



TZMI CONGRESS 2013

DAMPIER MINERAL SANDS PROJECT

LARGE SCALE • HIGH GRADE • PREMIUM PRODUCT • WORLD CLASS

- Disclaimer



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.

Company Snapshot



¹ In addition, during Q4 2013, Sheffield may receive \$0.9 million from the exercise of 3 million 30c options with expiry 30 November 2013 and approximately \$1.2 million from its 2013 Research and Development tax return.

SHAREHOLDER SPLIT

Top 20 Shareholders **36%**

Directors **19.5%**

No industry major on register

CAPITAL STRUCTURE

Share price **\$0.50**

Shares on issue **118.3m**

Options **3.0m**
(Ex Price 30c, expiry 30 Nov 2013)

Employee Options **5.1m**
(Ave. Ex Price 47.7c)

Market Cap (Undiluted) **\$59.15m**

Cash at hand¹ (no debt) **\$5.3m**

Enterprise Value **\$53.85m**

Company Snapshot

EXPERIENCED TEAM



Board & Management



Will Burbury

Executive Chairman



Bruce McQuitty

Managing Director



David Archer

Technical Director



David Boyd

Exploration Manager



Mark Teakle

Project Development Manager



Company Snapshot

PROJECTS



SheffieldResources
LIMITED



Dampier - HMS

Flagship - Thunderbird Total Resource
1.37Bt @ 6.1% HM (83Mt HM)¹
including 517Mt @ 10.1% HM

Eneabba - HMS

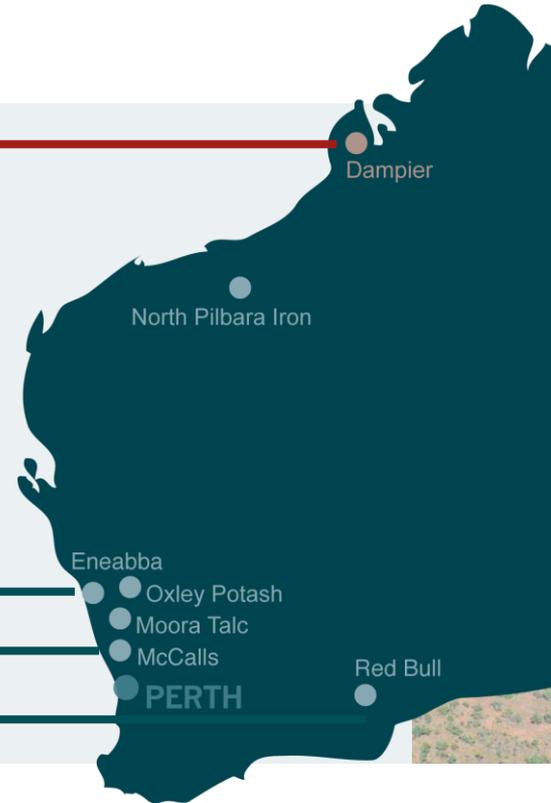
Strategic resource base

McCalls - HMS

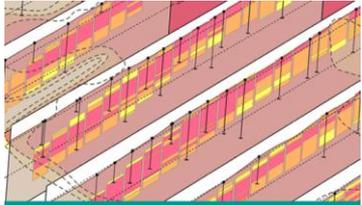
Global scale chloride ilmenite deposit

Red Bull - Nickel

Fraser Range Ni-Cu



¹ Refer to Appendices 1 & 2



**Large
Scale**

**High
Grade**



**Premium
Product**

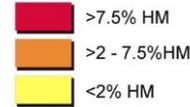
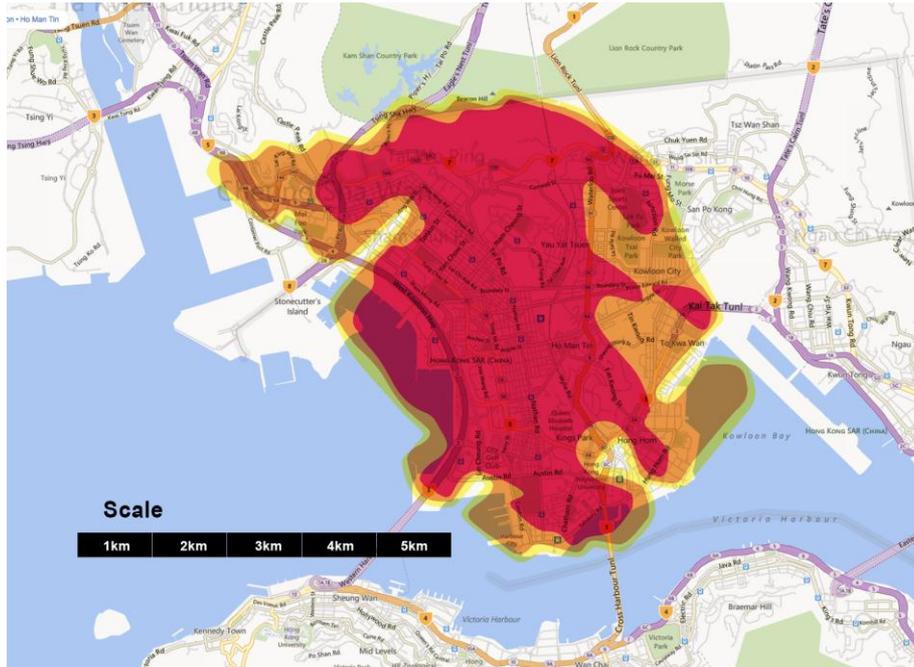
**World
Class**

Key Messages

THUNDERBIRD MINERAL SANDS

Large Scale

THUNDERBIRD MINERAL SANDS



■ Maiden Mineral Resource

- 1.37Bt @ 6.1% HM (Indicated & Inferred)¹
- Heavy Mineral assemblage:
 - 6.9% zircon
 - 1.6% rutile
 - 4.3% leucoxene
 - 29% ilmenite

SCALE: In relation to Kowloon

¹ At 2% HM cut-off
Refer to Appendices 1 & 2

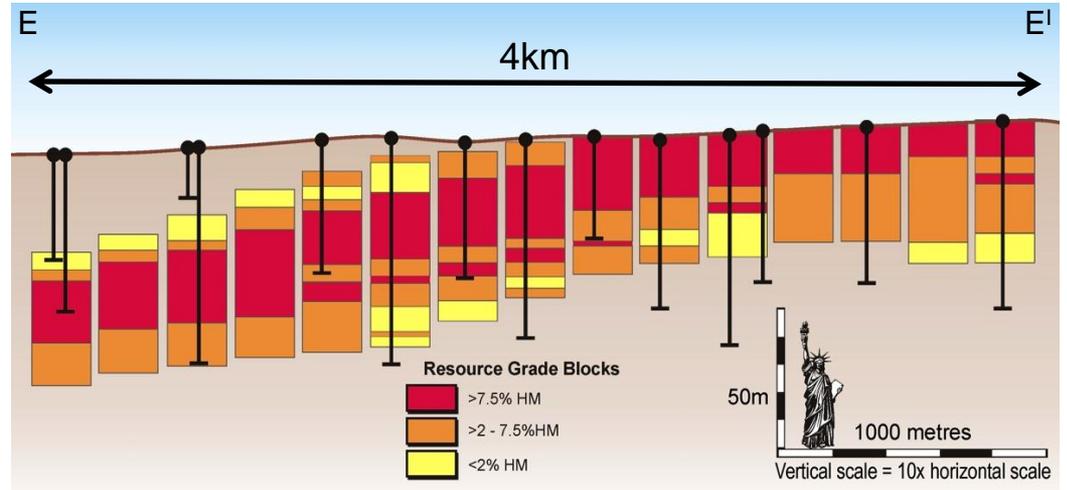
Large Scale

THUNDERBIRD MINERAL SANDS



■ Favourable Geometry

- Area 4km x 5km
- Thickness up to 82m, average 38m
- Strong grade continuity
- 40% of deposit has <3m overburden
- Mostly above water table
- Deposit open in most directions – exploration upside
- Extensions targeted in recent drill programme

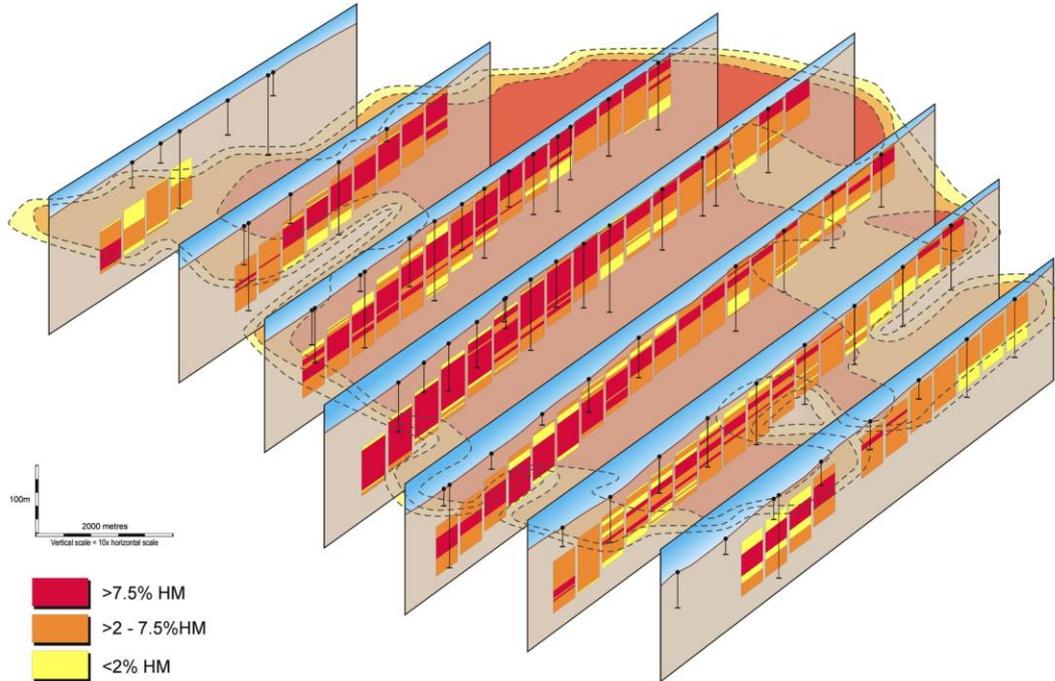


High Grade

THUNDERBIRD MINERAL SANDS



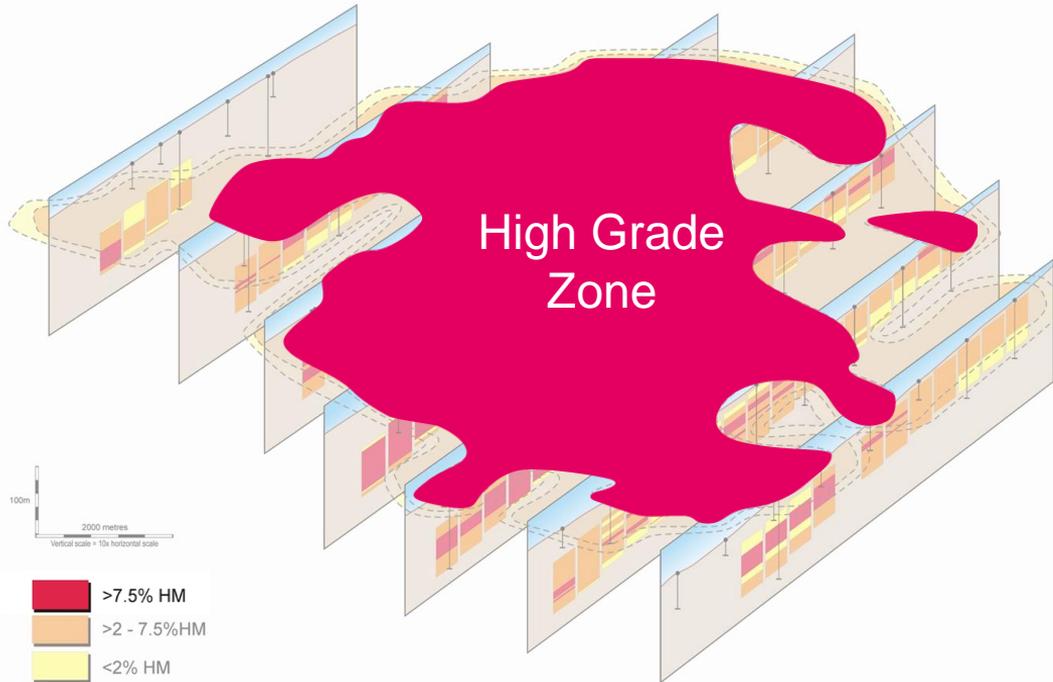
SheffieldResources
LIMITED



High Grade

High Grade

THUNDERBIRD MINERAL SANDS



■ High Grade Zone

- **Coherent High Grade Zone** of 517Mt @ 10.1% HM, (Indicated & Inferred)¹
- **Containing:** 3.6Mt zircon, 0.8Mt rutile, 2.2Mt leucoxene and 15.2Mt ilmenite
- **High in-situ VHM grades:** 0.7% zircon, 0.16% rutile, 0.44% leucoxene and 2.9% ilmenite
- **Average 20m thickness**
- **Focus of initial development studies**

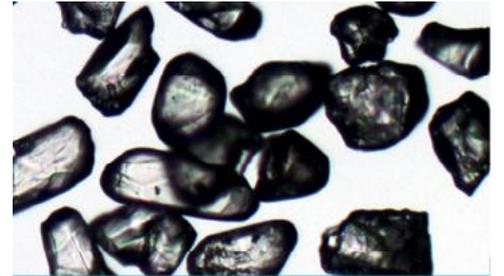
¹ At 7.5% HM cut-off. Refer to Appendices 1 & 2

Premium Product

THUNDERBIRD MINERAL SANDS



- Highly Marketable Products as assessed by TZMI
 - Premium grade zircon suitable for ceramics (largest sector of zircon market)
 - Primary ilmenite suitable for sulphate pigment process or sulphate or chloride slag (broad customer base)
 - Primary ilmenite has low Cr_2O_3 and low alkalis – ideal blending feed
 - Secondary ilmenite, HiTi & rutile products suitable for welding rod market



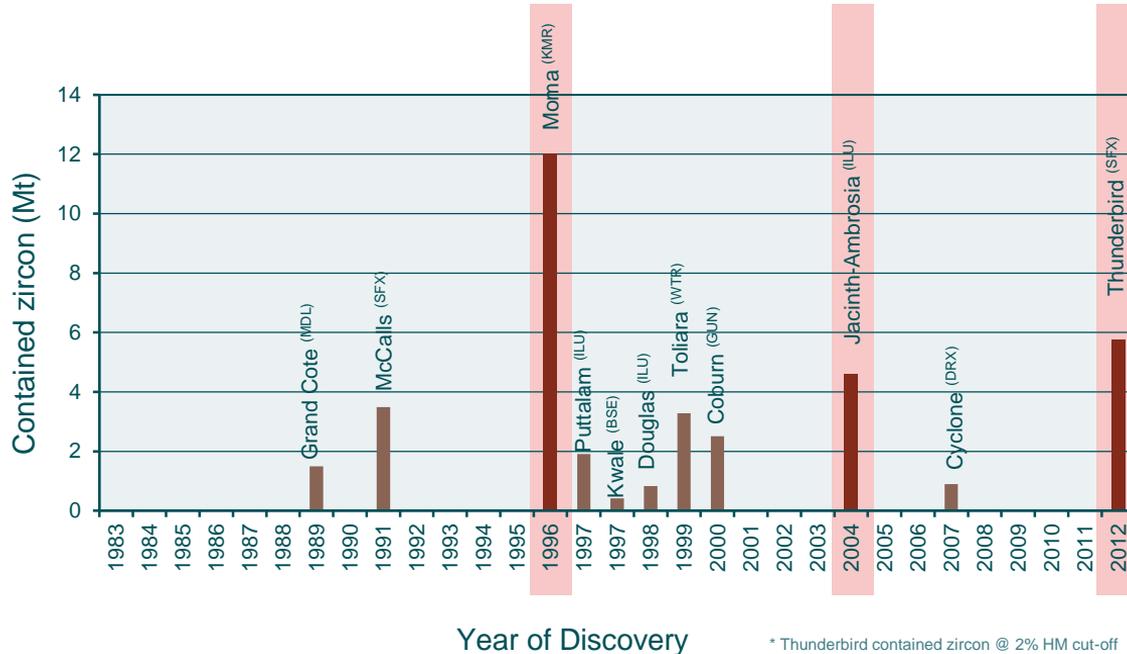
**Premium
Product**

World Class

THUNDERBIRD MINERAL SANDS



Large Zircon Deposits discovered in last 30 years

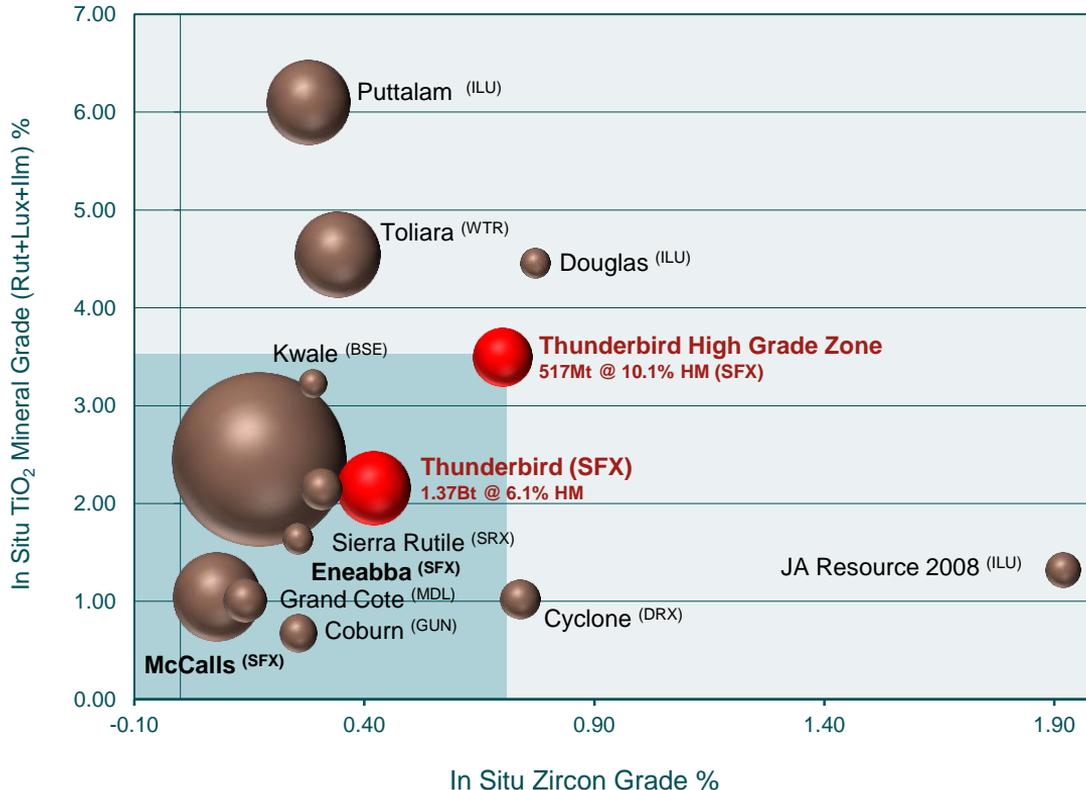


* Thunderbird contained zircon @ 2% HM cut-off

Projects of this scale and grade only come along once a decade

World Class

THUNDERBIRD MINERAL SANDS



Amongst the world's largest and highest grade deposits

Only deposits greater than 100Mt are shown.
Bubble size proportional to contained VHM tonnes.
Data compiled by SFX from open file sources.
Rio Tinto's deposits excluded (unable to be sourced).

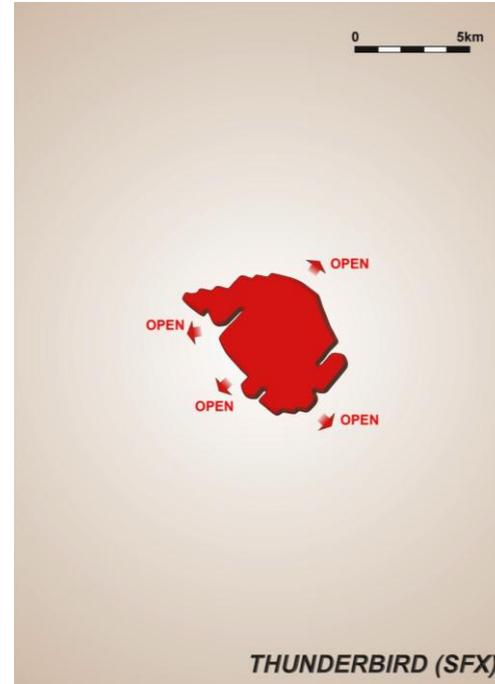


- Eneabba (ILU) vs Thunderbird (SFX)



■ Eneabba

- 20-30Mt VHM² mined 1974-2013
- Complex geometry
- Multiple deposits



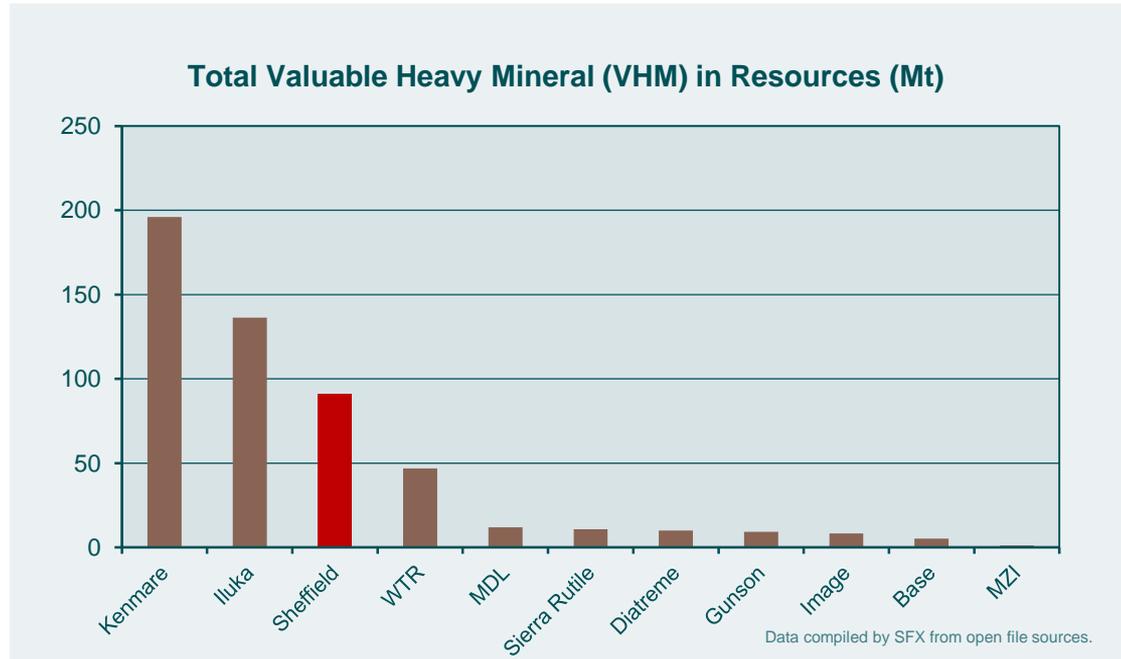
■ Thunderbird

- 35Mt VHM after 1 drilling programme
- Simple geometry
- More mineral, less area

² Shepherd, M.S. 1990 . Eneabba heavy mineral sand placers, in *Geology of the Mineral Deposits of Papua New Guinea* (AusIMM)

World Class

THUNDERBIRD MINERAL SANDS



The Thunderbird discovery has boosted Sheffield's resource inventory to 90Mt VHM¹

¹ Refer to Appendices 1 & 2

Well Located

DAMPIER MINERAL SANDS PROJECT

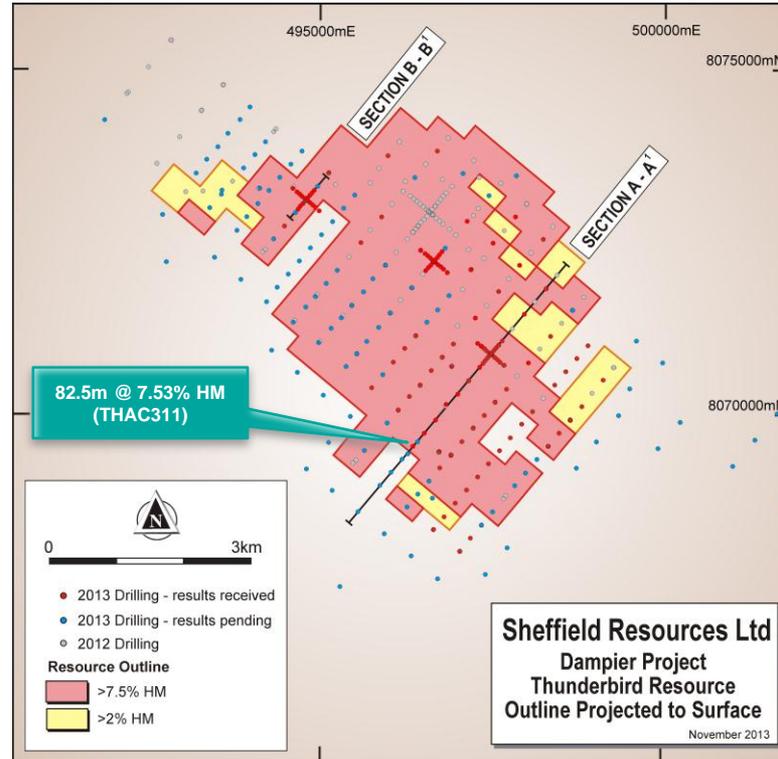
- 30km north of sealed Broome-Derby Hwy
- 140km by road to either Derby or Broome ports
- Outside National Heritage Estate areas
- Close to Yulleroo Gas Field
- Close to Asian markets



Recent Drilling

THUNDERBIRD MINERAL SANDS

- 2013 drilling campaign completed in October
- 281 aircore drill holes for 18,845m
- Infill drilling aimed at improving resource classification
- Step-out drilling to expand resource
- 40% of assay results returned to date
- Record intersection of 82.5m @ 7.53% HM

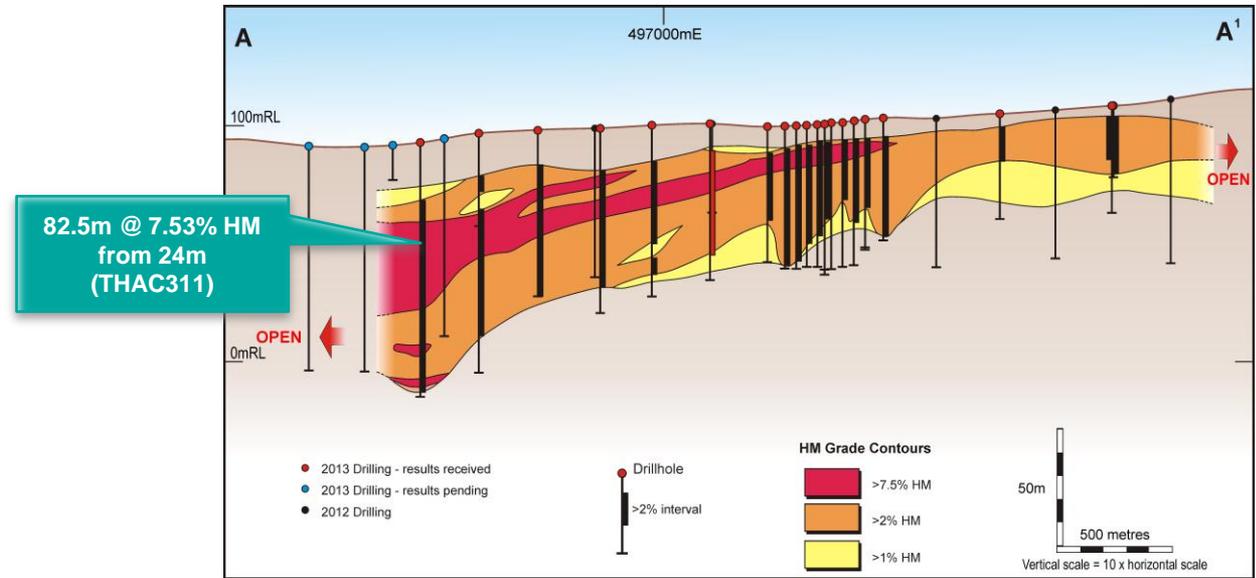


Recent Drilling

THUNDERBIRD MINERAL SANDS



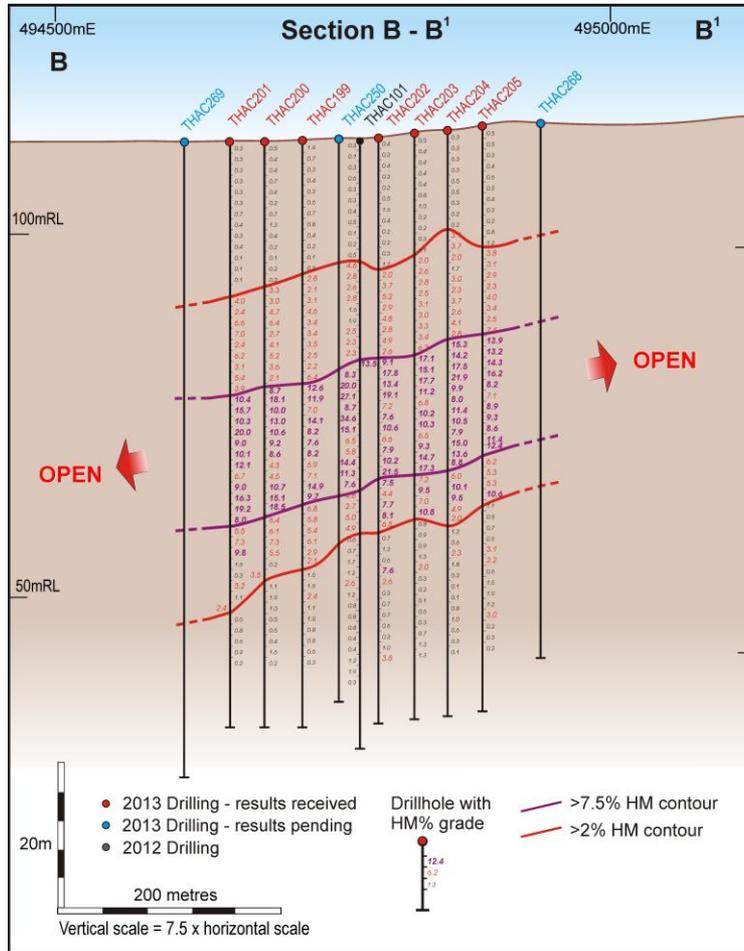
- Record intersection
82.5m @ 7.5% HM
- Open in down-dip
direction



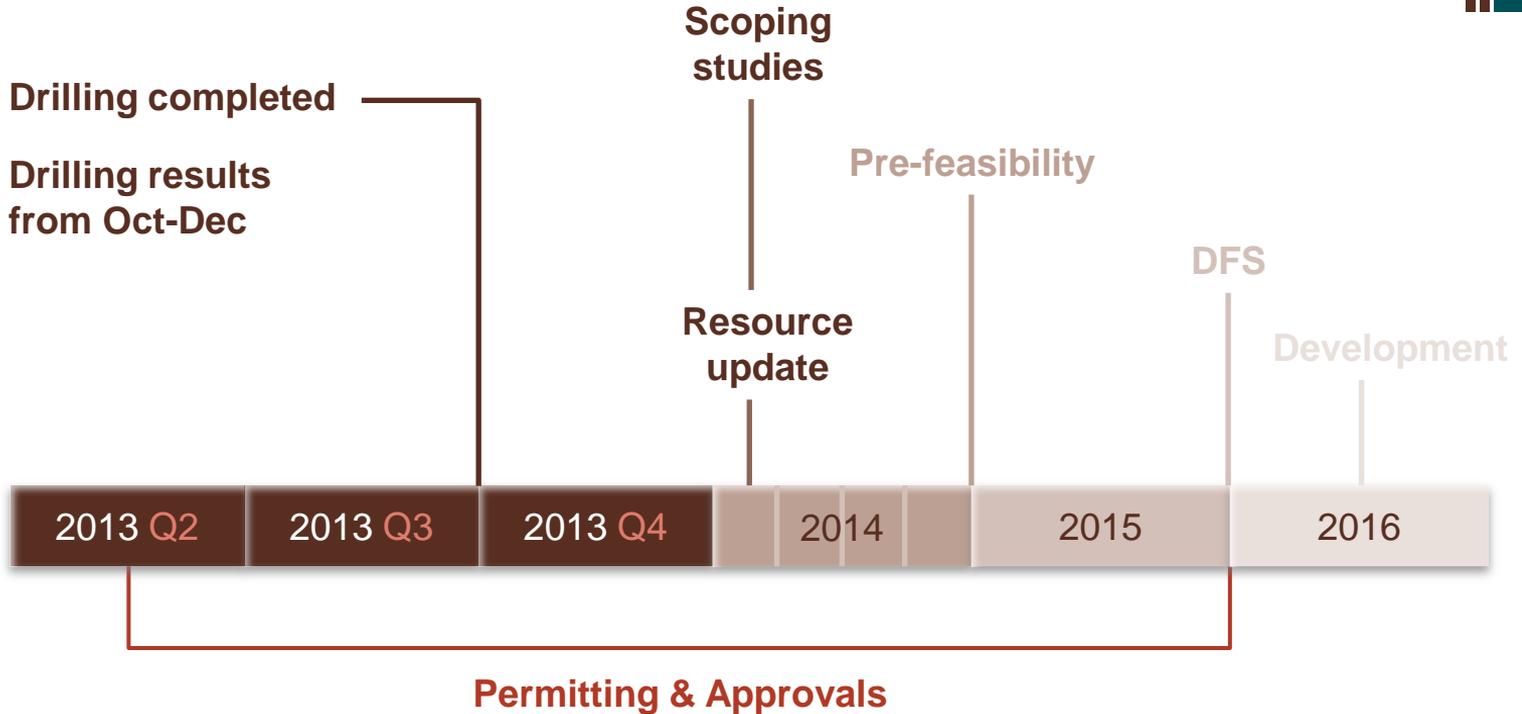
Recent Drilling

THUNDERBIRD MINERAL SANDS

- Excellent continuity of high grade (>7.5% HM) demonstrated by closely-spaced drilling



Timeline Next Steps





Large
Scale

High
Grade

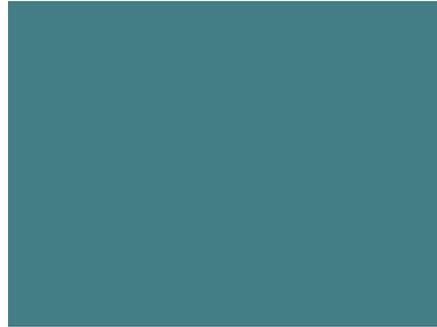
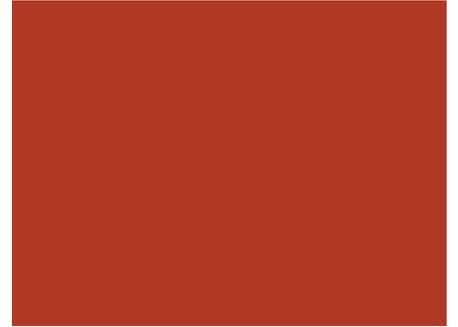
World
Class

Premium
Product

Conclusion

- Thunderbird
- a World Class HMS deposit
- Once in a decade discovery
- High quality zircon & ilmenite products
- 100% owned by Sheffield, market cap \$60m
- Financing/partnering/offtake optionality retained
- Scoping Study Q1 2014, moving to PFS in 2014

Thank you



For further information please contact:

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



SheffieldResources
LIMITED

Appendices

Appendix 1 Resource Inventory



SheffieldResources
LIMITED

Sheffield's contained Valuable HM (VHM)* Resource Inventory at 30 October 2013

Deposit	Resource Category	Zircon ('000t)	Rutile ('000t)	Leuc. ('000t)	Ilmenite ('000t)	Total VHM ('000t)
Thunderbird	Indicated	1,483	344	924	6,256	9,007
Thunderbird	Inferred	4,270	990	2,661	18,007	25,927
Yandanooka	Measured	13	2	3	87	105
Yandanooka	Indicated	240	81	83	1,439	1,843
Yandanooka	Inferred	4	1	2	23	29
Durack	Indicated	144	29	52	703	928
Durack	Inferred	26	5	13	121	164
Drummond Crossing	Indicated	143	101	37	542	823
Drummond Crossing	Inferred	7	5	1	28	41
Ellengail	Inferred	92	90	19	658	859
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	31	35	45	287	398
Total	Indicated	2,081	641	1,141	9,446	13,310
Total	Inferred	7,889	2,154	5,272	61,746	77,062
Total	All	10,001	2,830	6,458	71,479	90,770

The contained VHM tonnages in the above table are derived from Mineral Resource Estimates for the Yandanooka, Ellengail, West Mine North, McCalls, Durack deposits (estimated using a 0.9% HM cut-off), the Drummond Crossing deposit (estimated using a 1.1% HM cut-off) and the Thunderbird deposit (estimated using a 2% HM cut-off). These Mineral Resources have previously been fully reported in ASX releases by Sheffield on 25 October 2011, 7 November 2011, 20 February 2012, 28 August 2012, 18 December 2012, 30 January 2013 and 30 October 2013. Appendix 2 summarises the estimated tonnes and grades for these deposits.

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

Appendix 2 HMS Mineral Resource¹ Inventory 30 Oct 2013



SheffieldResources
LIMITED

Project	Deposit	Resource Category	Cut-off (% HM)	Material (Mt)*	Bulk Density	HM %	Slimes % ³	Osize %	In-situ HM (Mt)*	Zircon ² %	Rutile ² %	Leuc. ² %	Ilmenite ² %
DAMPIER	Thunderbird	Indicated	2.0	299	2.1	7.2	19	14	21.5	6.9	1.6	4.3	29
	Thunderbird	Inferred	2.0	1,075	2.1	5.8	17	16	61.9	6.9	1.6	4.3	29
	Total Dampier	All	2.0	1,374	2.1	6.1	17	15	83.4	6.9	1.6	4.3	29
ENEABBA	Yandanooka	Measured	0.9	2.9	2.0	4.1	15	14	0.12	10.6	1.9	2.2	72
	Yandanooka	Indicated	0.9	90.1	2.0	2.3	16	15	2.09	11.5	3.9	3.9	69
	Yandanooka	Inferred	0.9	2.8	2.0	1.2	18	21	0.03	11.2	3.9	4.6	68
	Yandanooka	Total	0.9	95.9	2.0	2.3	16	15	2.24	11.4	3.8	3.9	69
	Durack	Indicated	0.9	50.3	2.0	2.0	15	21	1.02	14	2.8	5.1	69
	Durack	Inferred	0.9	15	1.9	1.2	14	17	0.18	14	2.5	7.2	66
	Durack	Total	0.9	65.3	2.0	1.8	15	20	1.20	14	2.8	5.6	68
	Drummond Crossing	Indicated	1.1	48.7	2.0	2.1	16	9	1.02	14	10	3.6	53
	Drummond Crossing	Inferred	1.1	3.5	2.0	1.5	16	8	0.05	13	10	2.8	55
	Drummond Crossing	Total	1.1	52.2	2.0	2.1	16	9	1.07	14	10	3.5	53
	Ellengail	Inferred	0.9	46.45	2.0	2.2	15.6	2.1	1.04	8.9	8.7	1.9	63.5
	Ellengail	Total	0.9	46.45	2.0	2.2	15.6	2.1	1.04	8.9	8.7	1.9	63.5
	West Mine North	Measured	0.9	6.47	2.0	5.6	14.8	1.2	0.36	4.9	9.1	11.6	54.9
	West Mine North	Indicated	0.9	36.11	1.9	2.3	13.1	2.8	0.84	8.4	10.3	5.4	60.0
	West Mine North	Total	0.9	42.58	1.9	2.8	13.4	2.5	1.21	7.9	10.1	6.4	59.2
	Total	Measured	0.9	9.4	2.0	5.2	15	5	0.48	6.7	6.8	8.7	60
	Total	Indicated	var.	225.3	2.0	2.2	15	13	4.98	12.1	6.0	4.4	64
	Total	Inferred	var.	67.7	2.0	1.9	15	6	1.30	10.3	7.2	3.2	64
	Total Eneabba	All	var.	302	2.0	2.2	15	11	6.76	11.6	6.3	4.2	64
	MCCALLS	McCalls	Inferred	0.9	4,431	2.3	1.2	26.5	1.4	53	6.6	2.0	4.9
Total McCalls		All	0.9	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. TiO₂ minerals defined according to the following ranges: Dampier: Rutile >95% TiO₂; Leucoxene 70-95% TiO₂; Ilmenite 40-70% TiO₂, Eneabba & McCalls: Rutile >95% TiO₂; Leucoxene 85-95% TiO₂; Ilmenite <55-85% TiO₂. ³ West Mine North, Drummond Crossing and McCalls deposits are reported below 35% slimes cut-off.

Appendix 3 Thunderbird Product Specifications



Primary Zircon Specifications

ZrO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃ %	P ₂ O ₅ %
66.2	0.05	0.09	0.10	0.14

Primary Ilmenite Specifications

TiO ₂ %	FeO %	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	Cr ₂ O ₃ %	ZrO ₂ %
50.1	8.0	36.4	1.6	0.3	0.05	0.00

Appendix 4 Other Mineral Sands Projects

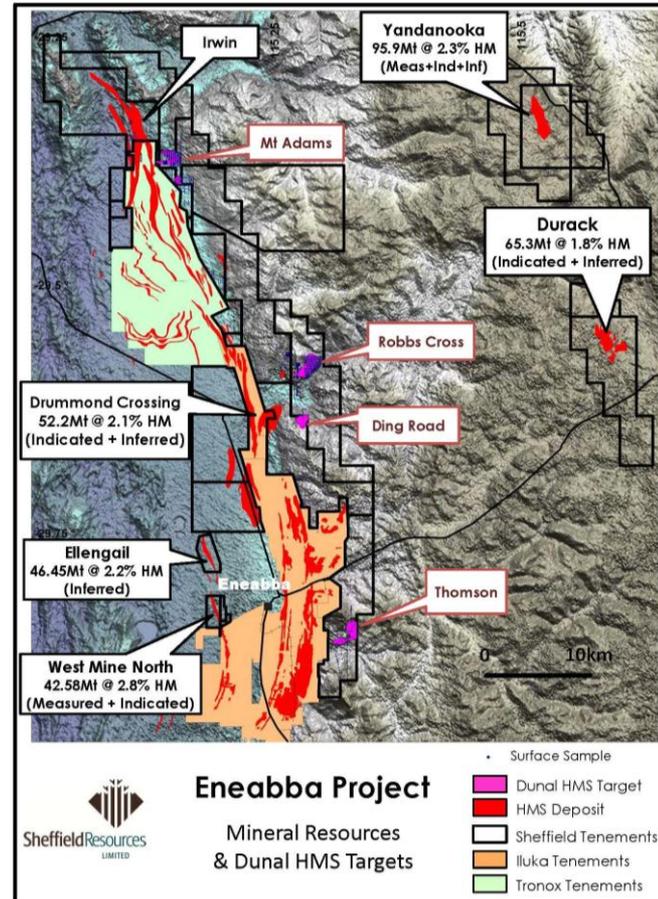


SheffieldResources
LIMITED



ENEABBA

- Total Mineral Resources: 302Mt @ 2.2% HM (6.76Mt HM)
- Comprising 5 deposits, each with over 1Mt contained HM
- Established mining district
- Adjacent to Tronox's Dongara project
- Considerable exploration upside – 4 new dunal HM targets
- Dual deposits have minimal overburden and have a high value assemblage (e.g. Drummond Crossing 14% zircon, 10% rutile)



Appendix 4 Other Mineral Sands Projects



SheffieldResources
LIMITED

McCALLS

- Global scale chloride ilmenite deposit
- Mineral Resource 4.4Bt @ 1.2% HM (53Mt HM)
- Mineral assemblage includes: 80.8% ilmenite at 66% TiO₂
- Evaluating as a potential dredge project
- 2012 drilling results highlight central area as having higher grade, lower slimes and greater thickness
- Awaiting new Qemscan mineral assemblage results

