastructure. A railway line located 10km to the east of the project connects McCalls to the Fremantle and Kwinana ports approximately 160km to the south; and to Geraldton port 345km to the north. This railway also links to Iluka Resources Ltd's Narngulu synthetic rutile plant near Geraldton and passes within 1km of Tiwest's Chandala synthetic rutile plant at Muchea, 75km to the south of McCalls (Figure 3).

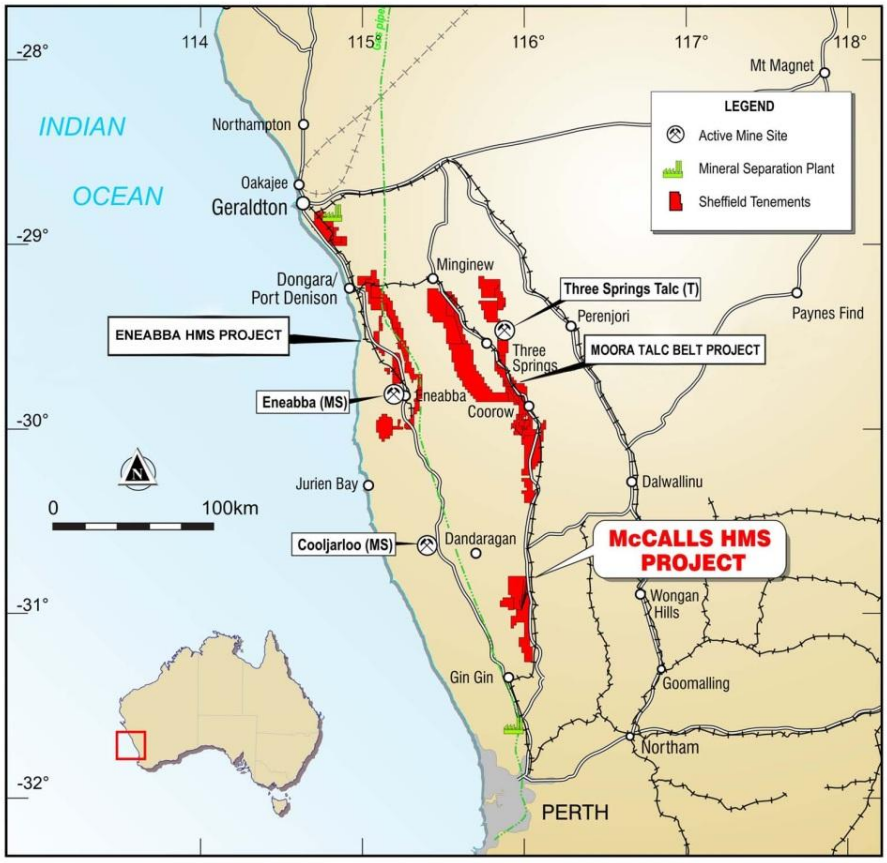

Figure 3: Location of McCalls project

The McCalls mineral resource follows Sheffield's recent announcement of a $10 million placement to institutional and sophisticated investors which will underpin the Company's exploration programmes for 2012 and beyond.

Whilst the majority of these funds will be used to progress the Dampier Zircon project and the advanced Eneabba project, the Company will undertake further drilling, mineral assemblage and scoping work at McCalls. This work will focus on better understanding the distribution of the high value minerals zircon and rutile and definition of higher-grade zones.

About the McCalls Deposit

The deposit is within three granted exploration licences held 100% by Sheffield: E70/3967, E70/3929 and E70/3930.

This maiden estimate is based on new drilling by Sheffield (see ASX release 20 September 2011) and historic drilling by BHP. The deposit covers an area of 14km x 13km, with an average thickness of 28m (although it extends in places to over 90m), and is open at depth. Overburden thickness ranges from 0m to 27m, with an average of 6m.

Grade throughout the deposit displays a degree of stratification (Figure 5), and this feature together with the consistent grainsize, rounding and sorting throughout; suggests a stacked dunal or estuarine origin to the deposit.

Previous holes were drilled to pre-set depth with most ending in mineralisation. Therefore, significant potential still exists at McCalls to increase the tonnage and grade of the deposit by drilling to greater depths along existing sections (Figure 5).

The McCalls resource is reported at 0.9% HM cutoff. At higher cutoff grades, despite the associated decrease in tonnage (Figure 6), significant and coherent zones of higher grade material remain.

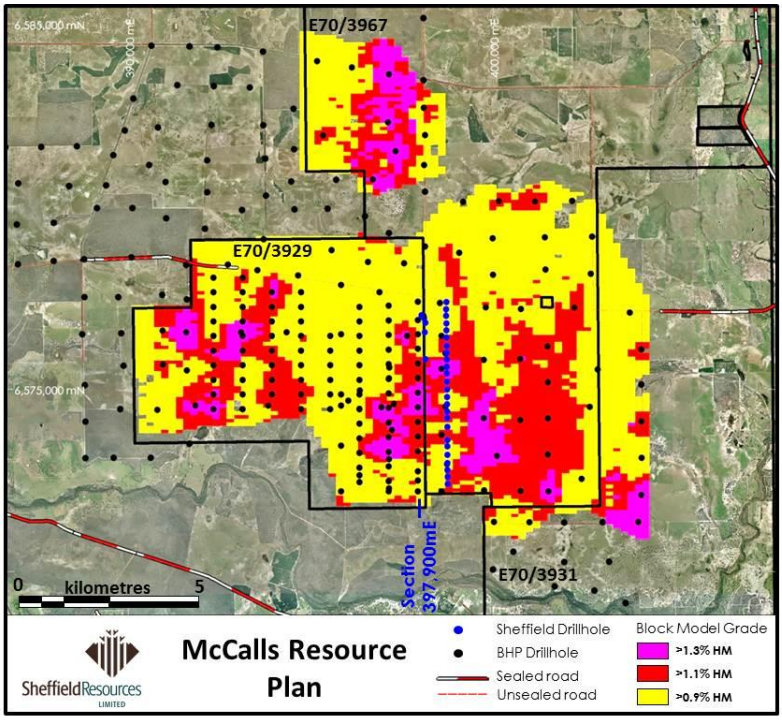

Figure 4: McCalls Resource Plan

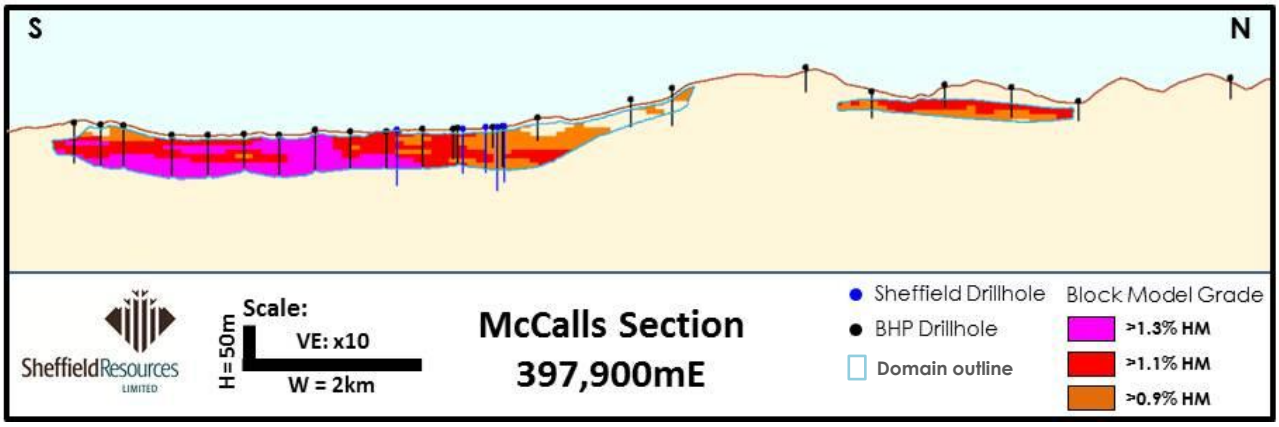

Figure 5: McCalls resource section, looking west

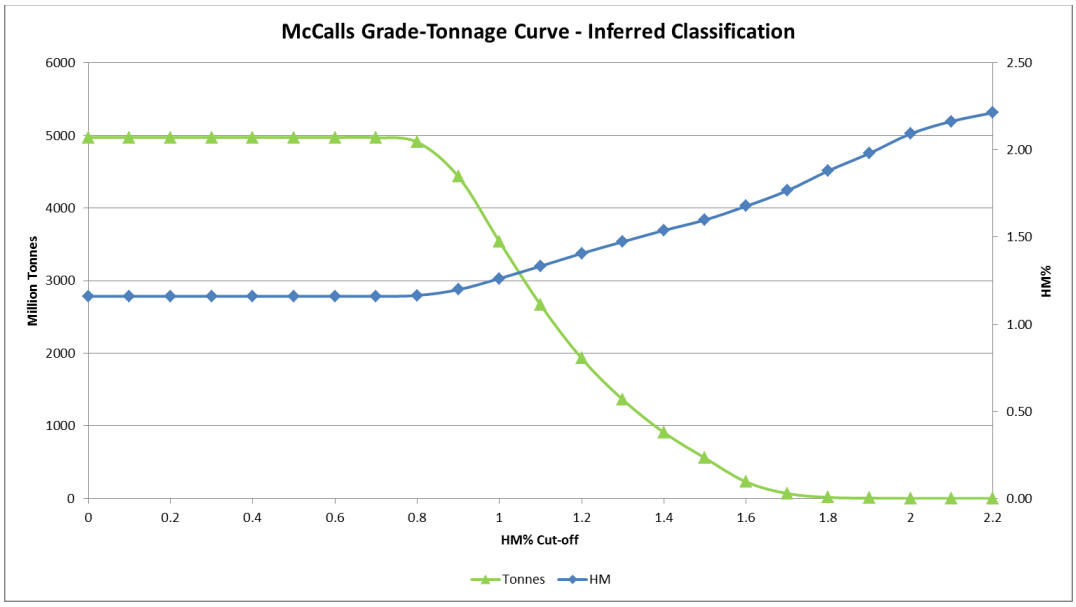

Figure 6: McCalls resource grade-tonnage curves (<35% slimes cutoff)

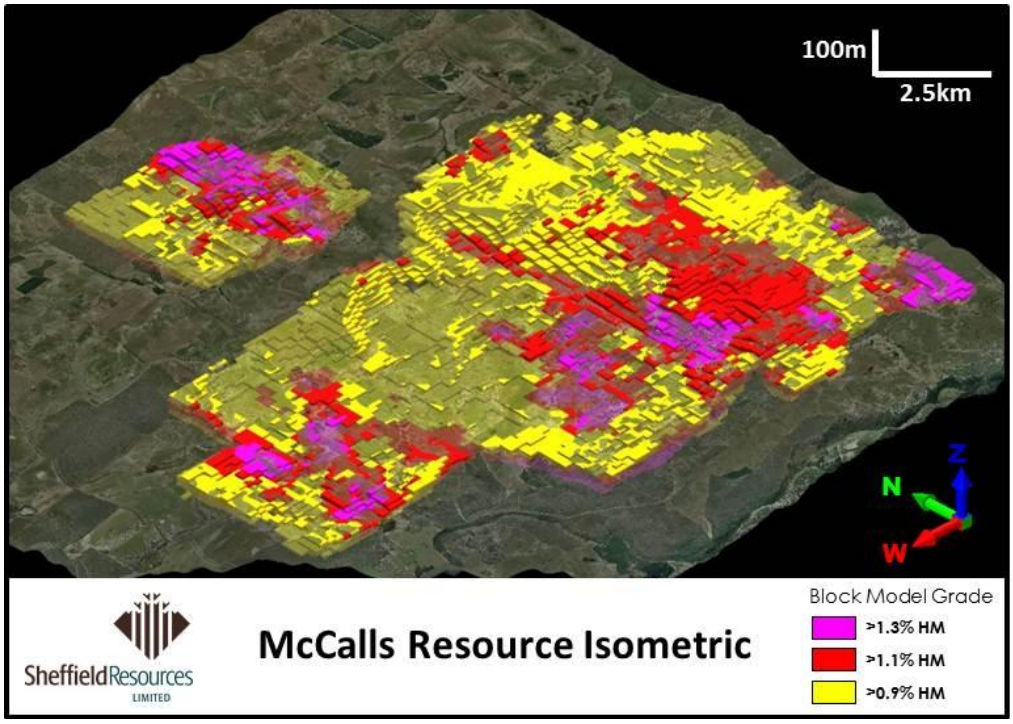

Figure 7: Isometric view of the block model below topography, looking NE

ENDS

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COMPETENT PERSONS' STATEMENT

[1]The information in this announcement that relates to resource estimation is based on information compiled under the guidance of John Vann. Mr Vann is a Principal of Quantitative Group and acts as a consultant to the Company. Mr Vann is a Fellow of the Australasian Institute of Mining and Metallurgy and a Fellow 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 Vann consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

[2]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 consultant to 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" and similar expressions.

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 - $20.0m
Issued shares* – 58.8m	Cash - $2.3 (at 31/12/2011)
** Pre placement shares being issued as announced 10 February 2012*	

The Company has over 6,000km^2 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 Eneabba Project contains six advanced exploration prospects: West Mine North, Ellengail, Yandanooka, Durack, Drummond Crossing and Irwin which are located near Eneabba. The Project is 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 develop multiple HMS deposits capable of supporting a flexible mobile mining plant.

Sheffield is also evaluating the large McCalls chloride ilmenite project, located near Gingin.

IRON

Sheffield's iron strategy is to target hematite mineralisation adjacent to infrastructure in the world class Pilbara iron province and build up consolidated tenement holdings over time. To date, high grade iron mineralisation has been identified on three of the Company's tenements.

TALC

Sheffield has 1,152km^2 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.

Sheffield Resources' contained Valuable HM (VHM) Resource inventory (0.9% HM cutoff).

Deposit	Resource Category	Zircon (kt)*	Rutile (kt)*	Leuc. (kt)*	Ilmenite (kt)*	**Total VHM (kt)***
West Mine North	Measured	18	33	42	200	**293**
West Mine North	Indicated	71	87	46	506	**709**
Yandanooka	Indicated	201	117	168	1,072	**1,558**
Yandanooka	Inferred	12	8.5	15	73	**108**
Ellengail	Inferred	92	90	20	658	**860**
McCalls	Inferred	3,491	1,063	2,576	42,911	**50,041**
Total	Measured	18	33	42	200	**293**
Total	Indicated	272	204	214	1,577	**2,268**
Total	Inferred	3,595	1,162	2,611	43,641	**51,009**
Total	**All**	**3,885**	**1,399**	**2,867**	**45,418**	**53,570**

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

[1] The contained HM tonnages shown in the Table above are sourced from the Tables "Sheffield Resources' Eneabba Project Mineral Resource[1] Inventory…" and "Sheffield Resources' McCalls Project Mineral Resource[1]…" (below).

Sheffield Resources' Eneabba Project Mineral Resource[1] Inventory, at a 0.9% HM cutoff.

Deposit	Resource Category	Material (Mt)*	Bulk Density	HM %	Slimes %[3]	Osize %	**Insitu HM (Mt)***	Mineral Assemblage[2] Zircon %	Rutile %	Leuc. %	Ilmenite %
West Mine North	Measured	6.47	2.0	5.6	14.8	1.2	**0.36**	4.9	9.1	11.6	54.9
West Mine North	Indicated	36.11	1.9	2.3	13.1	2.8	**0.84**	8.4	10.3	5.4	60.0
West Mine North	All	42.58	1.9	2.8	13.4	2.5	**1.21**	7.9	10.1	6.4	59.2
Yandanooka	Indicated	61.00	2.0	2.8	14.7	9.4	**1.72**	11.7	6.8	9.8	62.3
Yandanooka	Inferred	10.75	1.9	1.1	12.9	9.0	**0.12**	10.1	7.0	12.5	59.8
Yandanooka	All	71.75	2.0	2.6	14.4	9.3	**1.84**	11.5	6.9	10.2	61.9
Ellengail	Inferred	46.45	2.0	2.2	15.6	2.1	**1.04**	8.9	8.7	1.9	63.5
Ellengail	All	46.45	2.0	2.2	15.6	2.1	**1.04**	8.9	8.7	1.9	63.5
Total	Measured	6.47	2.0	5.6	14.8	1.2	**0.36**	4.9	9.1	11.6	54.9
Total	Indicated	97.13	2.0	2.6	14.1	6.9	**2.56**	10.5	8.1	8.2	61.5
Total	Inferred	57.21	2.0	2.0	15.1	3.4	**1.16**	9.1	8.4	3.9	62.8
Total	**All**	**160.81**	**2.0**	**2.5**	**14.5**	**5.4**	**4.08**	**9.8**	**8.2**	**6.8**	**61.7**

Sheffield Resources' McCalls Project Mineral Resource[1] at a 0.9% HM cutoff.

Domain	Resource Category	Material (Mt)*	Bulk Density	HM %	Slimes %[3]	Osize %	**Insitu HM (Mt)***	Mineral Assemblage[2] Zircon %	Rutile %	Leuc. %	Ilmenite %
McCalls	Inferred	4,431	2.3	1.2	26.5	1.4	**53**	6.6	2.0	4.9	80.8
Total	**All**	**4,431**	**2.3**	**1.2**	**26.5**	**1.4**	**53**	**6.6**	**2.0**	**4.9**	**80.8**

**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). Further details on the Mineral Resource at each deposit can be found in this document and on the ASX Announcements page of the Company's website. [2] The Mineral Assemblage is represented as the percentage of the Heavy Mineral (HM) component of the deposit, as determined by QEMSCAN. TiO_2 minerals defined according to the following ranges: Rutile >95% TiO_2; Leucoxene 85-95% TiO_2; Ilmenite <55-85% TiO_2. [3] West Mine North and McCalls are reported below a 35% Slimes upper cutoff.

ANNEXURE 1 – TECHNICAL DETAILS

BHP explored the McCalls region from 1989 to 1995, completing 304 aircore drill holes totalling 8,409.5m on an approximate 800m x 400m spaced grid over the central portion of the deposit and wider in peripheral areas. BHP's drilling outlined mineralisation over an area of 30km^2 extending from near-surface to the depth limit of their drill holes (typically 30-57m).

In 2011, following the grant of E70/3967, Sheffield completed 30 holes totalling 1,714m. The majority of these holes (25) were drilled at 200m spacing on a single north-south section, and drilled to a typical depth of 50-60m, with one hole drilled to over 90m depth. All but two of Sheffield's holes ended in mineralisation.

Resources were estimated from the results of 278 vertical aircore drill holes on an approximate drilling pattern of 400m x 800m to 1km x 1km. The resource drill hole database comprises 304 holes (91%) drilled by the previous explorer BHP; and 30 new holes (9%) drilled by Sheffield. The historic drill hole database was obtained from open file reports, and includes holes drilled both inside and outside Sheffield's current tenement holding. Drill holes located outside Sheffield's current tenement holding were used in the estimation process, however the reported Mineral Resources are wholly within Sheffield's tenure.

Of the total resource drill hole database, 91% of holes (BHP) were recorded as planned (unsurveyed) AMG coordinates, with the remaining 9% of the holes (Sheffield) surveyed by RTKGPS. To account for topographic changes between sections, all drillhole RL (height) data was projected to a digital elevation model (DEM) generated from spot data supplied by Landgate (accuracy +/- 1.5m) and discretised to 25m x 25m. This DEM was subsequently used in the resource estimation process in order to represent a consistent land surface between drill holes.

Heavy Mineral, Slimes and Oversize determinations were by Heavy Liquid Separation techniques. Holes drilled by Sheffield (23% of the samples database) used -45µm and 1mm screen sizes, with static separation in TBE (SG 2.96), identical to those drilled by BHP (77% of the samples database).

Resource domains were based on a combination of grade and geological factors driven by deposit continuity.

Bulk Density was determined using an industry-standard formula which assumes density and proportionately accounts for the grain size and mineral component of the material.

The mineral assemblage of the resource was determined from results of QEMSCAN analysis by Bureau-Veritas in Queensland of four Heavy Mineral Concentrate (HMC) composite samples collected from Sheffield drill holes.

At McCalls, the QEMSCAN process used observed mass and chemistry to classify particles according to their average chemistry, and then report mineral abundance by % mass. For the TiO_2 minerals specific breakpoints are used to distinguish between rutile (>95% TiO_2), leucoxene (85-95% TiO_2) and ilmenite (<55-85% TiO_2). These breakpoints are chosen to reflect mineral assemblage data defined by previous workers, and provide a consistent base for comparison between Mineral Resources.

Details of the estimation methodology are contained in Annexure 2.

ANNEXURE 2 – ESTIMATION METHODOLOGY

Quantitative Group
Our Skills On *Your* Team™

Geostatistics
Resources & Reserves
Reconciliation & Grade Control
Audit and Due Diligence
Strategic Mine Planning
Geometallurgical Modelling
Mine Geology
Training

Sheffield Resources Ltd
14 Prowse Street
West Perth WA 6005

Attention: Mr Bruce McQuitty

15 February 2012

Dear Sir,

Re: McCalls Mineral Sands Deposit Resource Estimate

The mineral resource estimate of the McCalls Mineral Sands deposit as of the 15th of February 2012 is presented in the attached table (Table 1).

The estimate was prepared by Mr Trent Strickland under the supervision and technical review of Mr John Vann. Trent Strickland is a full time employee of Quantitative Group (QG) and a Member of the Australasian Institute of Mining and Metallurgy (AusIMM). John Vann is a Director and Principal Consultant of QG and a Fellow of both the AusIMM and the Australian Institute of Geoscientists (AIG). Mr Vann has over 25 years experience in the minerals industry, including 18 as a consultant geologist and geostatistician, and 10 years as Director of QG. Mr. Vann has sufficient experience 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 Vann consents to the inclusion in this report of the McCalls Mineral Sands resource estimate.

Yours faithfully,

John Vann
Principal Consultant / Director

Technical Notes on Mineral Resource Estimation

A 0.7% heavy mineral (HM) grade domain, with slime contents less than 35%, was defined to model the mineralisation. HM grade was used along with specific geological considerations to define the domain wireframe. The robustness of this domain was assessed by QG using a variety of measures including statistical and geostatistical analysis and by critically examining the geological interpretation. The domain is considered geologically robust in the context of the resource classification applied to the estimate.

A 'rock wireframe' was constructed to define areas where the hardness of the material was of potential concern for mining. Due to the possible influence of such areas on the reliability of the heavy mineral assay, all intervals intersecting the wireframe were excluded from estimation. These areas were also flagged in the model and excluded from the resource tabulation. This has a potentially conservative impact on the reported tonnages.

Estimation of HM %, oversize % and slime % was by Ordinary Kriging (OK) and the search (or 'neighbourhood') employed was optimised using Quantitative Kriging Neighbourhood Analysis (QKNA). Density was assigned globally to the estimated domain.

The mineral assemblage results from two Heavy Mineral Concentrate (HMC) composites from within the upper part of the domain and two from within the lower part of the domain were separately averaged and assigned to the respective areas to represent the heavy mineral assemblage within the deposit.

The estimate was validated by QG as follows:

- A visual checking of the interpolation results in both plan and section;
- Global input vs. output statistics were compared, including clustered and declustered composites; and
- Semi-local input vs. output statistics using moving window averages.

The estimate was considered to be robust on the basis of the above checks.

The tonnes and grades of the McCalls estimate are reported above a 0.9 HM% cut off, with an upper slime cut off of 35%.

Classification of the McCalls estimate takes into account all aspects of the integrity of the estimate, including: data quality, geological interpretation, domaining approach, data distribution and density, spatial continuity and estimation confidence. The entire McCalls Mineral Resource above a 0.9 HM% cut off is classified as Inferred.

The following table summarises the Mineral Resource estimate at a cut off of 0.9 HM%, with an upper slime cut off of 35%.

Domain	Mineral Resource Category	Material Million Tonnes	Bulk Density	HM %	Slimes %	Osize %	In-situ HM Million Tonnes
McCalls	Inferred	4,431	2.3	1.2	26.5	1.4	53

Domain	Mineral Resource Category	In-situ HM Million Tonnes	Mineral Assemblage (% of HM Tonnes)				
			Zircon	Rutile	Leucoxene	Ilmenite	Total VHM
McCalls	Inferred	53	6.6	2.0	4.9	80.8	94.3

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

[1] The Mineral Assemblage is represented as the percentage of the Heavy Mineral (HM) component of the deposit, as determined by QEMSCAN. TiO_2 minerals defined according to the following ranges: Rutile >95% TiO_2; Leucoxene 85-95% TiO_2; Ilmenite <55-85% TiO_2.

Table 1. McCalls resource estimate at a 0.9 HM% cut off, with an upper slime cut off of 35%.