Sheffield Resources Ltd

NEW MINERAL SANDS DISCOVERIES IN WESTERN AUSTRALIA



TZMI Congress Presentation

7 November 2012

Disclaimer

COMPETENT PERSONS' STATEMENT – EXPLORATION RESULTS

The information in this presentation that relates to exploration results is based on information compiled by David Boyd. Mr Boyd is a full time employee of the Company. Mr Boyd is a Member 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 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 this estimate as defined in the 2004 Edition of the Australasian Code for Reporting of Mineral Resources and Ore Reserves. Mr Strickland consents to the inclusion in this 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

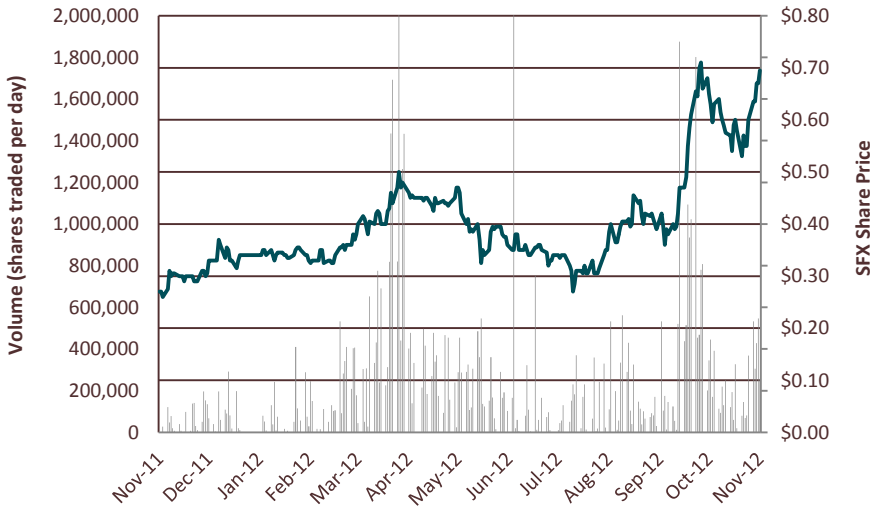
Some statements in this presentation regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward-looking statements include, but are not limited to, statements concerning the Company's 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.

Company Snapshot

Capital Structure	
Share price	$0.605
Shares on issue	98.1m
Options (Ave. Ex Price ~25.2c)	28.7m
Market Cap (Undiluted)	$59.3m
Cash at 30 September 2012	$7.3m
Debt	Nil
Enterprise Value	$52m

Shareholder Split	
Top 20 Shareholders	39%
Directors	16%
Institutions	12%

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 December 2010

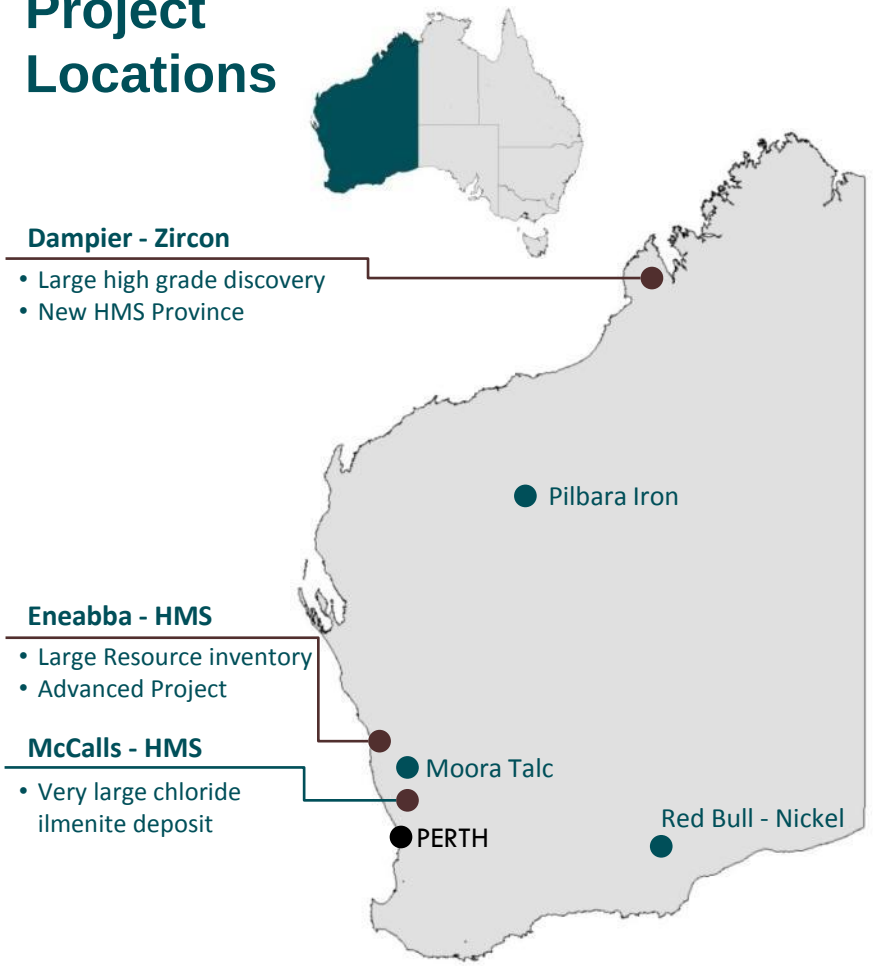
Successful Explorer
- 58Mt HM in resource inventory[1] + recent discoveries

Dampier – Zircon
- Flagship Project – large high grade discovery
- First major HMS discovery in the Canning Basin
- Further exploration potential
- Large tenure position in new minerals sands province

Eneabba - Mineral Sands
- Building a large resource inventory in a proven mining district

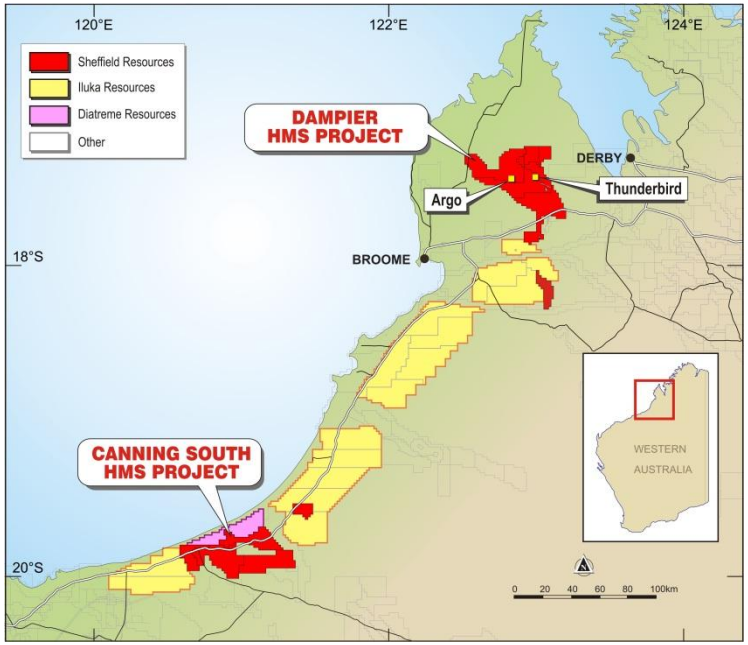
McCalls - Mineral Sands
- Very large chloride ilmenite deposit

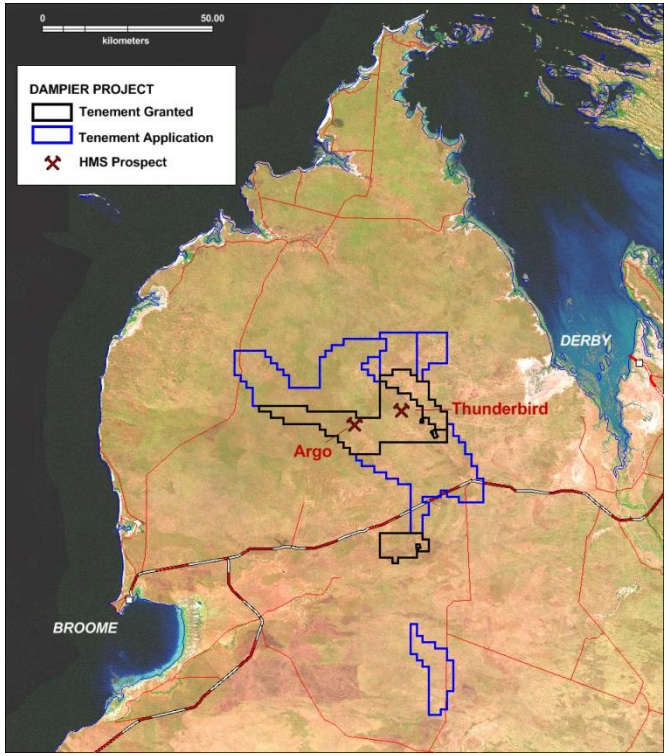
Project Locations



[1]Refer to Appendices 1 & 2 for Mineral Resources Tabulation

Dampier





- Previously under-explored region
- Sheffield first mover with over 3,000 km² 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 Discovery

Thunderbird has scale:

- Strike potential of 15 km, width 4km
- Thickness up to 42m

High grades:

Exceptional broad, high grade intersections:

32.1m @ 10.1% HM from 9m (THAC048)

40.5m @ 7.8% HM from 3m (THAC047)

41.5m @ 7.3% HM from 6m (THAC006)

42m @ 6.3% HM from 21m (THAC025)

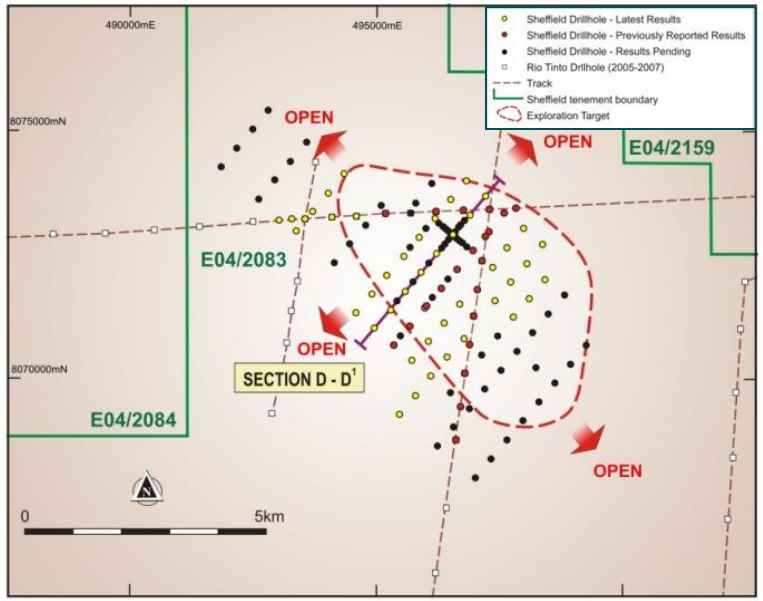
27m @ 8.6% HM from surface (THAC040)

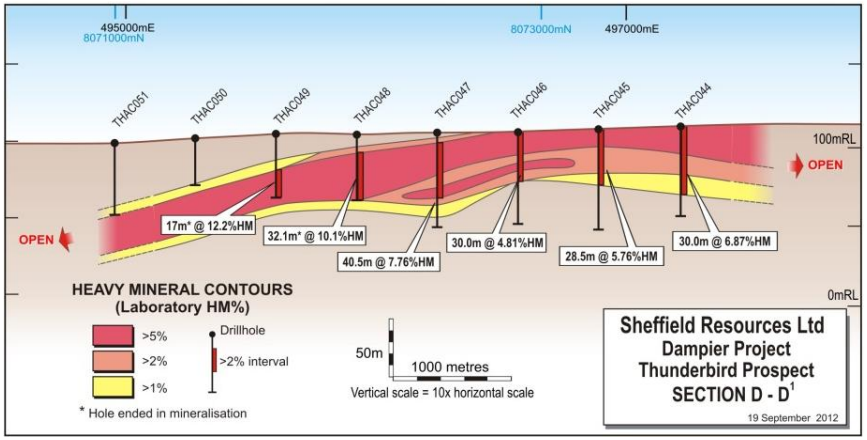
26m @ 9.6% HM from 15m (THAC064)

17m @ 12.2% HM from 22.5 (THAC04

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 Discovery

Drilling programme completed

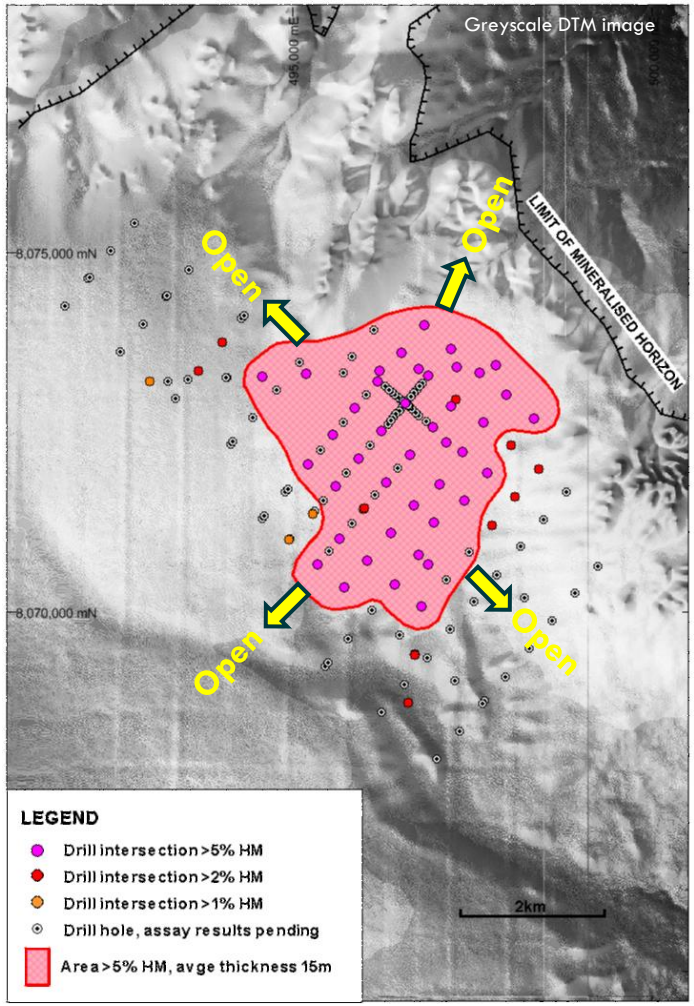
- Maiden drilling programme: 164 holes for 7,500m
- Tested 8 km of strike length
- Assay results returned to date for 71 holes (43%)
- Drilling pattern 500m x 500m at the centre of the target area, 500m x 1,000m at the strike extremities

High grade zone outlined – potential "starter pit"

- Internal high grade zone outlined (at 5% HM cut-off) averaging 15m thickness (locally up to 32.5m thick), with an area of 12km^2, averaging 9.0% HM
- Mineralisation is close to surface & remains open in all directions
- Potential for large tonnage high grade initial development

Next steps:

- Remaining drilling & mineral assemblage results imminent
- Resource estimation Q4 2012
- Initial metallurgical testwork Q1 2013
- Scoping work & further drilling Q2-Q3 2013



Thunderbird - Mineralogy

Mineral Assemblage:

7.1% zircon, 2.6% rutile , 2.9% leucoxene, and 31.7% ilmenite from **i**nitial batch of QEMSCAN results[1]

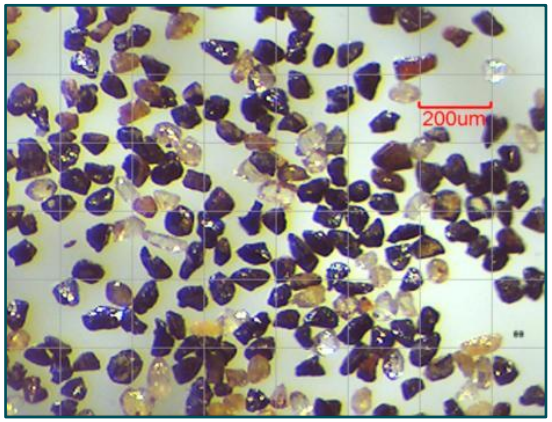
- Central High Grade Domain (>5% cut-off) has a high in situ zircon content of 0.6% (9.0% HM x 6.6% zircon)
- Approximately 30% of HM assemblage comprises aggregates & cemented particles – potential to liberate HM from these with scrubbing & attritioning will be investigated
- Further QEMSCAN results to come from remaining 93 drill holes for which assays are pending

Other properties:

- Grainsize: fine-medium grained
- Slimes: (-45µm) 17% - moderate
- Oversize: (+1mm) 21% - moderate

[1]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

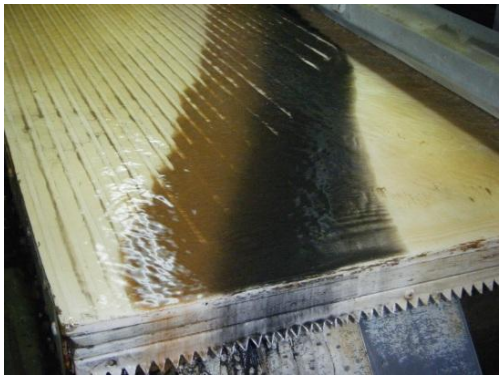


Valuable Heavy Mineral grains (THAC018 7.5-9m)

Thunderbird - Metallurgy

Bulk Sample Metallurgical Testwork underway

- 6 tonne bulk sample collected form Sheffield's composited drill samples
- Shipped to RJ Robbins laboratory, Brisbane
- Testwork to determine recovery & product quality, also for preliminary process design
- Results due Q1 2013



Wet table separation of HM from Thunderbird bulk sample

Thunderbird bulk sample at Robbins' laboratory

Loading bulk sample at site

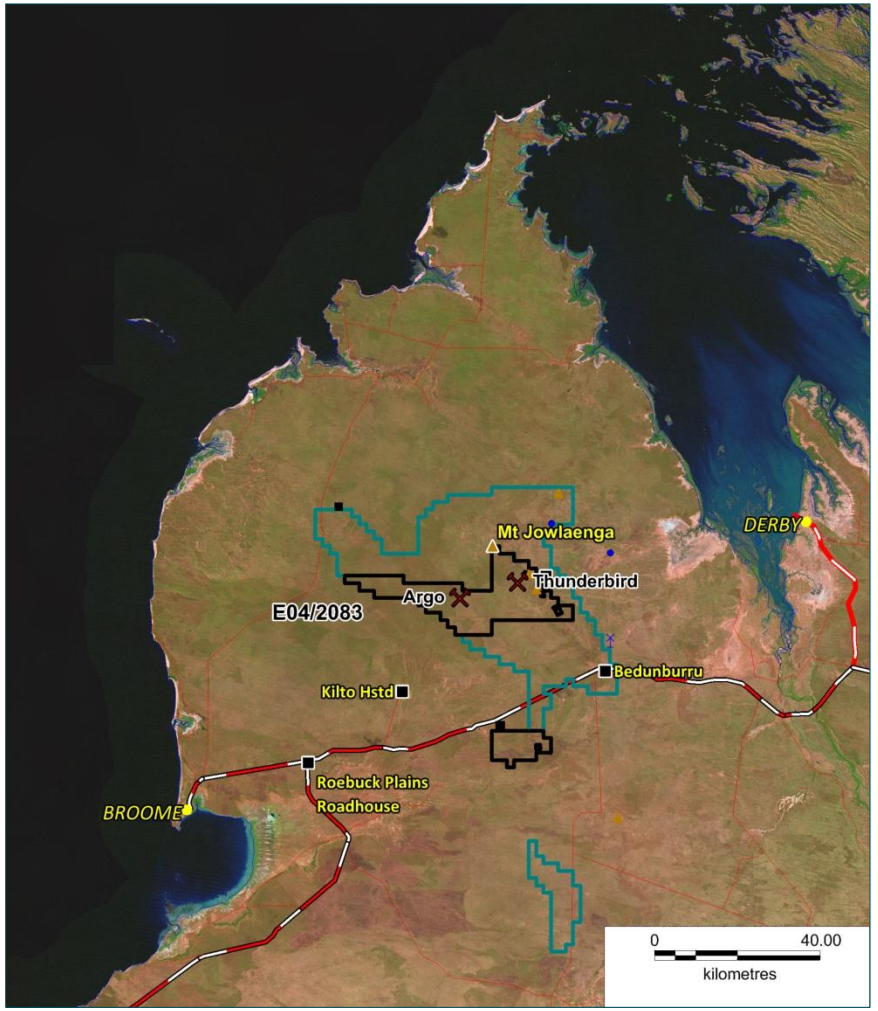
Thunderbird – Tenure & Infrastructure

Tenure

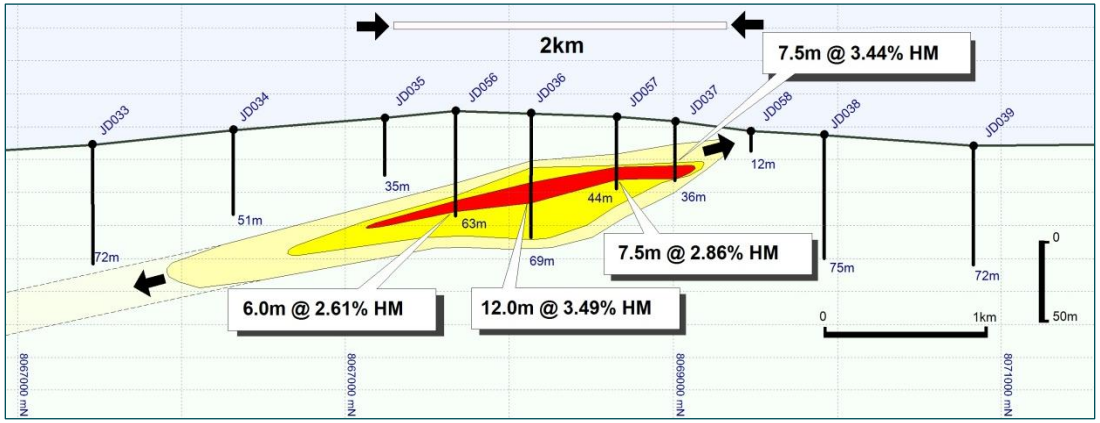
- Exploration licence E04/2083 (granted 5 Sept 2011)
- Located on Crown Land (pastoral lease)
- Outside West Kimberley National Heritage Listed areas

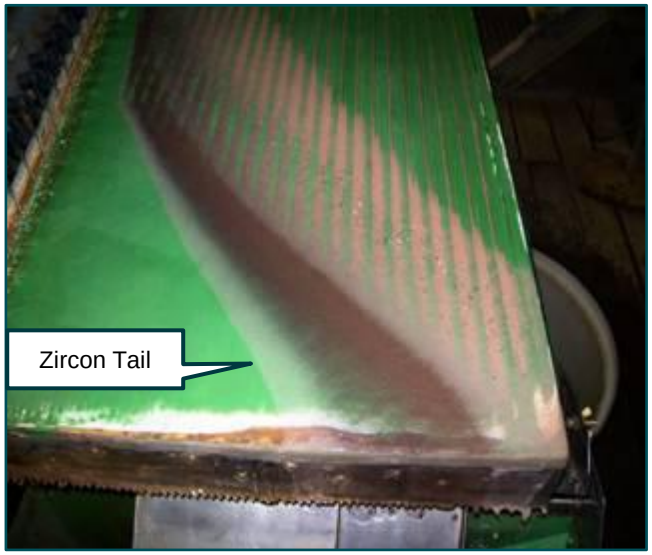
Infrastructure

- 140km by road (100km sealed) to Derby or Broome ports
- Abundant good quality groundwater nearby
- Near recent gas discoveries



Dampier – 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

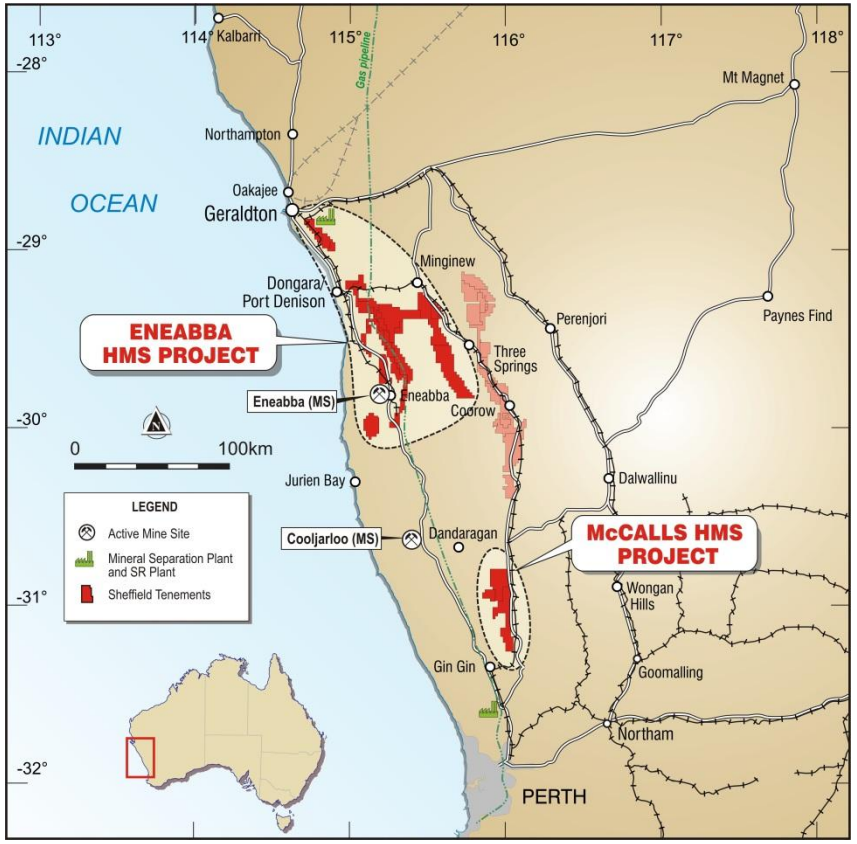
- 12km west of Thunderbird
- High priority drilling target with established mineralisation (based on a single historical scout drill traverse)
- 17% zircon from historical metallurgical testwork
- Provides significant exploration upside
- Aboriginal Heritage Survey in progress
- Scheduled for drilling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

Perth Basin Projects – Eneabba & McCalls

Northern Perth Basin

- Established mineral sands mining district
- Good quality, high value HM products
- Proximity to roads, rail & ports
- Available energy sources
- Abundant groundwater
- Proximity to SR plants

Sheffield secured a large tenure position in 2010, followed by drilling campaigns in 2011/12

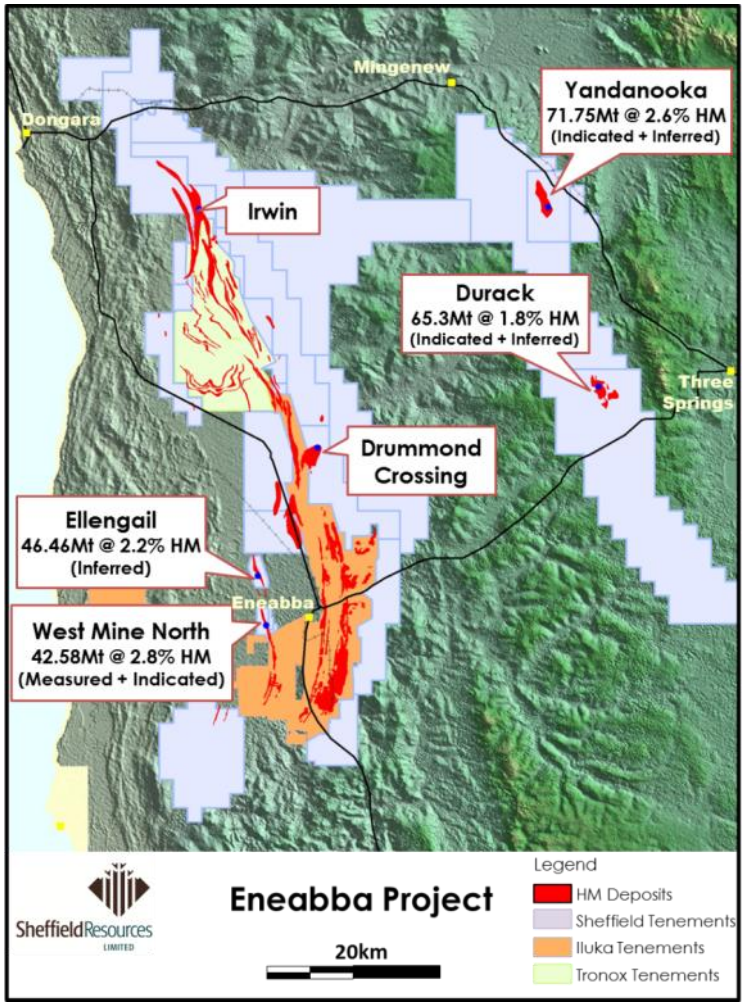


Eneabba

- 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[1] (4 deposits)
- Good all-round mineral assemblage: 11% zircon, 6.7% rutile, 6.4% leucoxene and 63.5% ilmenite (>60% TiO_2)
- 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



[1]See Appendices 1 & 2 for resource tabulation

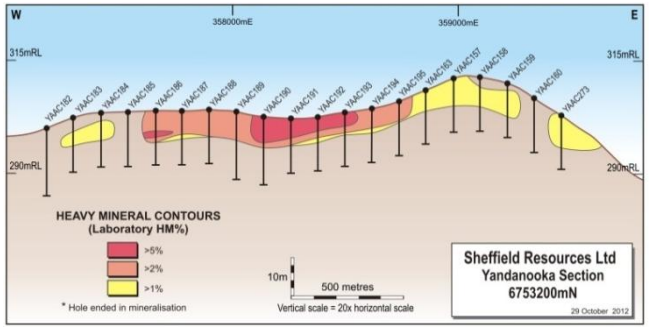
Eneabba – Exploration Strategy

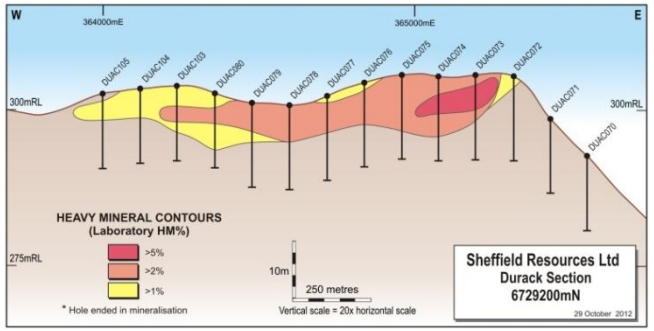
Sheffield's niche: near surface dunal-style deposits

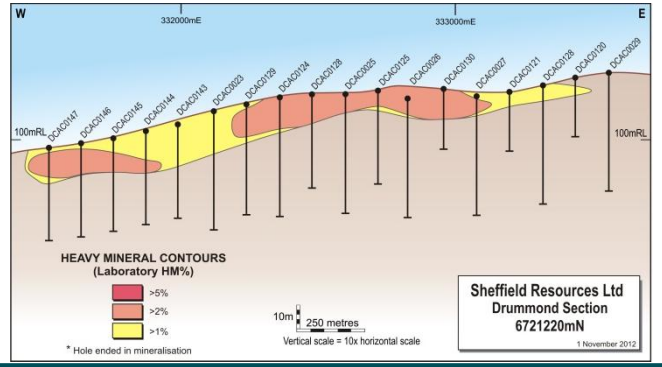
- Easy to find
- Sizeable - generally 1Mt-3Mt contained HM
- Overlooked by previous explorers due to lower grade
- High value mineral assemblage:
  - Yandanooka: 11.5% zircon, 6.9% rutile
  - Durack: 14% zircon, 2.8% rutile
  - Drummond Crossing: 14.9% zircon, 10% rutile

Advantages over narrow strand-style deposits:

- At or near surface – minimal overburden
- Broad deposits – allows a higher mining rate
- Above water table – dry mining





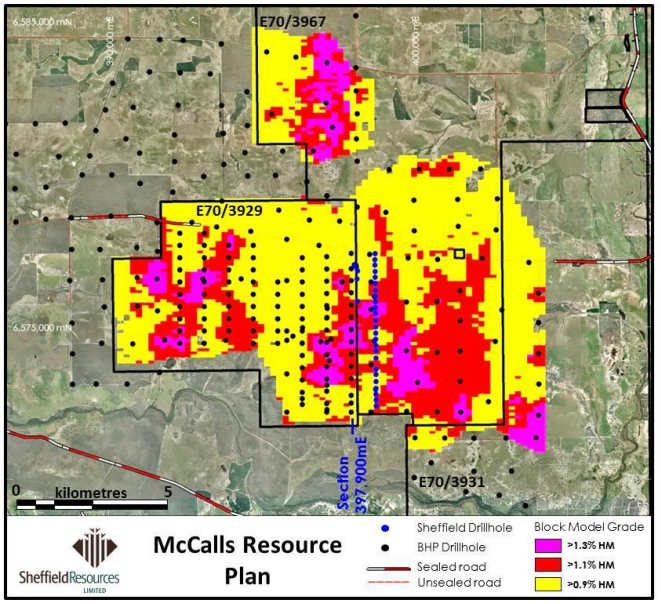


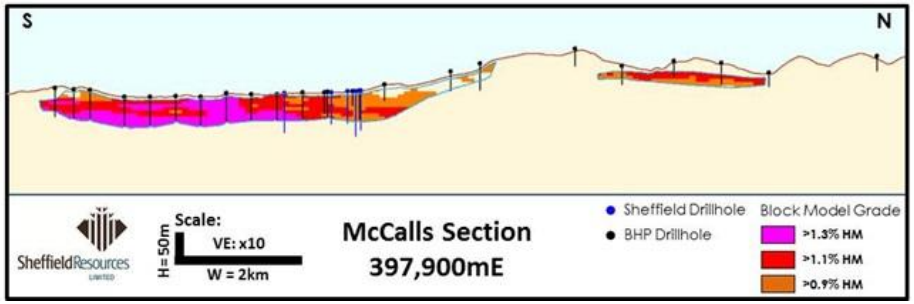
McCalls

- Large high TiO_2 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[1]
- Lower grade but has scale:
  - contains over 40Mt of chloride grade ilmenite (65.4% TiO_2 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





[1]See Appendices 1 & 2 for resource tabulation

Summary

- Dampier - the flagship project; Thunderbird – a large high grade discovery
- Canning Basin is a new province with more discoveries to be made – immediate focus
- Established Mineral Resources at Eneabba and McCalls carry significant value – work continues
- Sheffield is leveraged to zircon & chloride ilmenite markets
- Successful track record of exploration underpinned by:
  - a strong cash position, and
  - an experienced management team

For further information please contact:

Sheffield Resources Ltd
14 Prowse Street
West Perth WA 6005
Ph +61 (8) 6424 8440
www.sheffieldresources.com.au
info@sheffieldresources.com.au

Appendix 1
Resource Inventory

Sheffield Resources LIMITED

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
Total	Measured	18	33	42	200	293
Total	Indicated	416	233	266	2,281	3,195
Total	Inferred	3,621	1,166	2,624	43,762	51,173
Total	**All**	**4,055**	**1,432**	**2,932**	**46,242**	**54,662**

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 Resource[1] Inventory at 0.9% HM Cut-off, 28 August 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. [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.