

# Sheffield Resources Ltd



SheffieldResources  
LIMITED



Annual General Meeting  
29 November 2012

## COMPETENT PERSONS' STATEMENT – EXPLORATION RESULTS

The information in this presentation that relates to exploration results is based on information compiled by David Archer and David Boyd. Both Mr Archer and Mr Boyd are full time employees of the Company and are Members of the Australasian Institute of Geoscientists. Mr Archer and Mr Boyd have 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 Persons 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 Archer and Mr Boyd consents to the inclusion in the presentation 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 presentation 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 these resource estimates 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 presentation 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 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 this presentation 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.

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.

# Company Snapshot

## Capital Structure

Share price	\$0.48
Shares on issue	98.4m
Options (Ave. Ex Price ~25.2c)	28.4m
Market Cap (Undiluted)	\$47.2m
Cash at 30 September 2012	\$7.3m
Debt	Nil
Enterprise Value	\$39.9m

## Shareholder Split

Top 20 Shareholders	39%
Directors	16%
Institutions	12%

## Research

Hartleys, Breakaway, RFC Ambrian (see SFX web site)

## Board & Management

Will Burbury	Executive Chairman
Bruce McQuitty	Managing Director
David Archer	Technical Director
David Boyd	Exploration Manager
Mark Teakle	Project Development Manager



# Investment Summary

## Rapidly Emerging Player in Mineral Sands Sector

- ASX listed less than 2 years
- 58Mt HM in resource inventory<sup>1</sup> + recent discoveries

## Dampier – Mineral Sands

- Flagship project
- First large, high grade discovery in the Canning Basin
- Further exploration potential
- Large tenure position in new minerals sands province

## Red Bull – Nickel Copper

- Located in an exciting new nickel-copper province
- 17km from Sirius Resources' Nova discovery

## Eneabba - Mineral Sands

- Building a large resource base in a proven mining district

## McCalls - Mineral Sands

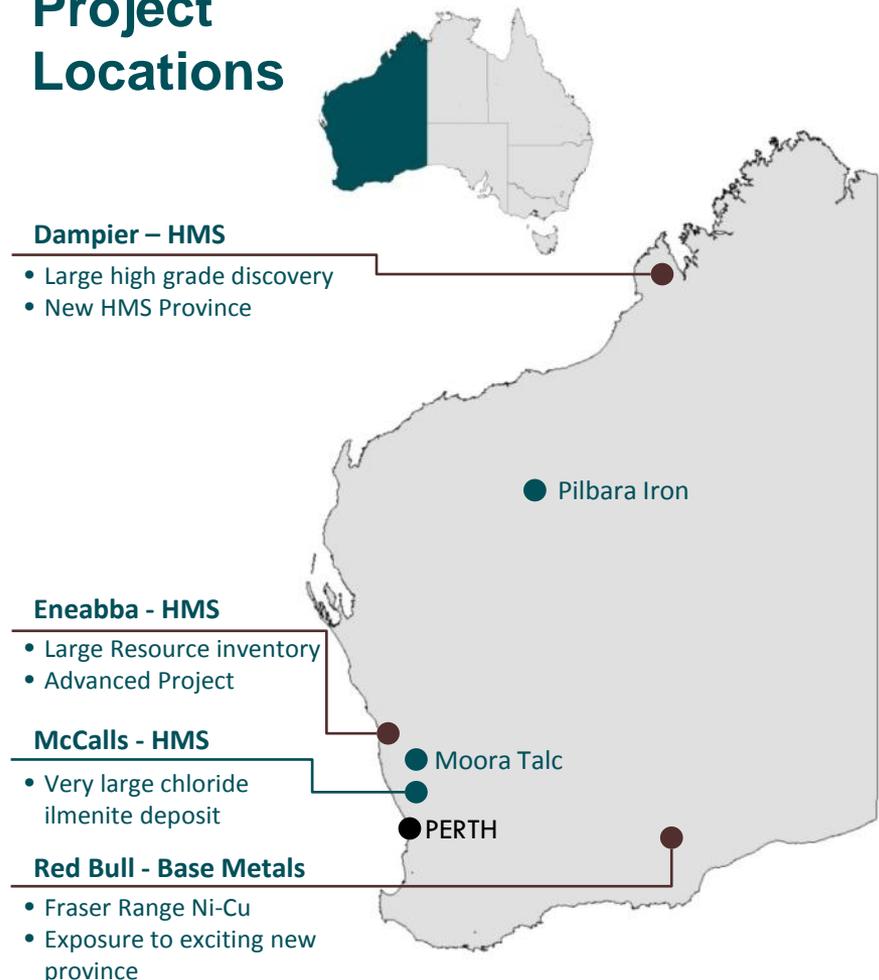
- Very large chloride ilmenite deposit

## Pipeline of other Projects

- Pilbara iron, Moora talc

<sup>1</sup>See Appendices 1 & 2 for resource tabulation

## Project Locations

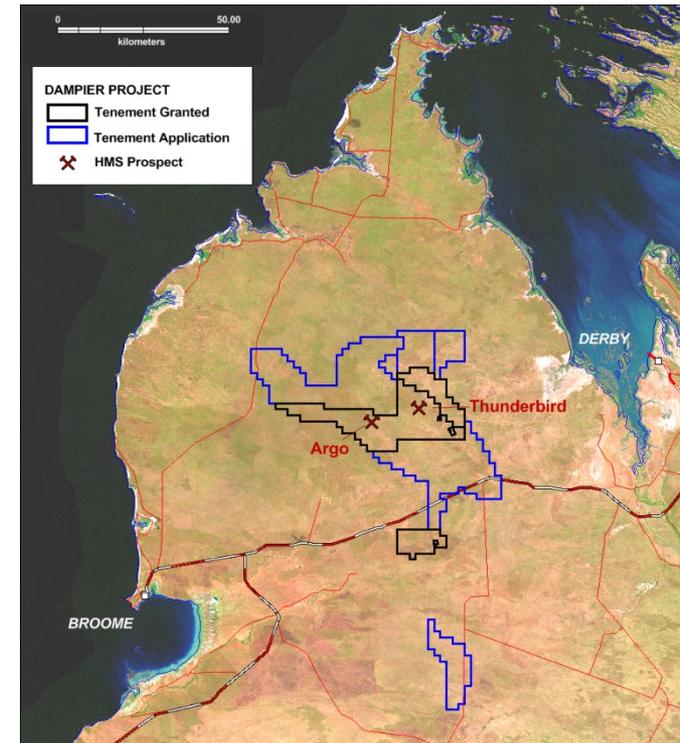
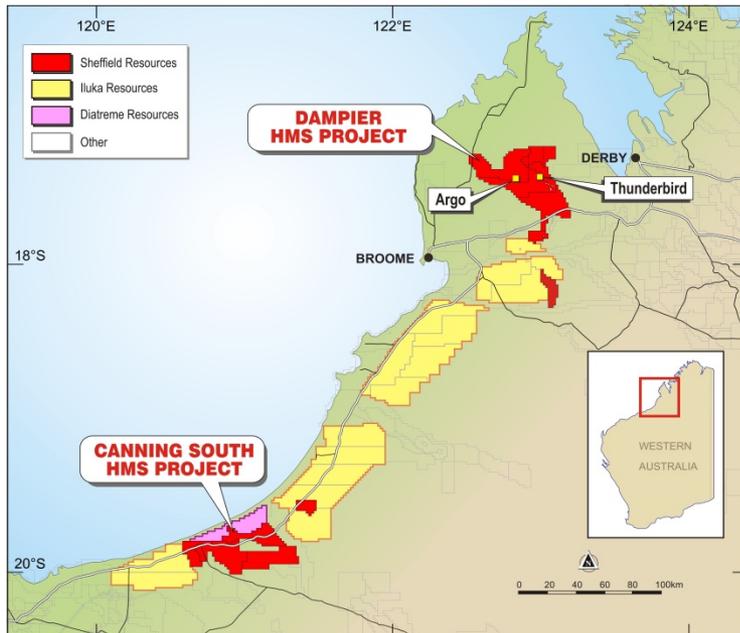


# Year In Review

## A Year of Exploration Success Underpinned by a \$10million Capital Raising

- Aug 2011: Mineral Resource at Yandanooka HMS Prospect
- Oct 2011: Mineral Resource at Ellengail HMS Prospect
- Nov 2011: Mineral Resource at West Mine North HMS Prospect
- Dec 2011: Large Exploration Target from drilling at Three Pools DSO Iron Project
- Feb 2012: Mineral Resource for McCalls HMS Project
- Mar 2012: \$10 million capital raising
- Mar 2012: Positive Scoping Study Results for Eneabba Project
- Apr-Sep 2012: 29,000m drilling programme
- Aug 2012: Mineral Resource at Durack HMS Prospect
- Sep-Nov 2012: Exceptional drilling results from Dampier Project
- Nov 2012: 4 high priority EM anomalies identified in VTEM survey at Red Bull Ni-Cu Project

# Dampier HMS



- Previously under-explored region
- Sheffield first mover with over 3,000 km<sup>2</sup> of tenure
- The Dampier Project contains two significant heavy mineral sands prospects: Thunderbird and Argo
- Thunderbird is a large shallow deposit on the eastern zone and is the first major discovery in the Canning Basin
- Argo is located on the western zone
- The Canning Basin is an emerging HMS province

# Thunderbird HMS Discovery

## Thunderbird has scale:

- Strike potential of 15 km (only 8km drilled), width 4km
- Thickness up to 52m

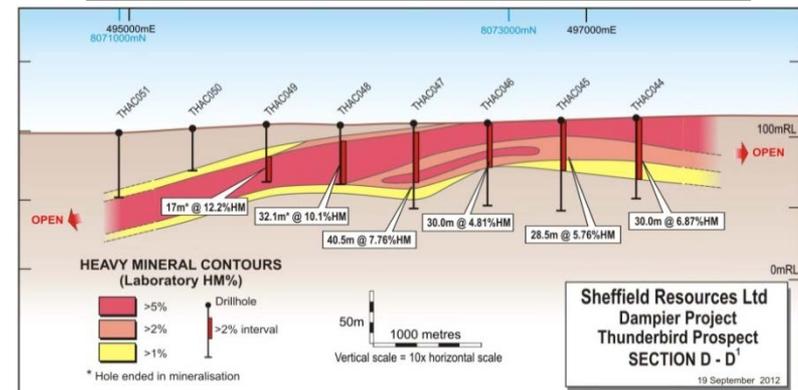
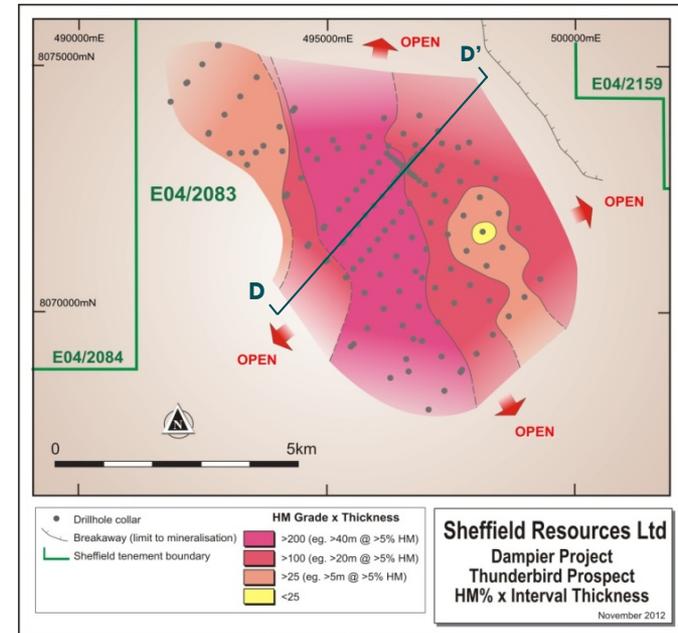
## High grades:

Exceptional broad, high grade intersections:

- 52.5m @ 10.1% HM** from 3m (THAC117)
- 50.0m @ 8.8% HM** from 15m (THAC118)
- 45.0m @ 10.4% HM** from 1.5m (THAC113)
- 45m @ 10.5% HM** from 10.5m (THAC114)
- 46.5m @ 9.5% HM** from 7.5m (THAC121)
- 32.1m @ 10.1% HM** from 9m (THAC048)

## And favourable geometry:

- Mineralisation outcrops, dipping shallowly at < 1 degree
- Mineralisation shows excellent continuity
- Half of the deposit has less than 3 metres of overburden
- Mostly above water table



# Thunderbird HMS Discovery

## Drilling programme completed

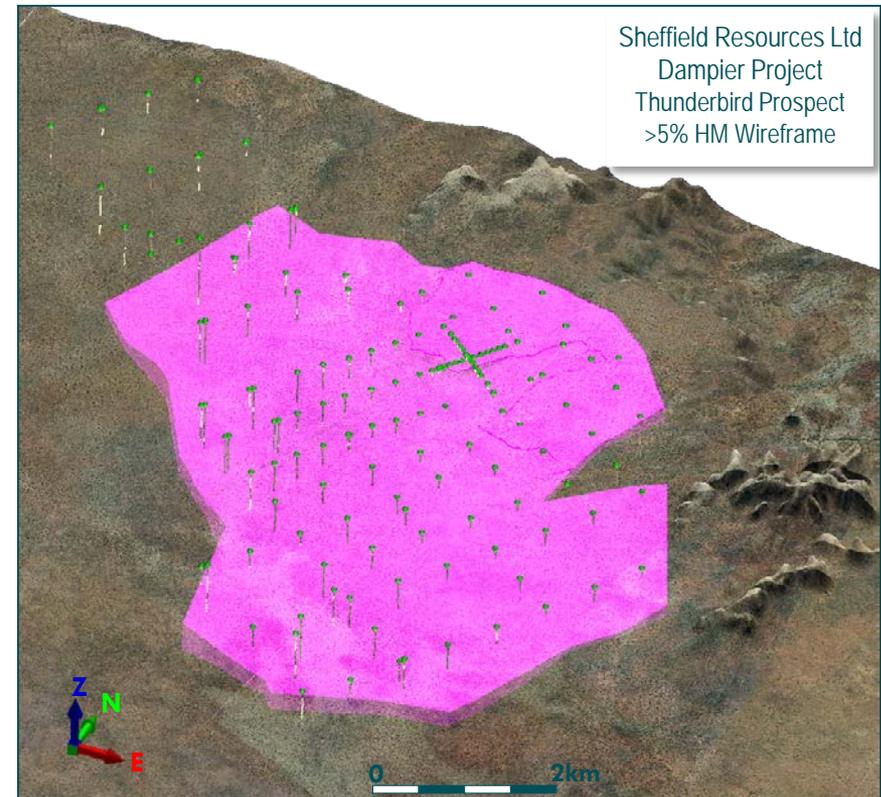
- Maiden drilling programme: 164 holes for 7,500m
- All assay results returned & reported

## High grade zone outlined – potential “starter pit”

- Internal high grade zone outlined (at 5% HM cut-off) averaging 18m thickness, with an area of 15km<sup>2</sup>, averaging 9.8% HM
- Mineralisation is close to surface & remains open in all directions
- Potential for large tonnage high grade initial development

## Next steps:

- Resource estimation Q4 2012
- Initial metallurgical testwork on 6 tonne bulk sample Q1 2013
- Scoping work & further drilling Q2-Q3 2013





# Thunderbird – Mineralogy & Metallurgy

## Mineral Assemblage:

**7.1% zircon, 2.6% rutile, 2.9% leucoxene, and 31.7% ilmenite** from initial batch of QEMSCAN results<sup>1</sup>

- Central High Grade Domain (>5% cut-off) has a high in situ zircon content of 0.65% (9.8% HM x 6.6% zircon)
- Further 54 QEMSCAN results are pending from final batch of 93 drill holes – to be incorporated in resource estimate

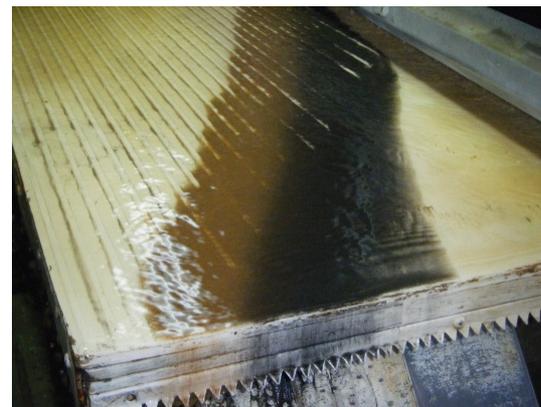
## Bulk Sample Metallurgical Testwork underway

- 6 tonne bulk sample collected from Sheffield's composited drill samples - shipped to RJ Robbins laboratory, Brisbane
- Testwork to determine recovery and product quality, preliminary process design
- Results due Q1 2013

<sup>1</sup>Average of 29 composited HM samples from the High (>5% HM) and Medium (2-5% HM) grade domains. Refer to ASX release dated 5 Nov 2012 for full details.

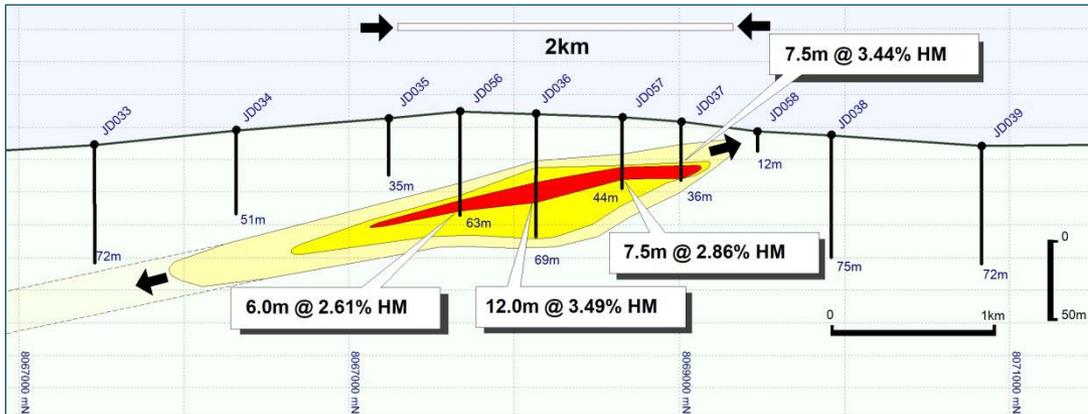


Panning of heavy mineral from drill sample



Wet Table Separation of HM from Thunderbird Bulk Sample

# Dampier HMS – Exploration Upside



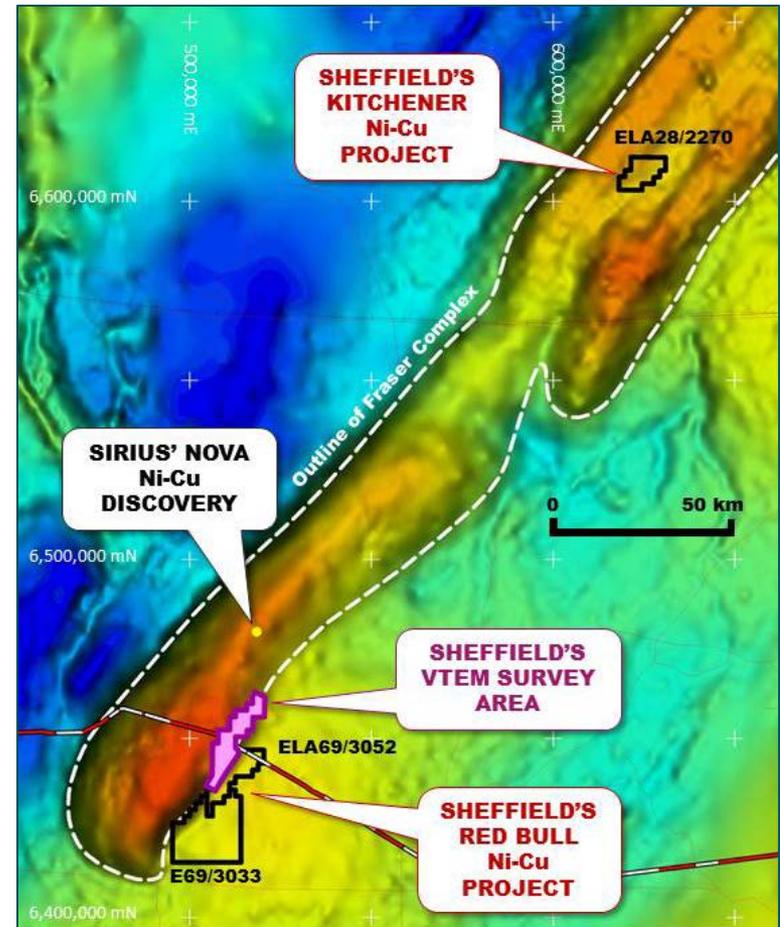
Cleaner stage gravity separation of HM on bulk sample from the Argo prospect. Source: Rio Tinto Exploration Pty Ltd open file report.

## Argo Prospect

- 12km west of Thunderbird
- High priority drilling target with established mineralisation (based on a single historical scout drill traverse)
- 17% zircon from historical metallurgical testwork
- Provides significant exploration upside
- Aboriginal Heritage Survey completed
- Scheduled for drilling in the 2013 field season

# Red Bull Ni-Cu

- Red Bull Project comprises two exploration licences (one remains in application)
- Combined project area of 525km<sup>2</sup>
- A significant new nickel-copper discovery (Nova) has recently been made by Sirius Resources NL (ASX:SIR)
- Red Bull is within 20km of the Nova discovery, within similar prospective rocks of the Fraser Complex
- New Nickel-Copper Province
- In November 2011, Sheffield undertook a VTEM survey to accelerate the exploration of this exciting project



Gravity image outlining the Fraser Complex

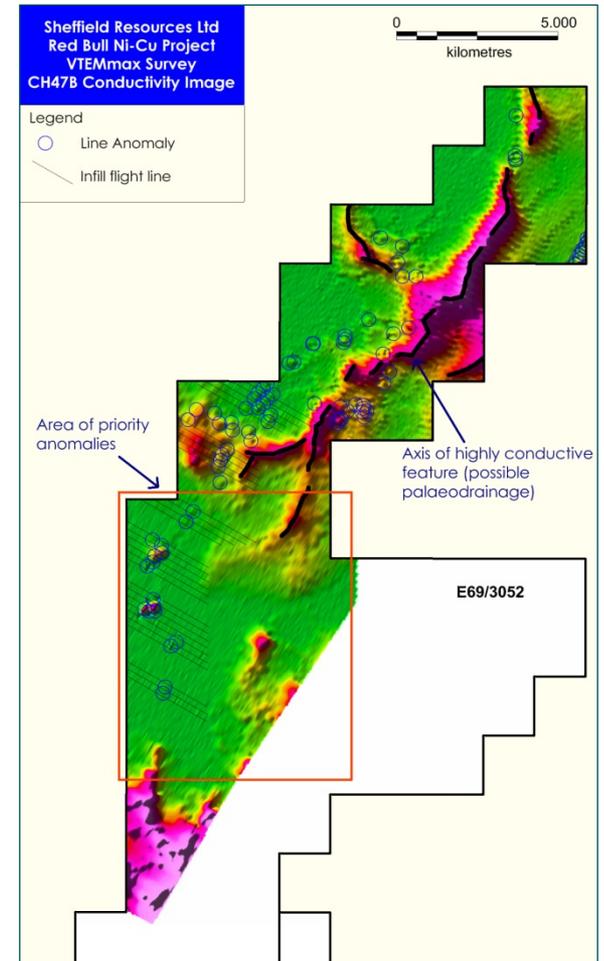
# Red Bull Ni-Cu

## VTEM survey

- Target area 144sq km, mostly under shallow transported cover
- Initial survey of 1,141 line km completed, preliminary data received
- 100m line spacing in northern half of survey area, 200m line spacing in southern half
- 4 high order EM anomalies identified in southern survey area
- 90 km of infill lines in progress to obtain better definition of these
- Over 10 second order EM anomalies identified

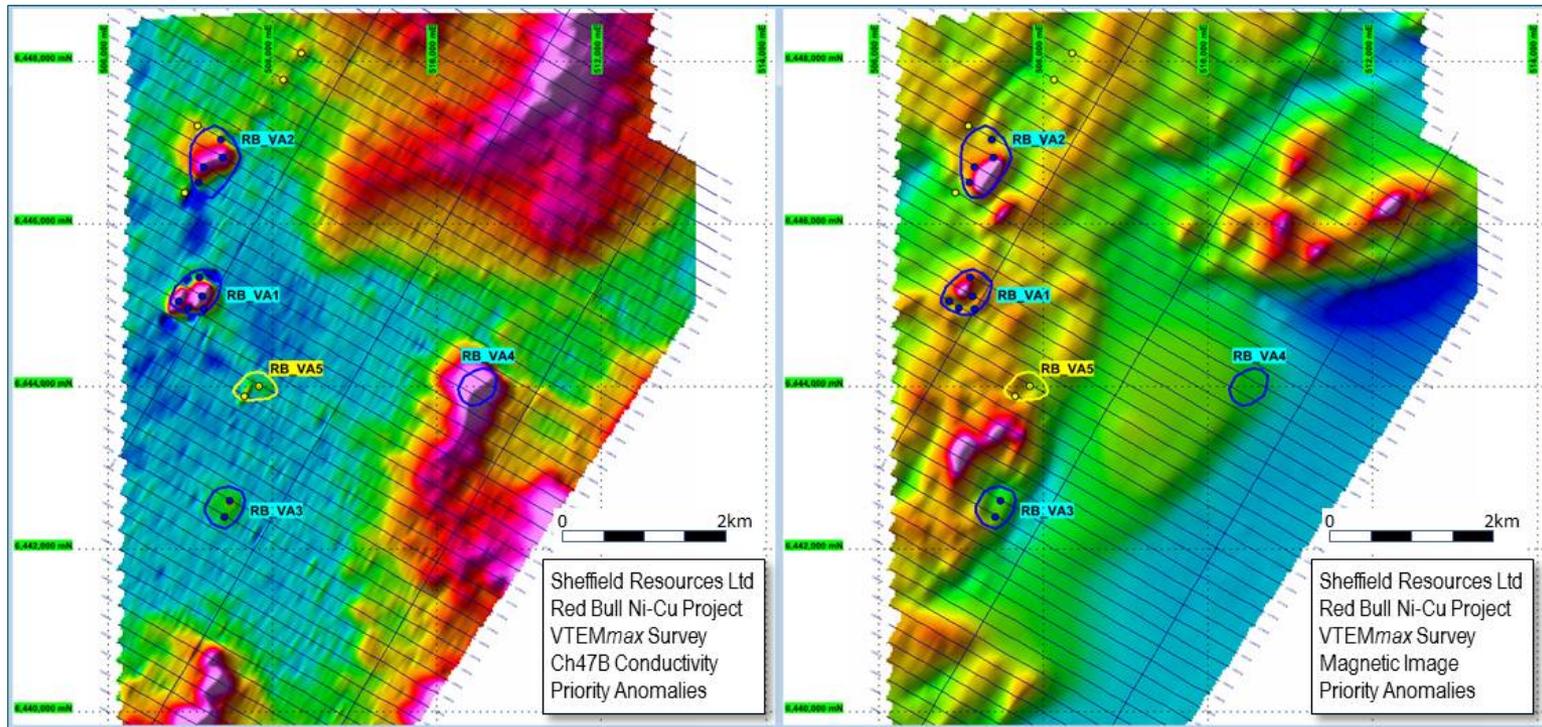
## Next steps

- Complete processing & interpretation of VTEM
- Soil sampling
- Ground-based EM
- Drilling of targets on grant of tenement



## Four High Order EM Anomalies

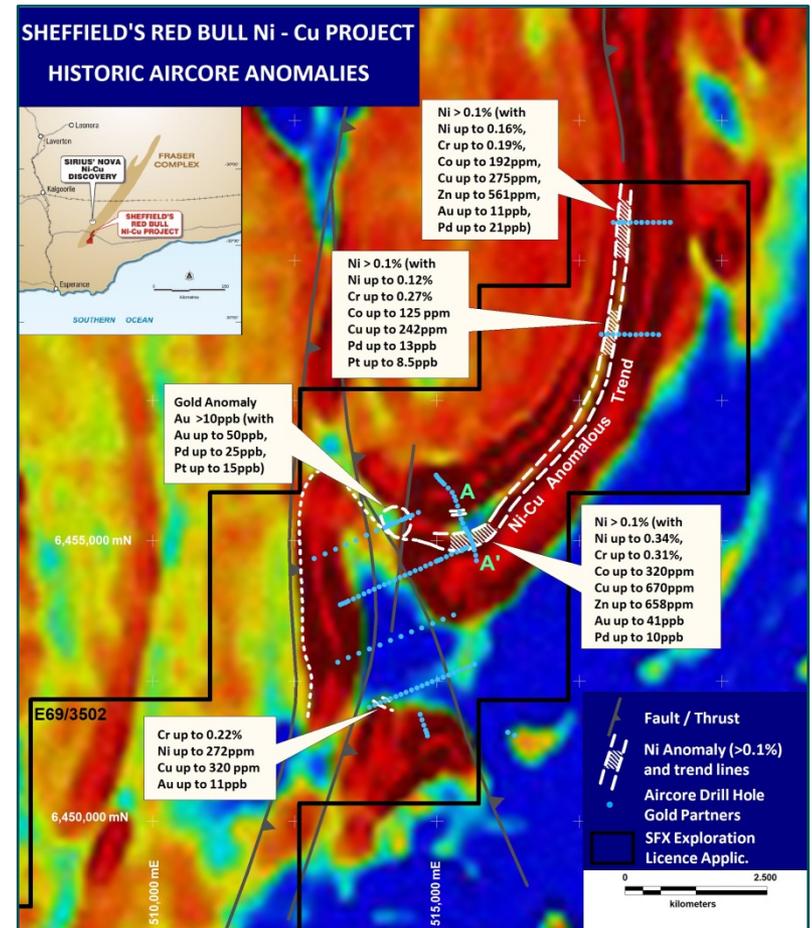
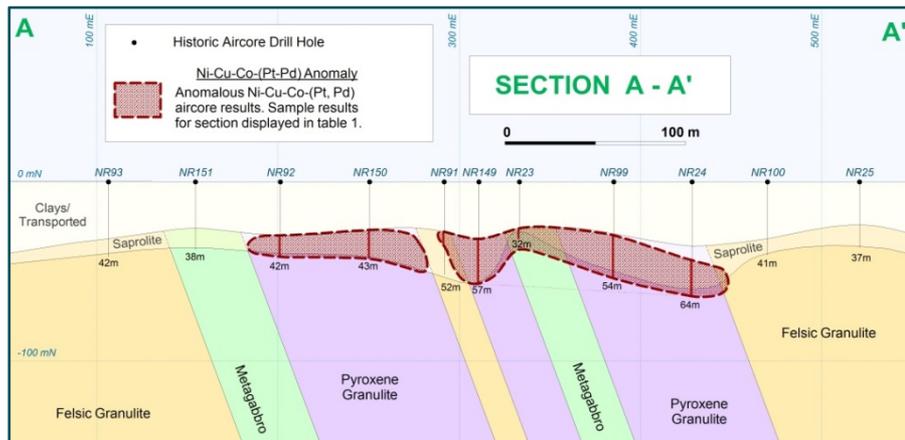
- Four High Order EM Anomalies (RB\_VA1-4) in southern survey area
- Three of these have coincident magnetic anomalies
- Immediate focus for ground-based work programmes (e.g. soils, ground EM techniques)



# Red Bull Ni-Cu

## Targets from historic data review

- 8km long anomalous Ni-Cu trend identified from historical aircore drilling results
- Maximum values 0.34% Ni, 670ppm Cu, 320ppm Co
- Favourable mafic and ultramafic host rocks and large structures
- Disseminated sulphides noted by previous explorers



Historic aircore anomalies on TMI magnetic image

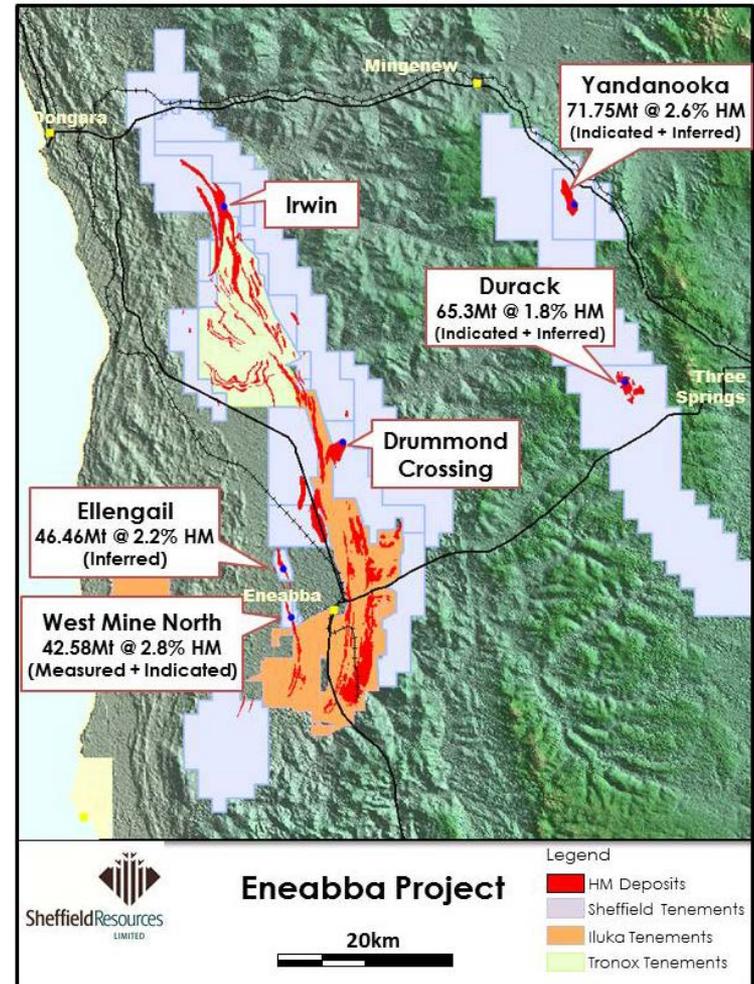
# Eneabba HMS

- Established mining district dominated initially by Iluka Resources Ltd and Tronox Ltd
- ~140km south of Geraldton port
- Sheffield's Mineral Resources total **226Mt @ 2.3% HM**, containing **5.29Mt HM<sup>1</sup>** (4 deposits)
- Good all-round mineral assemblage: 11% zircon, 6.7% rutile, 6.4% leucoxene and 63.5% ilmenite (>60% TiO<sub>2</sub>)
- Strategy: to build a substantial resource base to underpin a 20-30 year mine life

## Next steps:

- Drill results from Irwin due Q4 2012
- Yandanooka resource upgrade & met work Q4 2012
- Drummond Crossing Resource estimate due Q1 2013
- Further targets to be drilled H1 2013
- Updated scoping assessment mid 2013

<sup>1</sup>See Appendices 1 & 2 for resource tabulation

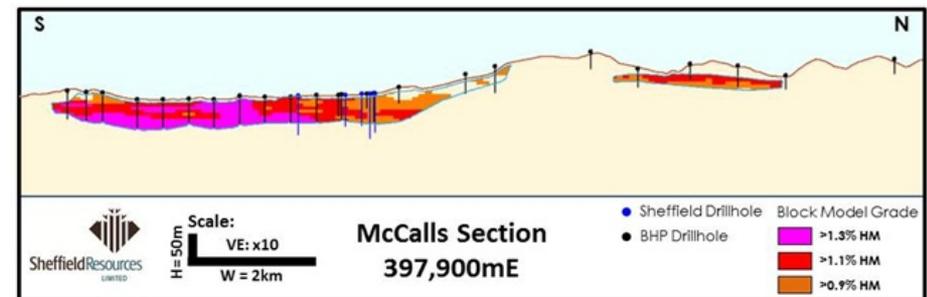
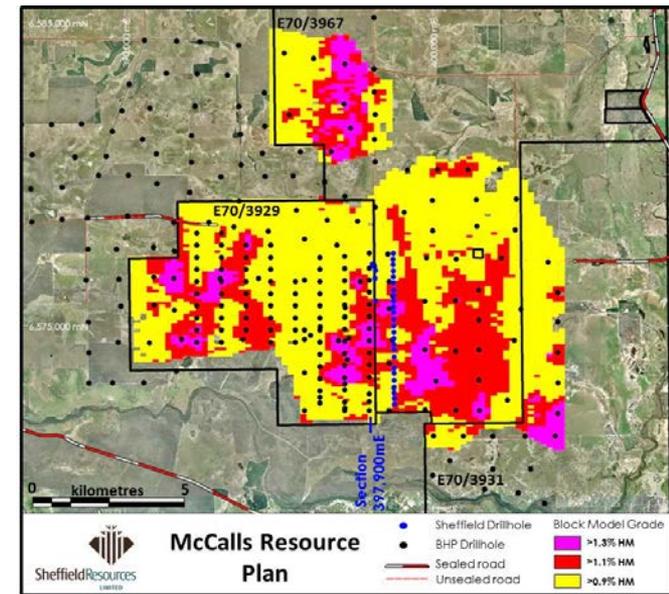


- Large high TiO<sub>2</sub> ilmenite deposit, located 110km north of Perth
- Globally significant asset receiving considerable industry attention
- Mineral Resource of 4.4Bt @ 1.2% HM, containing 53Mt HM<sup>1</sup>
- Lower grade but has scale:
  - contains over 40Mt of chloride grade ilmenite (65.4% TiO<sub>2</sub> determined by met testwork)
  - one of the largest chloride grade ilmenite deposits in the world
  - also contains 3.5Mt of zircon & 1Mt of rutile

## Next steps:

- 71 broadly-spaced drill holes completed – to obtain more representative mineral assemblage data
- Assay results due Q1 2013
- QEMSCAN results due Q1 2013
- Updated resource estimate Q2 2013

<sup>1</sup>See Appendices 1 & 2 for resource tabulation



# Summary

- Dampier - the flagship project; Thunderbird – a large high grade discovery
- Canning Basin is a new HMS province with more discoveries to be made
- Evaluating multiple EM anomalies at Red Bull Ni-Cu project in Fraser Range province
- Established Mineral Resources at Eneabba and McCalls carry significant value – work continues
- Successful track record of exploration underpinned by:
  - a fertile project pipeline
  - a strong cash position, and
  - an experienced management team
- Dampier & Red Bull the focus of 2013 work programme





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# Appendix 1

## Resource Inventory

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

Deposit	Resource Category	Zircon ('000t)	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
Durack	Indicated	144	29	52	703	928
Durack	Inferred	26	4.6	13	121	164
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
McCalls	Inferred	3,491	1,063	2,576	42,911	50,041
<b>Total</b>	Measured	18	33	42	200	293
<b>Total</b>	Indicated	416	233	266	2,281	3,195
<b>Total</b>	Inferred	3,621	1,166	2,624	43,762	51,173
<b>Total</b>	<b>All</b>	<b>4,055</b>	<b>1,432</b>	<b>2,932</b>	<b>46,242</b>	<b>54,662</b>

The contained HM tonnages in the above table are derived from Mineral Resource Estimates for the Yandanooka, Ellengail, West Mine North, McCalls and Durack deposits, previously fully reported in ASX releases by Sheffield on 16 August 2011, 25 October 2011, 7 November 2011, 20 February 2012 and 28 August 2012. Appendix 2 summarises the estimated tonnes and grades for these deposits.

\* Valuable Heavy Minerals are classified as zircon, rutile, leucoxene and ilmenite.

# Appendix 2

## HMS Mineral Resource1 Inventory at 0.9% HM Cut-off 28 Aug 2012

### ENEABBA PROJECT

Deposit	Resource Category	Material (Mt)*	Bulk Density	HM %	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
Durack	Indicated	50.3	2.0	2.0	15	21	1.02	14	2.8	5.1	69
Durack	Inferred	15	1.9	1.2	14	17	0.18	14	2.5	7.2	66
Durack	Total	65.3	2.0	1.8	15	20	1.20	14	2.8	5.6	68
Ellengail	Inferred	46.45	2.0	2.2	15.6	2.1	1.04	8.9	8.7	1.9	63.5
Ellengail	Total	46.45	2.0	2.2	15.6	2.1	1.04	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	147	2.0	2.4	14.3	11.6	3.58	11.7	6.3	7.1	64.0
Total	Inferred	72.2	2.0	1.8	14.9	6.2	1.34	10.1	7.2	4.6	63.4
Total Eneabba	All	226	2.0	2.3	14.5	9.5	5.29	11.0	6.7	6.4	63.5

### McCALLS PROJECT

Deposit	Resource Category	Material (Mt)*	Bulk Density	HM %	Slimes %	Osize %	In-situ HM (Mt)*	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

\*Tonnes have been rounded to reflect the relative uncertainty of the estimate. <sup>1</sup> This estimate is classified and reported in a manner compliant with the JORC code and guidelines (JORC, 2004). <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>2</sub>; Ilmenite <55-85% TiO<sub>2</sub>.