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ASX: SFX

23 November 2011

Company Announcement Office Australian Securities Exchange Level 4, 20 Bridge Street Sydney NSW 2000

#### MINERAL SANDS CONFERENCE PRESENTATION

The company's Managing Director, Mr Bruce McQuitty, is today presenting at the 12<sup>th</sup> Annual AJM Mineral Sands Conference being held in Adelaide, Australia over the period 23-23 November 2011.

A copy of the presentation entitled "New Growth in the West" is attached.

WILL BURBURY
Executive Chairman

Attachment: Company Presentation "New Growth in the West" - November 2011.



## SHEFFIELD RESOURCES LTD ASX:SFX



12<sup>th</sup> Annual Mineral Sands Conference Adelaide 23 November 2011

# COMPETENT PERSONS & FORWARD LOOKING STATEMENTS



#### COMPETENT PERSONS' STATEMENT - EXPLORATION RESULTS

The information in this presentation that relates to exploration results has been compiled by Bruce McQuitty and David Archer. Each of Mr McQuitty and Mr Archer has consented to the inclusion of this information in this Section of this Web Site in the form and context in which it is included. Mr McQuitty and Mr Archer are geologists with over 20 years experience. Both Mr McQuitty and Mr Archer is a Member of the Australasian Institute of Geoscientists and has the appropriate relevant qualifications, experience, competence and independence to be considered as an "Expert" and "Competent Person" as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code")'.

#### COMPETENT PERSONS' STATEMENT - RESOURCE ESTIMATES

The information in this presentation 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 presentation 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 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", "intends", "potential", "prospective" and similar expressions.

## **CORPORATE SNAPSHOT**



#### **Cash Position** \$3.3m (at 30/9/2011)

#### **Capital Structure**

Market Cap \$17m (undiluted, at 29cps)

Shares 58.7m

Options 27.2m (20c, 30/06/13)

4.6m (30c, 30/11/13 & 13/12/15) 1.3m (44c, 6/9/14, 20/03/16, 30/6/16)

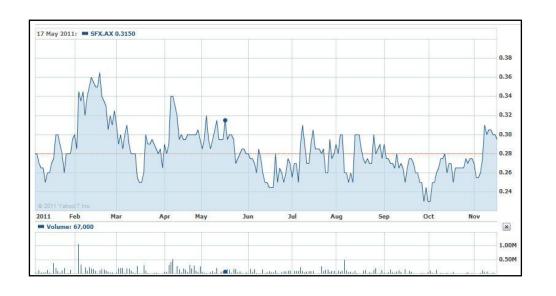
#### **Board & Management**

Will Burbury Chairman
Bruce McQuitty Managing Director
David Archer Technical Director
David Boyd Exploration Manager

Cash Backing ~ 6cps

#### **Major Shareholders**

Directors 26%
Cappig Finance 3%
Top 20 45%



## PROJECT SUMMARY



HEAVY MINERAL SANDS (HMS)	<ul> <li>Exploration Target<sup>2</sup> of 450-850Mt @ 5-10% HM (Dampier)</li> <li>Exploration Target<sup>2</sup> of 1.5Bt-2.5Bt @ 1.1-1.3% HM (McCalls)</li> <li>Resource inventory totals 4.1Mt HM<sup>1</sup></li> <li>Scoping work commenced, drilling continues</li> </ul>
IRON ORE	<ul> <li>East Pilbara focus for exploration and consolidation</li> <li>Exploration Target<sup>2</sup> of 20-60Mt @ 58-64% Fe (Three Pools)</li> </ul>
TALC	<ul> <li>Moora Talc Belt: premium talc "Dig &amp; Deliver" opportunity</li> <li>High purity talc confirmed at 6 prospects</li> </ul>

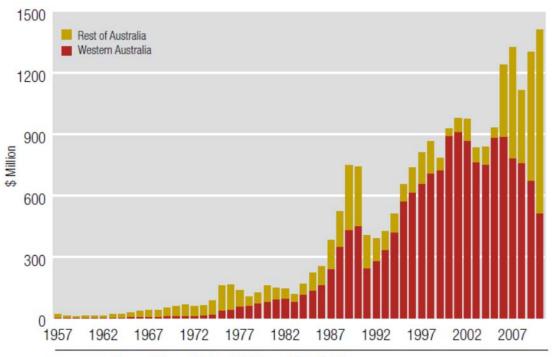
<sup>&</sup>lt;sup>1</sup>Refer to Sheffield's Mineral Resources Tabulation in Appendix 1. Previous releases by Sheffield on 16/8/2011, 25/10/2011 and 7/11/2011 fully report the Mineral Resource Estimates for the Yandanooka, Ellengail and West Mine North deposits.

<sup>&</sup>lt;sup>2</sup>Sheffield Resources has not yet reported Mineral Resources at McCalls, Dampier and Three Pools 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. For further details refer to ASX releases of 17January 2011, 27 July 2011 and 8 November 2011.

# Sheffield Resources

## **HMS GROWTH OPPORTUNITY IN WA**

- Western Australian mineral sands production in decline
- Large producers shift focus to Eucla and Murray Basins
- Sheffield quick to seize opportunity in Western Australia

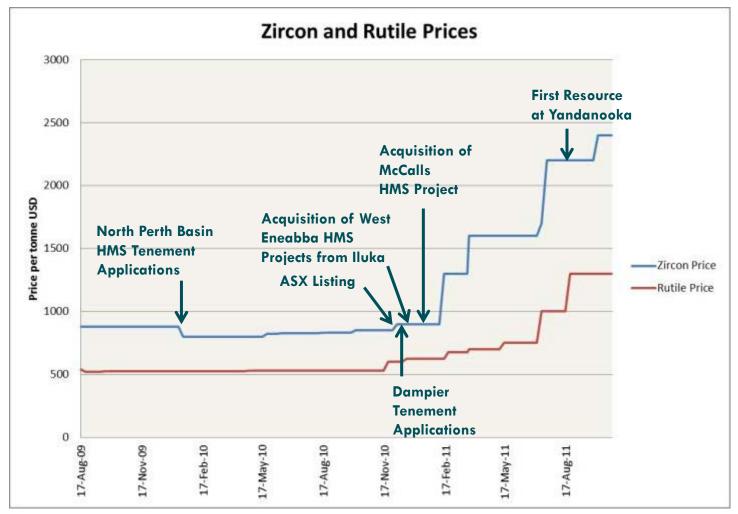


#### **Heavy Mineral Sands Value of Production**

Includes Ilmenite, Leucoxene, Upgraded Ilmenite, Rutile, Zircon and Monazite Source: DMP and ABARE

## **SEIZING THE OPPORTUNITY**



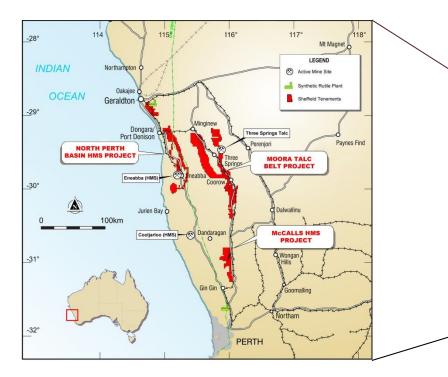


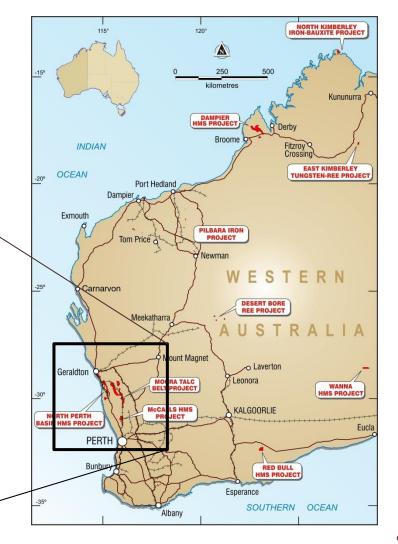
(Pricing data compiled by Sheffield from various open file sources)

## **PROJECT LOCATIONS**



- Over 6,000km<sup>2</sup> of tenure in WA
- Large consolidated tenement holdings
- Focus on regions with infrastructure advantages





## **TIER 1 ASSETS**



#### DAMPIER AND McCALLS

- Large Projects potential company makers
- Greenfields projects with prior drilling
- Longer development timeframes
- Larger Capex
- □ Close to infrastructure
- Short term strategy is to prove up resources and undertake metallurgical testwork

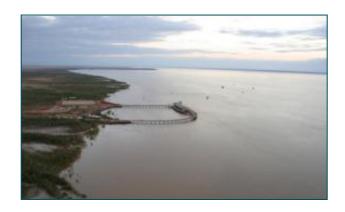


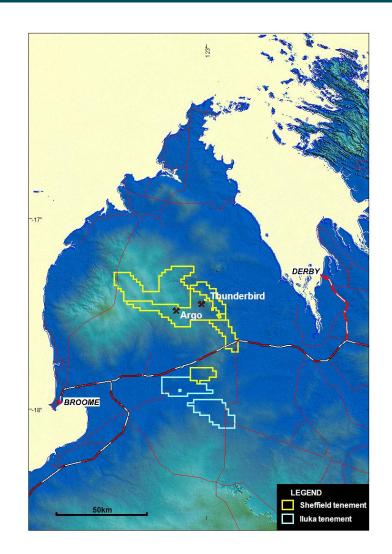


## **DAMPIER**



- Large Zircon Project
- Located 60km west of Derby port
- Ex Rio Tinto project, dropped during GFC
- Sheffield applied for tenements in Dec 2010
- □ Total project area 1,440 km²
- Located on Crown Land (pastoral lease)
   outside Kimberley Heritage areas
- Mineralisation hosted by deeply weathered
   Cretaceous sediments

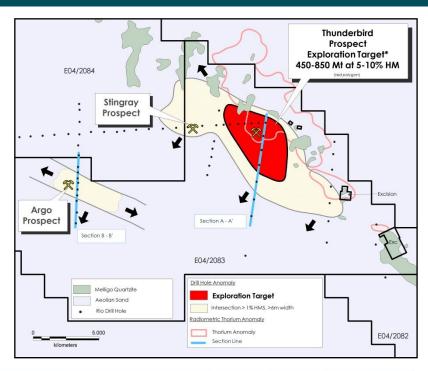


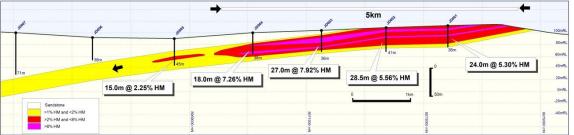


## **DAMPIER**



- Exploration Target<sup>1</sup> of 450-850Mt @ 5.0-10.0% HM (Thunderbird)
- Based on 8 drill intersections including:
   45m @ 9.85% HM from 3m (JD073),
   27m @ 7.00% HM from 1.5m (JD023), and
   27m @ 7.92% HM from 9m (JD003)
- □ Dimensions 6 x 5 km, av. width 24.5m
- Drilling and thorium anomaly indicate potential for up to 15km of strike length
- Further potential: Argo prospect
- Drilling planned mid-2012



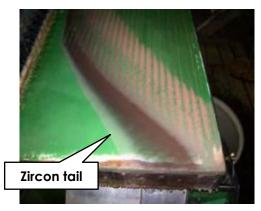


<sup>&</sup>lt;sup>2</sup>Sheffield Resources has not yet reported Mineral Resources for the Dampier project and any discussion in relation to targets and Mineral Resources is conceptual in nature. There has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. For further details refer to ASX release of 8 November 2011.

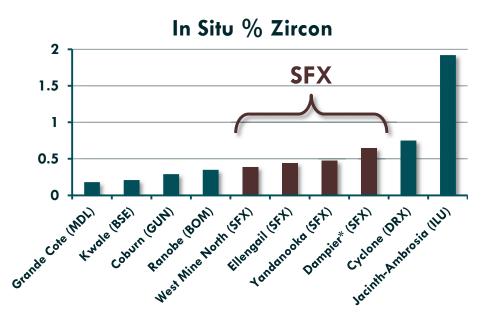
## **DAMPIER**



- High average in situ zircon content of 0.63% from RIO drilling\*
- Ranks in top tier of undeveloped zircon projects
- Fine grainsize of HM (D<sub>50</sub> 62µm) and iron cementation may present some recovery issues
- However high zircon content should offset recovery losses



Cleaner stage gravity separation of HM on bulk sample from the Argo prospect. Source: Combined Annual Report (C96/2003 Mt Jowlaenga) for the Period 21 July 2007 to 20 July 2008 Rio Tinto Exploration Pty Ltd.



\*The Dampier in situ zircon content is derived by multiplying the weighted average HM content (7.9%) of 8 RIO drill hole intersections by the average zircon content (8%) of the mineral assemblage. RIO's bulk sample metallurgical testwork indicates the zircon content of the HM assemblage could be higher at 11.7%. Refer to ASX release of 7 September 2001 for further details.

The West Mine North in situ zircon content relates to the Measured & Indicated Resource for the high grade strand of 10.09Mt @ 7.7% HM for 779,000t of contained HM (ASX release 7 November 2011).

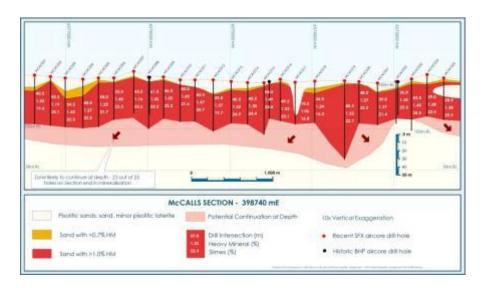
The Ellengail in situ zircon content relates to the Inferred Resource for the high grade core of 11.25Mt @ 5.0% HM for 560,000t contained HM (ASX release 25 October 2011).

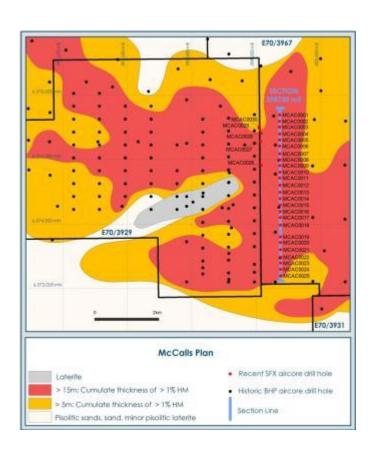
The Yandanooka in situ zircon content relates to the Indicated Resource for the high grade core of 37.5Mt @ 3.8% HM for 1.41Mt of contained HM (ASX release 16 August 2011).

## **MCCALLS**



- Large high TiO<sub>2</sub> ilmenite project
- Drilled by BHP in early 1990s
- Exploration Target<sup>1</sup> of 1.5-2.5 billion tonnes
   0 1.1-1.3% HM
- Sheffield's drilling improved on BHP's results:
  - Thicker (av. 44m thick)
  - Higher grade (av. 1.35% HM)
- Resource estimate due Q4 2011





<sup>1</sup>Sheffield Resources has not yet reported Mineral Resources at McCalls 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. For further details refer to ASX release of 17January 2011.

## **MCCALLS**



- BHP's work indicates mineral assemblage of: ilmenite 74.2% (@ 62.6% TiO<sub>2</sub>), zircon 4.37%, rutile 0.52% and leucoxene 4.08%
- Sheffield's preliminary metallurgical testwork confirmed high TiO<sub>2</sub> content of ilmenite
- Higher value ilmenite, potentially suitable for chloride route / synthetic rutile processing
- Sources of chloride ilmenite are relatively scarce globally
- Sheffield's drilling demonstrated:
  - Moderate grainsize HM D<sub>50</sub> 125µm
  - Well sorted
  - Minimal oversize (av. 0.5% >1mm)
  - Slimes (-45µm) av. 22.8%



Wet table testwork on bulk sample from McCalls



Typical HM concentrate from McCalls: MCAC007 19.5-21m depth, median grainsize diameter 125µm

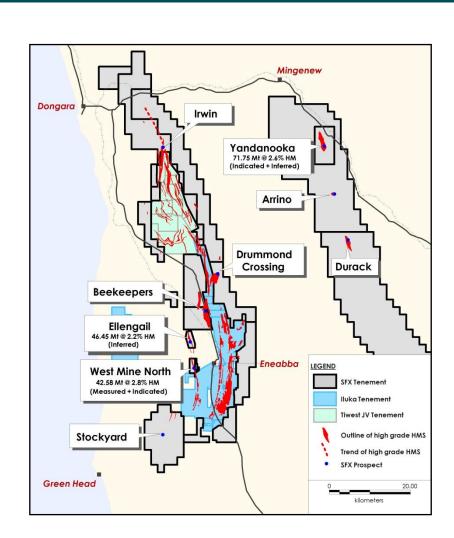
## **TIER 2 ASSETS**



#### NORTH PERTH BASIN PROJECTS

- Medium sized projects
- 4.1Mt contained HM¹ in resource inventory
- Near term development and early cash flow potential
- Strategy is to identify sufficient contained HM in district to support annual production of 100-200Kt HM
- Scoping studies near completion to assess priorities for development
- Drilling to continue in 2012

<sup>&</sup>lt;sup>1</sup>Refer to Sheffield's Mineral Resources Tabulation in Appendix 1. Previous releases by Sheffield on 16/8/2011, 25/10/2011 and 7/11/2011 fully report the Mineral Resource Estimates for the Yandanooka, Ellengail and West Mine North deposits.



#### **RESOURCE INVENTORY**



#### Sheffield's contained Valuable HM (VHM)\* Resource inventory (0.9% HM cutoff)

Deposit	Resource Category	Zircon ('000 <del>i</del> )	Rutile ('000t)	Leuc. ('000t)	Ilmenite ('000t)	Total VHM ('000t)	
Yandanooka	Indicated	201	117	168	1,072	1,558	
Yandanooka	Inferred	12	8.5	15	73	108	
Ellengail	Inferred	92	90	20	658	860	
West Mine North	Measured	18	33	42	200	293	
West Mine North	Indicated	71	87 46		506	709	
Total	Measured	18	33	42	200	293	
Total	Indicated	272	204	214	1,577	2,268	
Total	Inferred	104	99	35	730	968	
Total	All	394	336	291	2,508	3,529	

The contained HM tonnages in the above table are derived from Mineral Resource Estimates for the Yandanooka, Ellengail and West Mine North deposits, previously fully reported in ASX releases by Sheffield on 16 August 2011, 25 October 2011 and 7 November 2011. Appendix 1 summarises the estimated tonnes and grades for these deposits.

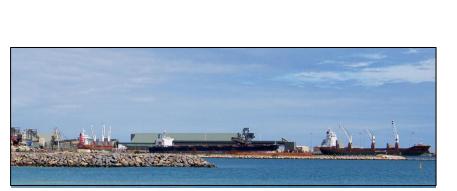
<sup>\*</sup> Valuable Heavy Minerals are zircon, rutile, leucoxene and ilmenite. Non-valuable "trash" HM species include iron oxides, garnet, kyanite and staurolite. Monazite and Xenotime, which are potentially valuable as sources of Rare Earth Elements are also excluded from the VHM inventory.

## **NORTH PERTH BASIN**



#### **COMPETITIVE ADVANTAGES**

- Established mineral sands mining district
- Good quality, high value HM products
- Mostly broadacre farmland
- Proximity to roads & rail
- □ "Open" ports
- Close to Asian markets
- Available energy sources
- Abundant groundwater
- Proximity to SR plants









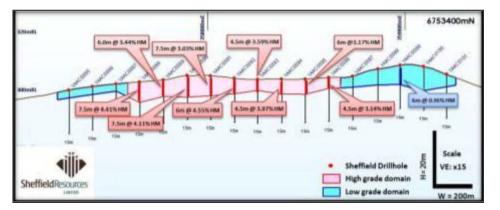


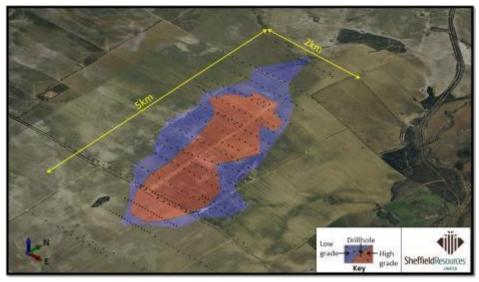


#### YANDANOOKA



- Total resource of 71.75 million tonnes @ 2.6% HM¹ for 1.84Mt contained HM comprising:
  - 61Mt @ 2.8% HM (Indicated) 10.75Mt @ 1.1% HM (Inferred)
- Includes High Grade core of37.5Mt @ 3.8% HM (Indicated)
- High value mineral assemblage:
   11.5% zircon, 6.9% rutile, 10.2%
   leucoxene, 61.9% ilmenite
- At surface, above water table
- 140km by road or rail to Geraldton
   Port

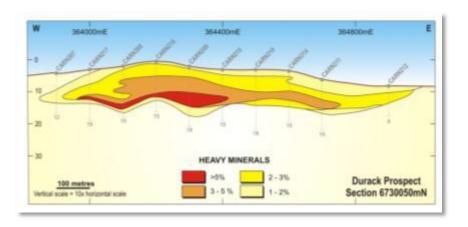


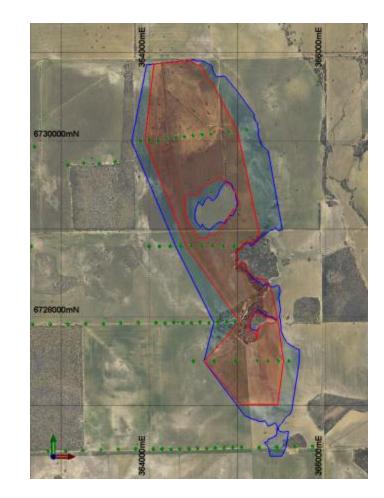


## DURACK



- Similar dimensions to Yandanooka deposit
- 25km south of Yandanooka
- Limited prior drilling by Iluka Resources
- Mineralised at or near surface
- Drilling planned Q1 2012

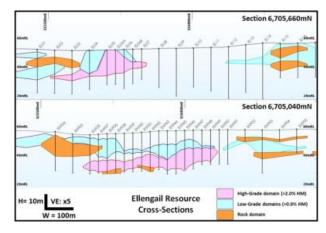


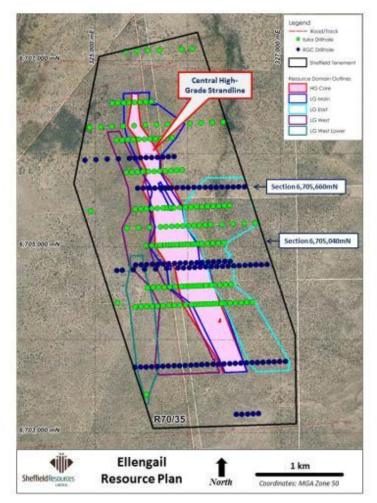


## **ELLENGAIL**



- Inferred Resource<sup>1,2</sup> of 46.45 Mt @ 2.2%
   HM, containing 1.04Mt HM
- Includes High Grade core of 11.25Mt @
   5.0% HM, containing 560,000t HM (Inferred)
- High value assemblage: 8.9% zircon,
   8.7% rutile, 63.5% ilmenite and 1.9%
   leucoxene
- Scoping work has commenced





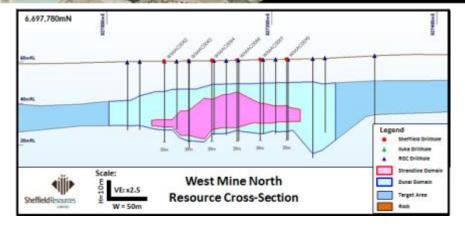
<sup>&</sup>lt;sup>1</sup>Refer to Appendix 1 for Resource Tabulation and ASX release dated 25 October 2011 for full details <sup>2</sup>Iluka Resources Ltd (ASX:ILU) retain a 1.5% royalty

## **WEST MINE NORTH**



- Total Resource<sup>1,2</sup> of 42.58Mt @
   2.8% HM for 1.2Mt contained
   HM comprising:
  - 6.47Mt @ 5.6% HM (Measured) 36.11Mt @ 2.3% HM (Indicated)
- Includes high-grade core of
   10.09Mt @ 7.7% HM (Measured and Indicated)
- High value mineral assemblage:
   7.9% zircon, 10.1% rutile, 59.2%
   ilmenite and 6.4% leucoxene
- 3.5km extension of Eneabba
   West deposit, dredge mined by Iluka/RGC in 1990's
- Scoping work has commenced

Section 6,697,780mN



<sup>&</sup>lt;sup>1</sup>Refer to ASX release dated 7 November 2011 for full details <sup>2</sup>lluka Resources Ltd (ASX:ILU) retain a 1.5% royalty

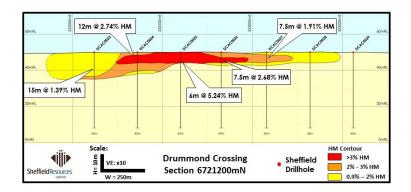
#### **DRUMMOND CROSSING**

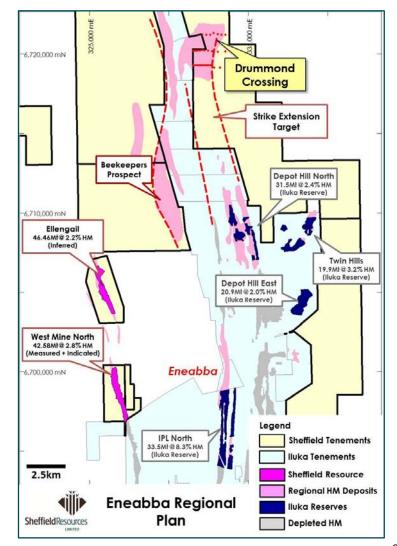


- New discovery in Eneabba field
- Sheffield's drilling outlined mineralised zone 3km x 1.5km, av. 9m thick
- Intersections include:

6m @ 5.24% HM from 0m (DCAC0025) 12m @ 2.74% HM from 0m (DCAC0024) 10.5m @ 3.16% HM from 0m (DCAC0020)

- Open along strike to north and south
- Mineralised from surface dunal style
- Mineral assemblage work to be undertaken prior to further drilling





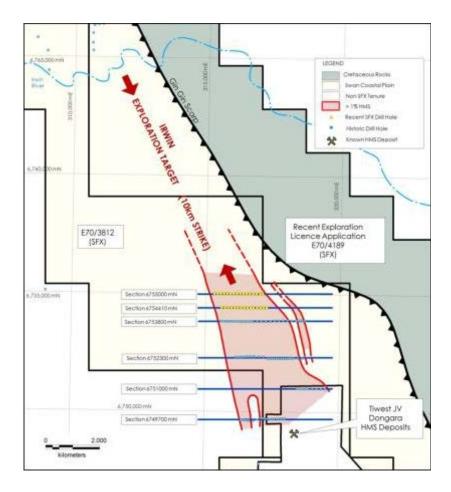
## **IRWIN**



- Located 80km south of Geraldton
- Sheffield's initial drilling confirmed 5km long x 2-3km wide, av. 10m thick zone of mineralisation >1% HM¹
- Open for another 10km along strike
- Mineralisation is dunal style low slimes
- Awaiting mineral assemblage results
- □ Further drilling 1H 2011





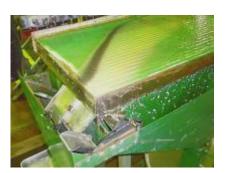


<sup>1</sup>Refer to ASX release of 13 September 2011 for further details.

## HIGH TiO<sub>2</sub> ILMENITE



- Preliminary metallurgical testwork shows ilmenite from Yandanooka, West Mine
   North and McCalls contains 60-66% TiO<sub>2</sub>
- Higher value ilmenite, potentially suitable for chloride route / synthetic rutile processing
- Sources of chloride ilmenite are relatively scarce globally
- □ Current spot prices for chloride ilmenite are ~US\$200/t







Wet table testwork on bulk samples from left: Yandanooka, West Mine North and McCalls deposits

# **EXPLORATION & EVALUATION TIMETABLE**

Project	2011 Q3	2011 Q4	2012 Q1	2012 Q2	2012 <b>Q</b> 3	2012 Q4
Tier 1						
Dampier				Drilling	Resource Est	Scoping
McCalls		Resource Est	Scoping	Prefeasibility		
Tier 2						
Yandanooka	Resource Est (done)	Scoping	Prefeasibility			Feasibility
Ellengail	Resource Est (done)	Scoping	Prefeasibility			Feasibility
West Mine North	Resource Est (done)	Scoping	Prefeasibility			Feasibility
Durack			Drilling		Resource Est	Scoping
Irwin			Drilling		Resource Est	Scoping
Drummond Crossing			Drilling		Resource Est	Scoping
Other HMS				Drilling		

This timetable is indicative only and remains subject to possible delays. Successive stages of evaluation are dependent on positive outcomes from previous phases of work and other factors.

## CONCLUSIONS



- Sheffield quick to seize opportunity in Western Australia
- A rapidly emerging player in resurgent Mineral Sands sector
- Multiple projects with near-term production potential in North Perth Basin
- □ Targeting high TiO<sub>2</sub> ilmenite to supply chloride market
- Dampier zircon project set to become Company's flagship in 2012



For further information please visit the company's web site: www.sheffieldresources.com.au

# APPENDIX 1 HMS MINERAL RESOURCES TABULATION



Sheffield Resources' Mineral Resource<sup>1</sup> inventory at a 0.9% HM cutoff as at 7 November 2011.

Deposit	Resource Category	Material (Mt)*	Bulk Density	<b>нм</b> %	Slimes %	Osize %	In-situ HM (Mt)*	Zircon %	Rutile %	Leuc. %	Ilmenite %
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	Total	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	1.040	8.9	8.7	1.9	63.5
Ellengail	Total	46.45	2.0	2.2	15.6	2.1	1.040	8.9	8.7	1.9	63.5
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	Total	42.58	1.9	2.8	13.4	2.5	1.21	7.9	10.1	6.4	59.2
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

<sup>\*</sup>Tonnes have been rounded to reflect the relative uncertainty of the estimate.

<sup>&</sup>lt;sup>1</sup> This estimate is classified and reported in a manner compliant with the JORC code and guidelines (JORC, 2004).

<sup>&</sup>lt;sup>2</sup> The Mineral Assemblage is represented as the percentage of the Heavy Mineral (HM) component of the deposit, as determined by QEMSCAN. TiO<sub>2</sub> minerals defined according to the following ranges: Rutile >95% TiO<sub>2</sub>; Leucoxene 85-95% TiO<sub>3</sub>; Ilmenite <55-85% TiO<sub>2</sub>.

# APPENDIX 2 USES & MARKETS



#### Two distinct product streams:

#### **Zircon** (\$2,400-\$2,600/t)

- Main use in the manufacture of ceramics and refractory linings
- Global market 1.4Mtpa
- Acute shortage of supply

#### **Titanium Minerals**

- □ Rutile: >95% TiO<sub>2</sub> (\$1,300-\$1,400/t)
- □ Leucoxene: 85-95% TiO<sub>2</sub> (current spot ~\$700/t)
- □ Altered ilmenite: 55-85% TiO<sub>2</sub> (~\$140-\$200/t)
- □ Ilmenite <55% TiO<sub>2</sub>
- Main use in pigment production for paint, coatings, plastics, titanium metal
- Global market ~6Mtpa also experiencing shortage of supply

