

16 April 2012

QUARTERLY REPORT FOR PERIOD ENDING 31 MARCH 2012

HIGHLIGHTS

Dampier HMS project

- 4 new exploration licence applications expand project area to 2,222km²
- Aboriginal Heritage surveys scheduled for late April ahead of 12,500m drilling programme

Eneabba HMS project

- Positive financial outcomes from TZMI scoping study
- Sheffield commences Pre-Feasibility and appoints Project Development Manager
- Launch of exploration drilling campaign to unlock further upside
- Exploration Target¹ for Irwin prospect of 220-340Mt at 1.2-1.6% HM - zircon and rutile-rich dunal-style mineralisation with low slimes content – to be evaluated for dredge mining

McCalls HMS project

- Maiden Inferred Resource for the McCalls Project of 4.4Bt @ 1.2% HM, containing 43Mt of chloride ilmenite and 3.5Mt of zircon

Corporate

- Completion of \$10 million placement to fund Dampier project exploration and Eneabba project pre-feasibility

As at 31/3/12:

Issued Shares	94.0M	ASX Code	SFX	Closing Price	\$0.475
Market Cap	\$44.7M	Cash Reserves	\$11.3M		

¹Sheffield has not yet reported Mineral Resources at the Irwin prospect 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

RESOURCES

A maiden Inferred Mineral Resource for the McCalls project of 4.4Bt @ 1.2% HM announced on 20 February 2012 has boosted Sheffield's mineral resource inventory as shown in Tables 1-3. Significantly, McCalls contains 43 million tonnes of chloride ilmenite and 3.5 million tonnes of zircon.

Table 1: Sheffield's 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.

² The contained HM tonnages shown in the Table above are sourced from the Tables 2 & 3, below.

Table 2: Sheffield's Eneabba Project Mineral Resource² Inventory, at a 0.9% HM cutoff.

Deposit	Resource Category	Material (Mt)*	Bulk Density	HM %	Slimes % ⁴	Osize %	Insitu HM (Mt)*	Mineral Assemblage ³			
								Zircon %	Rutile %	Leuc. %	Ilm. %
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

Table 3: Sheffield's McCalls Project Mineral Resource² at a 0.9% HM cutoff.

Domain	Resource Category	Material (Mt)*	Bulk Density	HM %	Slimes % ⁴	Osize %	Insitu HM (Mt)*	Mineral Assemblage ³			
								Zircon %	Rutile %	Leuc. %	Ilm. %
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.

² 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. ³ 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; Leucoxene 85-95% TiO₂; Ilmenite <55-85% TiO₂. ⁴ West Mine North and McCalls are reported below a 35% Slimes upper cutoff.

ENEABBA PROJECT SCOPING STUDY & COMMENCEMENT OF PRE-FEASIBILITY

A Scoping Study undertaken by TZMI confirms Eneabba is a highly robust project with strong potential to deliver early cash flow. The strong results have enabled Sheffield to commit to pre-feasibility work.

Experienced mineral sands geologist, Mark Teakle, was appointed as Project Development Manager to manage the Eneabba Project pre-feasibility study. The role will extend to other projects, such as the large Dampier zircon project, as they advance.

EXPLORATION DRILLING CAMPAIGN

The Company has commenced a four month drilling campaign on its HMS projects and has recruited additional personnel to manage the programme.

The Eneabba project will be the initial focus, where Sheffield will drill three dunal style prospects: Durack, Drummond Crossing and Irwin; with the aim of delineating mineral resources to further improve the Project's robust economics outlined in the scoping study. In addition, Sheffield will undertake further drilling at Yandanooka aimed at increasing the amount of the resource in the Indicated classification.

A short focused drill programme is then scheduled for McCalls, before the rig mobilises to the Dampier zircon project.

RC and diamond drilling has also commenced on the Company's Moora Talc Belt project.

Exploration expenditure during the quarter is estimated to be \$594,000.

HEAVY MINERAL SANDS

Dampier

The Dampier HMS project is located approximately 60km west of the port of Derby in Western Australia's Kimberley region (Figure 1). The project was lightly explored by Rio Tinto between 2003 and 2009.

Sheffield has outlined an Exploration Target¹ of **450-850Mt @ 5-10% HM** for the Thunderbird prospect, based on 8 Rio Tinto drill holes completed on two near-perpendicular sections across the deposit. Within the Exploration Target area the mineral assemblage averages 7.9% zircon, 2.3% rutile, 6.0% leucoxene, 16.9% altered ilmenite, and 16.6% ilmenite (refer to ASX release of 8 November 2011 for further details). The scale and grade of Thunderbird ranks it in the top tier of undeveloped zircon projects.

Aboriginal Heritage surveys for the Dampier project have been scheduled for late April. Drilling is expected to commence in June and consist of approximately 12,500m of aircore drilling of sufficient density to enable estimation of an inferred resource and to provide representative samples for metallurgical work.

During the quarter Sheffield lodged 4 new exploration licence applications with a total area of 409 km² covering prospective extensions to the Dampier project. Sheffield now controls a dominant tenure position of 2,222km² in this emerging mineral sands province (Figure 1).

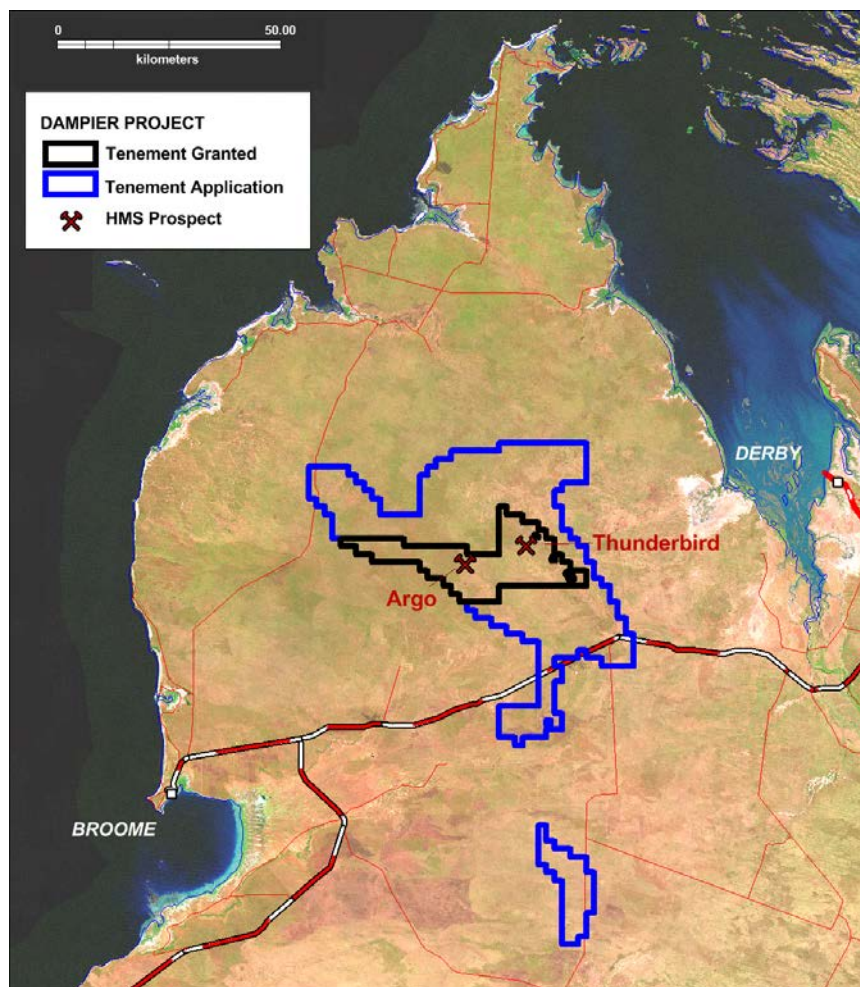


Figure 1: Location of Dampier Project

¹Sheffield has not yet reported Mineral Resources at the Dampier project 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.

Eneabba

Sheffield's Eneabba Project contains six advanced exploration prospects: West Mine North, Ellengail, Yandanooka, Durack, Drummond Crossing and Irwin (Figure 2). Sheffield's strategy is to develop multiple HMS deposits capable of supporting a flexible mobile mining operation.

On 30 March 2012, the Company announced the results of a scoping study, undertaken by leading mineral sands consultancy group TZMI, which confirmed the technical and robust financial viability of the Eneabba Project. The scoping study assumes sequential mining of the Yandanooka, West Mine North and Ellengail deposits.

The study assumes Sheffield's deposits would be mined by a dozer trap method at a rate of around 1,000tph which equates to a nominal mining rate of 7.8 million tpa. It is estimated that the average heavy mineral concentrate (HMC) production rate would be 220,000 tpa. The HMC would be transported to a basic mineral separation plant (MSP) with a capacity of 30tph, to be constructed by Sheffield outside Geraldton.

The proposed operation would produce 110,000tpa of chloride-grade ilmenite and 70,000tpa of non-magnetic concentrate (containing rutile, leucoxene and zircon). Current market analysis shows that these products will be in demand and would readily be absorbed by the market.

The total capital costs of US\$75 million have been estimated by TZMI based on an assumed flow sheet, typical of similar operations in the industry.

Sensitivity analysis shows the Eneabba project economics improve significantly with increases in product prices as shown in Table 4.

Table 4: Sensitivity analysis using various pricing scenarios

	Scenario 1 (Approx. current price range - low)	Scenario 2 (Approx. current price range - high)	Scenario 3 (circa 42% < current mid price)	Scenario 4 (circa 39% < current mid price)	Scenario 5 (circa 23% < current mid price)
Prices (US\$/t FOB)					
Zircon	2,400	2,700	1,715	1,800	2,100
Rutile	2,200	2,500	1,000	1,200	1,700
Leucoxene	1,100	1,300	747	750	925
Chloride ilmenite	300	350	190	200	250
Project financials					
Weighted average R/C ratio	2.42	2.76	1.53	1.64	2.03
Average pre-tax operating cashflow p.a.	US\$60m	US\$74m	US\$21m	US\$26m	US\$43m
Payback period	2.2 years	1.9 years	4.4 years	3.8 years	2.7 years
After-tax NPV (10%)	US\$257m	US\$336m	US\$54m	US\$78m	US\$167m
After-tax IRR	51%	62%	21%	25%	39%

The scoping study results show the Eneabba project is potentially a financially attractive operation, even based on significantly lower product prices; while additional exploration discoveries of near-surface mineralisation would further improve the project economics.

Based on the positive results from TZMI's scoping work which was completed with reference to Scenario 3, Sheffield has commenced pre-feasibility study work and launched a thorough exploration drilling campaign to unlock further upside at the Eneabba Project.

The scoping study incorporates a low cost, basic mineral separation plant and therefore it is assumed that the rutile and zircon concentrate, which would generate 67% of the revenue, would be sold at a 25% discount to prevailing prices. With further exploration success, Sheffield aims to build a resource inventory that would justify a full MSP thereby enabling the Company to realise further value from the operation.

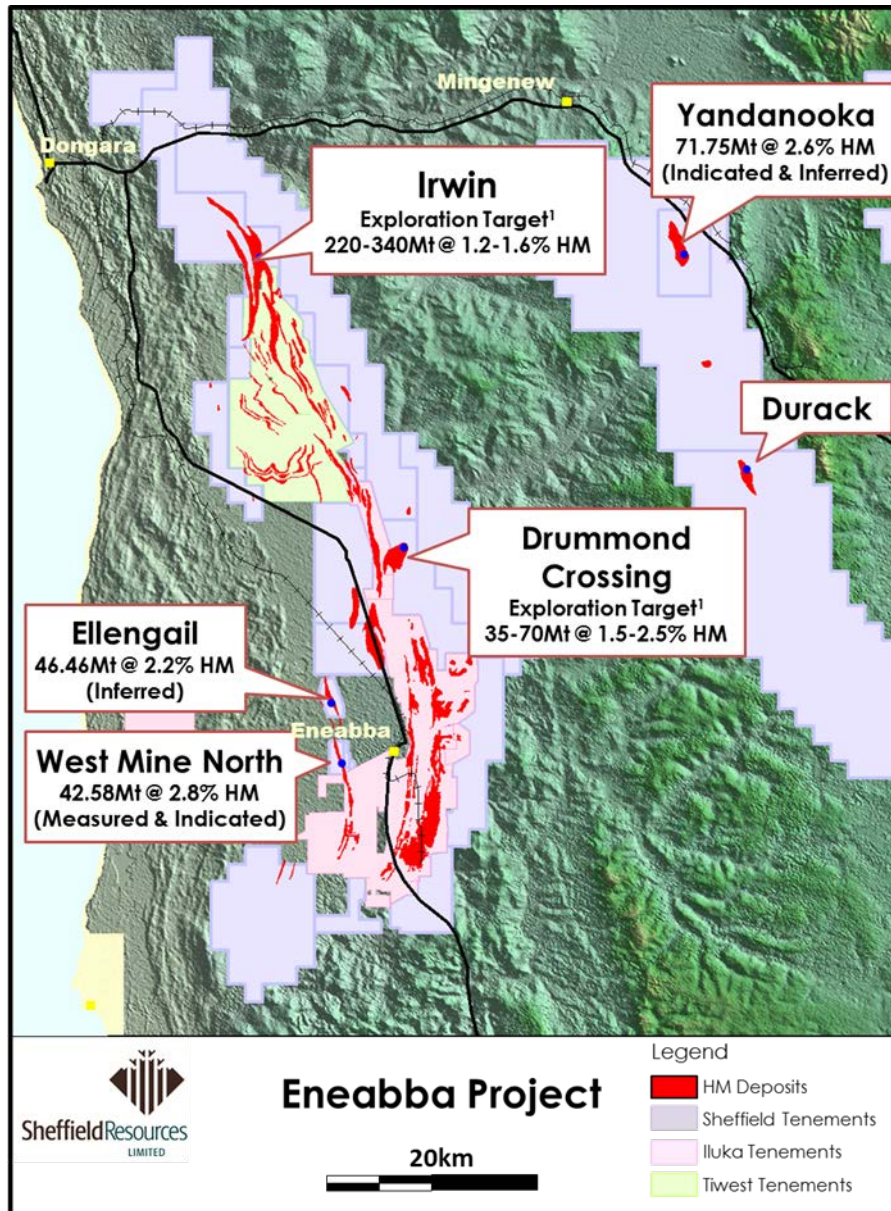


Figure 2: Location of Sheffield's projects in the Eneabba region*

* 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. ¹Sheffield has not yet reported Mineral Resources at the Drummond Crossing and Irwin prospects and any discussion in relation to exploration targets 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.

Irwin

At Irwin, located 80km south of Geraldton, Sheffield has outlined an Exploration Target¹ of **220Mt-340Mt @ 1.2-1.6% HM**. QEMSCAN results indicate a high value mineral assemblage with 10.0% zircon and 7.4% rutile, 2.3% Leucoxene and 58.7% Ilmenite. As such, Irwin represents a large near-surface heavy mineral deposit with low slimes component (average 5.2%) - important attributes for potential dredge-mining.

Irwin lies immediately to the north of Tiwest's large Dongara heavy mineral sands deposit (Figure 4). The mineralisation is open to the north where Sheffield has recently applied for tenure over an

additional 10km of prospective strike. Further drilling is planned for Q2 2012, to test the northern extension of mineralisation.

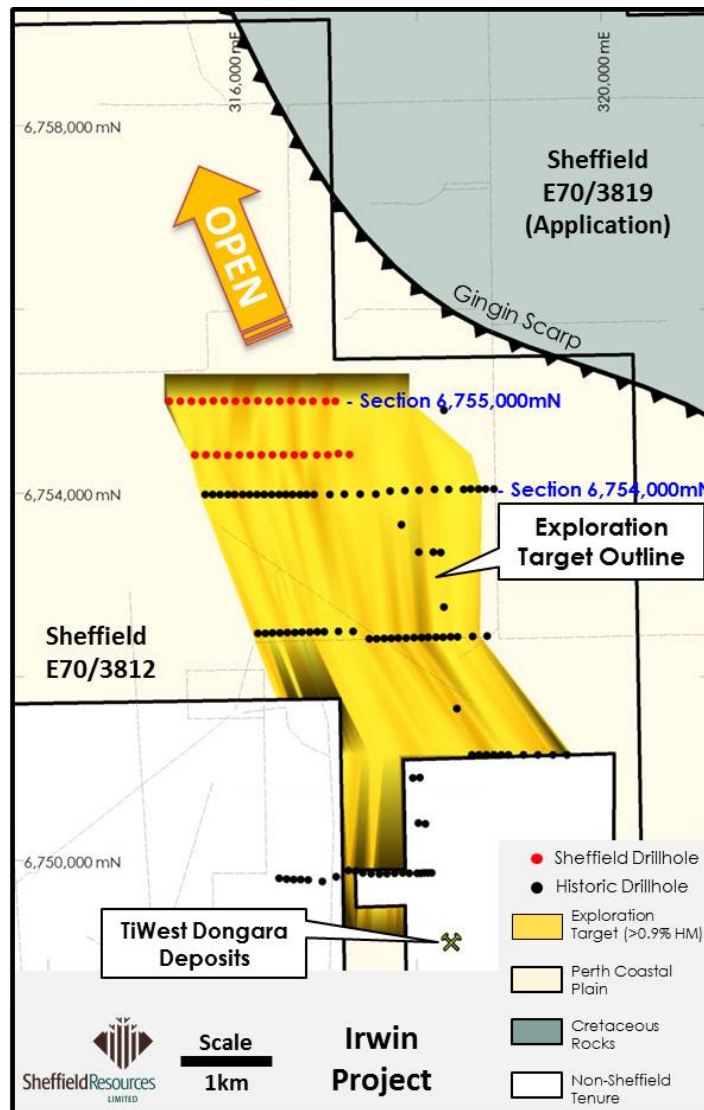


Figure 3: Irwin Exploration Target plan.

McCalls

The McCalls project is located 110km north of Perth.

On 20 February 2012, Sheffield announced a maiden Inferred Resource of 4.4Bt @ 1.2% HM for 53Mt of contained HM for the project.

Significantly, McCalls contains 43 million tonnes of chloride grade ilmenite, ranking it as one of the largest accumulations of chloride grade ilmenite in the world. The deposit also contains approximately 3.5 million tonnes of zircon and 1 million tonnes of rutile.

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.

Subsequent to the end of the quarter, TZMI completed preliminary financial modelling of the McCalls project. Several scenarios were modelled from the Inferred Resource at cut-off grades of 1.3% HM and 1.5% HM (selected from the grade tonnage curve reported by Quantitative Group - ASX release 20 February 2012) and nominal mining rates of 2,000tph and 5,000tph. A sensitivity analysis showed that the long term chloride ilmenite price would need to exceed US\$250 per tonne FOB for project revenue to match operating costs. While current prices are in the range US\$250-400/t, TZMI view the long-term price for chloride ilmenite as less than US\$250/t, suggesting that even though current pricing reflects favourable results for the project, this may not be maintained in the long term.

The evaluation of McCalls is still at an early stage and is based on Inferred Resources and limited mineral assemblage information. Sheffield will continue to investigate means of improving the project economics and will focus on delineating zones within the deposit which have higher HM grade, higher zircon and rutile assemblage and less overburden. Further drilling is planned during Q2 2012.

Sheffield considers McCalls to be a strategically significant asset and will explore options for adding value to the project, while seeking to rapidly advance the higher priority Dampier and Eneabba projects.

TALC

Sheffield has a dominant tenure position (1,152km²) covering the 175km-long Moora Talc Belt.

The Moora Talc Belt includes Imery's Three Springs Talc Mine which has been operating since 1948. Three Springs is renowned for producing premium grade microcrystalline talc from a relatively simple "dig-and-deliver" operation. Sheffield's strategy is to discover talc deposits of similar size and quality to the Three Springs deposit.

Sheffield is one of very few listed public companies in the world offering significant exposure to talc which is principally used in the manufacture of paper, ceramics and plastics.

Following a successful diamond drilling programme in June 2011 which confirmed the high chemical purity of talc at several of Sheffield's prospects (see ASX release dated 4 October 2011) the Company undertook measurements to determine the brightness of the talc drill samples. High levels of brightness (87% or greater on the GE scale) are important for some talc end use applications, including the largest end use sector – paper making.

The brightness measurements (R457 – equivalent to the GE scale) returned values of greater than 87% from the Prowaka South prospect and values of 85% from the Nivens prospect, with lower values from the Fowlers and Tilley's prospects (refer to Appendix 1 for a complete tabulation of brightness results). The results confirm the presence of high purity talc of potential commercial quality on Sheffield's tenements.

Drilling has commenced on the Company's Moora Talc Belt project. A focused programme of 20 RC drill holes and 3 diamond drill holes will follow up encouraging intercepts of high grade talc obtained in last year's drill programme at Tilley's and Prowaka South and will include an initial test of the high priority Azharuddin target, near Marchagee.

OTHER

No work was undertaken on the Company's iron and tungsten projects during the quarter.

CORPORATE

The Company raised \$10 million through a placement of up to 33.35 million shares at an issue price of 30 cents per share to institutional and sophisticated investors. The placement ensures Sheffield is well funded to undertake drilling on its potentially world class Dampier HMS project and to advance the Eneabba HMS project towards feasibility.

CASH POSITION

As at 31 March 2012, the Company had cash reserves of approximately \$11.3 million. During the quarter, \$380,667 was raised from the exercise of options.



Bruce McQuitty
Managing Director
16 April 2012

COMPETENT PERSONS' STATEMENT – EXPLORATION RESULTS

The information in this announcement that relates to exploration results is based on information compiled by Mr Bruce McQuitty and Mr David Archer. Both Mr McQuitty and Mr Archer are full time employees of the Company. Mr McQuitty and Mr Archer are Members of the Australasian Institute of Geoscientists and each 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")'. Each of Mr McQuitty and Mr Archer consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

COMPETENT PERSONS' STATEMENT – RESOURCE ESTIMATES

The information in this web page 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.

The information in this web page that relates to reporting of resource and exploration results is based on information compiled under the guidance of Mark Teakle. Mr Teakle is an 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 AND EXPLORATION TARGET 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 "seek", "expected", "target", "scheduled", "intends", "potential", "prospective" and similar expressions.

The terms "Target" and "Exploration Target", where used in this report, 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.

Appendix 1: Moora Talc Belt Diamond Drilling Optical Testwork Results

Prospect	Hole ID	Depth From (m)	Depth To (m)	Interval (m)	Brightness Ry	Brightness 457nm	CIE				DIN6167
							L	a*	b*	WI	YI
Nivens	MODD001	No significant interval									
	MODD002	53.2	54.35	1.15	85	78	93.99	-0.40	5.50	59.65	10.25
	MODD002	60.3	61.46	1.16	88	85	95.08	0.17	2.27	77.33	4.54
	MODD002	73.24	74.24	1	88	85	95.24	0.34	2.29	77.62	4.70
Prowaka South	MODD003	72.78	75.01	2.23	92	89	96.74	-0.49	2.08	82.34	3.61
	MODD003	82.02	84.15	2.13	92	90	96.69	-0.22	1.00	87.13	1.77
	MODD003	84.53	86.62	2.09	89	89	95.72	-0.23	0.70	86.12	1.19
	MODD003	90.94	95.33	4.39	87	87	94.73	-0.18	0.35	85.40	0.54
	MODD003	176	177.37	1.37	91	88	96.58	-0.66	2.37	80.66	4.01
	MODD003	180.26	192.7	12.44	83	82	93.16	-0.65	1.25	77.55	1.95
	including:	184	188	4	86	85	94.49	-0.69	1.46	79.70	2.31
Buckingham	MODD004	25.3	32.9	7.6	84	77	93.46	0.18	5.43	58.56	10.64
Haigs	MODD005	25.6	27.1	1.5	85	79	93.77	-0.17	4.24	64.94	8.10
Fowlers	MODD006	0.9	73.16	72.26	74	63	87.66	0.72	10.00	23.85	20.41
	including:	0.9	12.25	11.35	83	76	93.14	-0.01	5.63	56.86	10.85
		12.25	18.78	6.53	75	58	89.51	0.75	15.86	-1.99	30.62
		20	30.56	10.56	57	43	80.17	2.82	16.53	-30.91	36.50
		30.56	33.39	2.83	82	77	92.75	-0.13	4.86	59.47	9.37
		34.84	37.95	3.11	77	65	90.14	0.22	11.03	22.66	21.41
		38.28	41.06	2.78	80	71	91.63	0.14	7.90	42.02	15.41
		45	70.75	25.75	82	73	92.28	-0.05	7.26	46.73	14.05
		45	70.75	25.75	82	73	92.28	-0.05	7.26	46.73	14.05
	MODD006	78.34	86.78	8.44	78	69	90.54	0.57	6.99	43.80	14.26
	MODD006	89.28	92.33	3.05	70	63	87.03	0.81	6.86	35.94	14.64

Prospect	Hole ID	Depth From (m)	Depth To (m)	Interval (m)	Brightness Ry	Brightness 457nm	CIE				DIN6167 YI
							L	a*	b*	WI	
	MODD008	3	84.13	81.13	79	70	91.22	0.35	8.57	37.59	17.05
	<i>including:</i>	3	44.76	41.76	83	74	93.06	-0.09	7.50	47.69	14.35
		44.76	54.15	9.39	69	54	85.99	1.86	14.54	-5.31	30.43
		54.15	75.45	21.3	79	70	90.96	0.36	7.83	40.41	15.70
Tilleys	MODD009	8.9	20.75	11.85	67	56	85.17	-0.75	11.05	9.91	21.75
	MODD009	45.6	70.4	24.8	80	75	91.79	-1.33	4.56	58.58	7.91
	<i>including:</i>	45.6	64.2	18.6	80	75	91.84	-1.26	4.78	57.62	8.39
		66	70.4	4.4	82	77	92.66	-1.33	3.97	63.50	6.71

Sample intervals are based on geological criteria, intervals reported here are consistent with previously reported XRF assay results. Quarter HQ/PQ core. Minimum reported width 1m. Talc intervals were analysed for optical properties including Brightness (R457 and Ry), CIE Colour (L, a*, b*), WI (CIE) and YI (DIN6167) by Sheffield, with results verified by an independent external laboratory.