

# Investor Presentation

March 2015

# Disclaimer

## PREVIOUSLY REPORTED INFORMATION

This report includes information that relates to results which were prepared and first disclosed under the JORC Code 2012. The information was extracted from the Company's previous ASX announcements as follows:

"THUNDERBIRD MINERAL SANDS PROJECT UPDATE", 17 MARCH 2015  
 "THREE NEW MINERAL SANDS DISCOVERIES IN CANNING BASIN", 25 February 2015  
 "THUNDERBIRD HIGH GRADE RESOURCE SURPASSES ONE BILLION TONNES", 12 December 2014  
 "SHEFFIELD DOUBLES TOTAL MINERAL RESOURCES AT WORLD CLASS THUNDERBIRD HMS DEPOSIT", 19 March 2014  
 "SCOPING STUDY HIGHLIGHTS THUNDERBIRD'S EXCEPTIONAL FINANCIAL RETURNS", 14 April 2014  
 "THUNDERBIRD MINERAL SANDS PROJECT UPDATE", 17 September 2014  
 "STANDOUT DRILLING RESULTS EXTEND HIGH GRADE MINERALISATION AT THUNDERBIRD MINERAL SANDS PROJECT", 10 November 2014

This report also includes information that relates to Mineral Resources which were prepared and first disclosed under the JORC Code 2004. The information has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported. The information was extracted from the Company's previous ASX announcements as follows:

- "1MT CONTAINED HM INFERRED RESOURCE AT ELLENGAIL", 25 October 2011
- "WEST MINE NORTH MINERAL RESOURCE ESTIMATE EXCEEDS EXPECTATIONS", 7 November 2011
- "4.4 BILLION TONNE MAIDEN RESOURCE AT MCCALLS HMS PROJECT", 20 February 2012.
- "ENEABBA PROJECT RESOURCE INVENTORY EXCEEDS 5MT HEAVY MINERAL", 28 August 2012
- "LARGE HIGH GRADE MAIDEN RESOURCE FOR THUNDERBIRD HMS DEPOSIT", 18 December 2012
- "YANDANOOKA RESOURCE UPGRADE AND METALLURGICAL RESULTS", 30 January 2013.
- "1Mt HEAVY MINERAL RESOURCE ADDED TO ENEABBA PROJECT", 30 October 2013

These announcements are available to view on Sheffield Resources Ltd's website  
[www.sheffieldresources.com.au](http://www.sheffieldresources.com.au)

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement

## FORWARD LOOKING STATEMENTS

Some statements in this report regarding estimates or future events are forward-looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Forward-looking statements include, but are not limited to, statements preceded by words such as "planned", "expected", "projected" "estimated" "may", "scheduled", "intends", "potential", "could" "nominal" "conceptual" and similar expressions. Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward looking statements may be affected by a range of variables that could cause actual results to differ from estimated results.

## SCOPING STUDY

The Scoping Study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised

The Company believes it has a reasonable basis for making the forward looking statements in this report, including with respect to any production targets, based on the information contained in the announcement "SCOPING STUDY HIGHLIGHTS THUNDERBIRD'S EXCEPTIONAL FINANCIAL RETURNS", dated 14 April 2014, and with respect to the Mineral Resource for Thunderbird as at 19 March 2014, independently compiled by QG Pty Ltd, together with independent metallurgical, processing design, engineering, mining and marketing studies, product quality assessment, external commodity price and exchange rate forecasts and global operating cost data.

In this report the term "mining inventory" is used to report that part of the Mineral Resource that has been considered in the Scoping Study. The mining inventory does not meet the requirements of an Ore Reserve as defined under the 2012 edition of the JORC Code and should not be considered an Ore Reserve. There is no certainty that all or any part of the mining inventory will be converted into Ore Reserves.

# Company Snapshot

ASX Code : SFX



## Shareholder Split

Top 20 Shareholders **40%**

Directors **17.5%**

No industry major or offtake group on register

## Capital Structure

Share price **\$0.725**

Shares on issue **134.4m**

Employee Options (Ave. Exercise Price 71c) **7.4m**

Market Cap (Undiluted) **\$97.4**

Cash\* **\$7.7m**

Enterprise Value **\$89.7m**

\*Includes \$2.5m consideration from sale of Oxley potash project (ASX release 9/3/2015)

# Board & Management

Board & Management	
	<b>Will Burbury</b> Executive Chairman
	<b>Bruce McQuitty</b> Managing Director
	<b>David Archer</b> Technical Director
	<b>David Boyd</b> Exploration Manager
	<b>Mark Teakle</b> Project Development Manager
	<b>Wayne Groeneveld</b> Sustainability Manager

## PROVEN TRACK RECORD

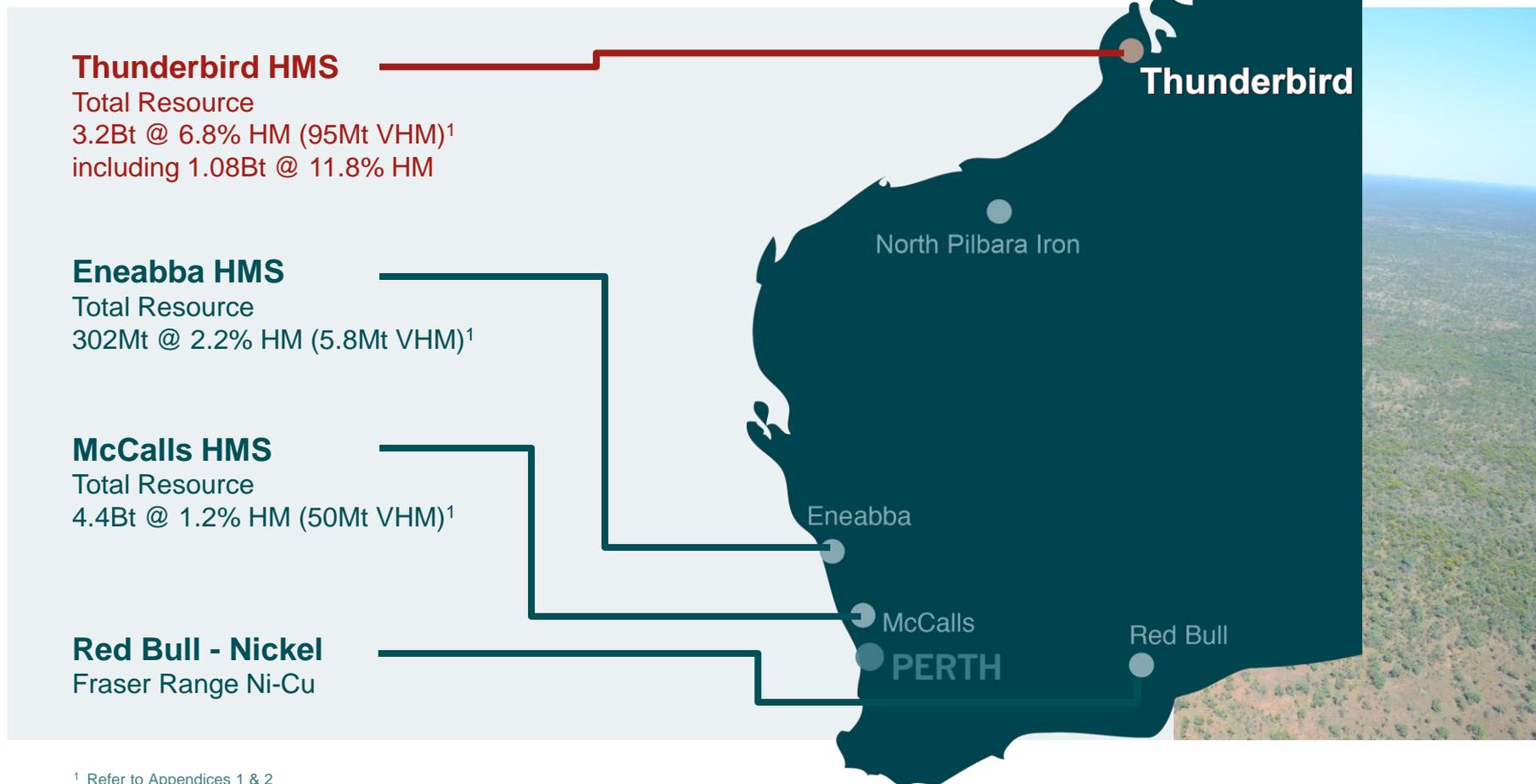
- History of successful Exploration and Corporate Transactions
- Discovered world class Thunderbird mineral sands deposit
- Built global scale HMS resource base in 3 years
- Completed Thunderbird Scoping Study demonstrating outstanding project economics
- Over 40 years of collective mineral sands experience





# Project Locations

(ALL 100% SFX)



<sup>1</sup> Refer to Appendices 1 & 2

# Thunderbird - Strategic Location

## LOCATION

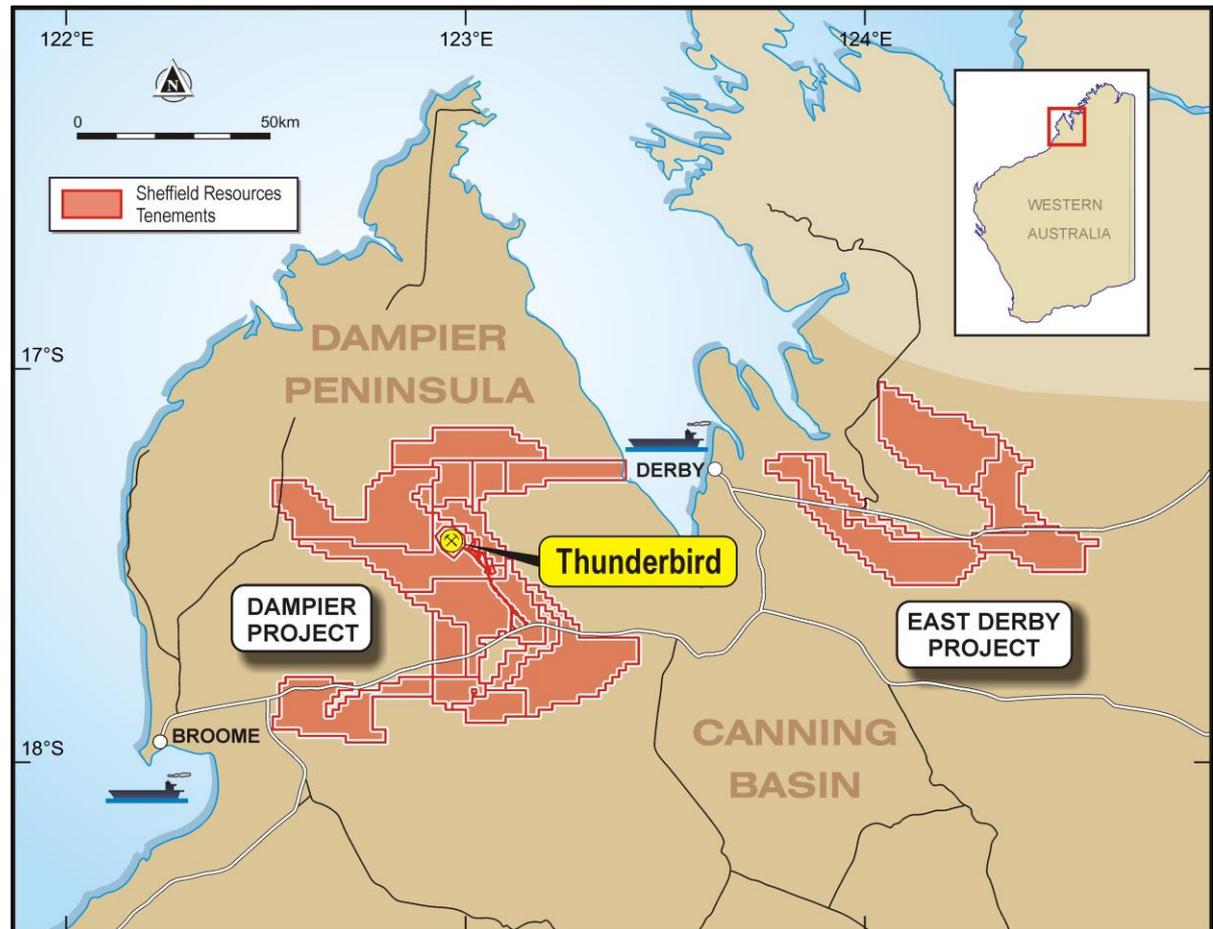
- 30km north of sealed Broome - Derby highway
- 140km by road to either Broome or Derby ports
- Gas discoveries nearby
- Close to Asian markets

## CANNING BASIN

- Thunderbird is first major mineral sands discovery in a new province
- Tenure doubled to 5,800km<sup>2</sup> since Dec 2014

## WESTERN AUSTRALIA

- Stable jurisdiction
- Pool of skilled workers & expertise
- Established mineral sands industry



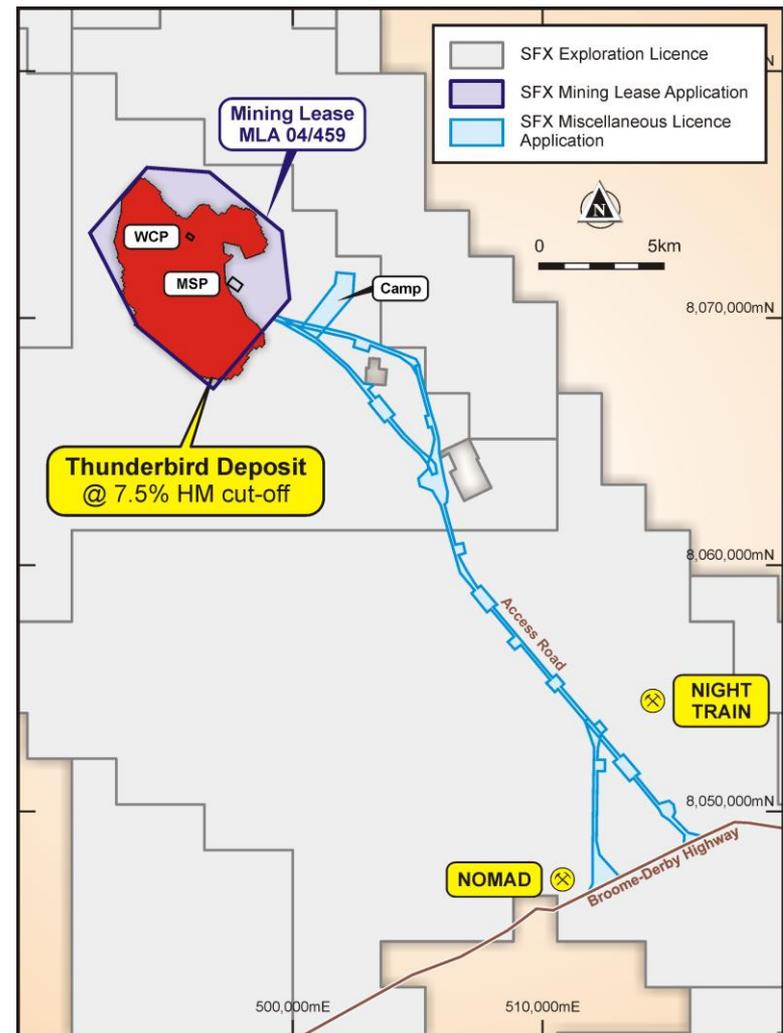
# Recent Developments

## PERMITTING & INFRASTRUCTURE

- Mining Lease lodged July 2014
- Miscellaneous licences lodged Dec 2014
- Designated Level 2 Lead Agency Framework Project
- Preferred proponent for bulk handling facility at Derby Port
- Groundwater studies completed, water extraction licence lodged March 2015
- PFS level mine to port logistics chain studies completed



Derby Port

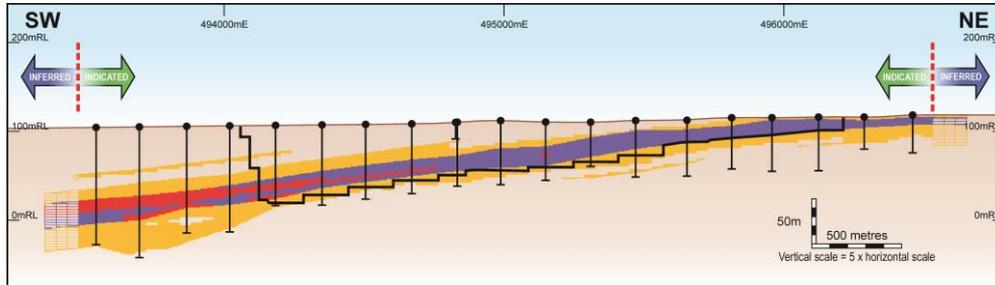


# Recent Developments

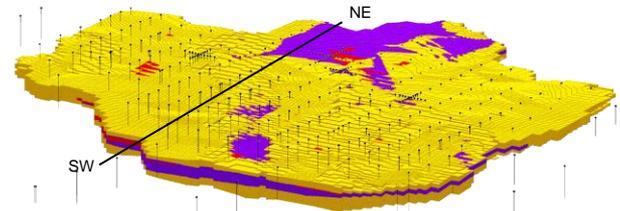
THUNDERBIRD RESOURCE UPDATE 12 December 2014

		Mineral Resources <sup>1</sup>		Valuable HM Grade (in situ) <sup>2</sup>			
Resource	Cut-off HM%	Material Mt	HM %	Zircon %	HiTi Leuc.%	Leucoxene %	Ilmenite %
<b>Total</b>	<b>3.0</b>	<b>3,205</b>	<b>6.8</b>	<b>0.58</b>	<b>0.19</b>	<b>0.21</b>	<b>1.9</b>
<b>Total</b>	<b>7.5</b>	<b>1,080</b>	<b>11.8</b>	<b>0.92</b>	<b>0.28</b>	<b>0.25</b>	<b>3.3</b>

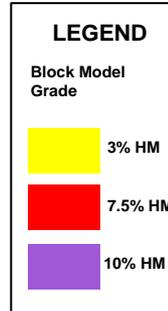
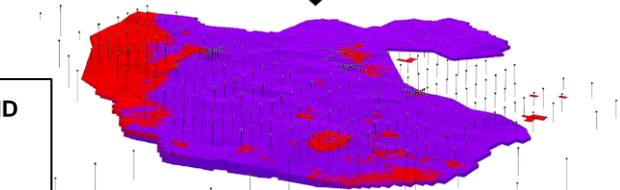
Refer to Appendices 1 & 2 for full Resources Tabulation



**Total Resource**  
**3.2Bt @ 6.8% HM (at 3% HM cut-off)**



**High Grade Zone**  
**1.08Bt @ 11.8% HM (at 7.5% HM cut-off)**



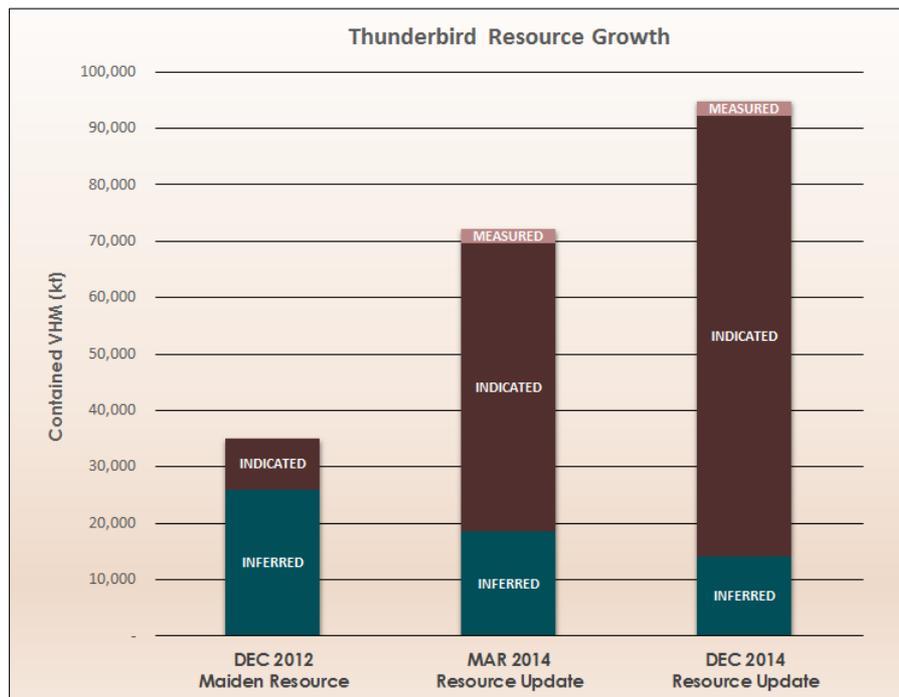
- Key to Thunderbird is continuous High Grade Zone
- This zone occurs at or near surface in the northern part of the deposit

1. Tonnes have been rounded to reflect the relative uncertainty of the estimate.  
 2. The in situ grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage.

# Recent Developments

## RESOURCE UPDATE 12 DECEMBER 2014

- Valuable Heavy Mineral in Total Resource increased by 32% to 95 million tonnes
  - Total contained zircon now 19.3 million tonnes
  - High grade component increased by 46% to 1.08Bt @ 11.8% HM
  - Confidence increased: 82% in M & I categories
  - New resource added in shallow up-dip areas:
    - 95Mt @ 12.0% HM (Indicated)
    - 25Mt @ 12.2% HM (Inferred)
- Expected to add more high grade feed to front end of mining schedule
- Updated resource sets strong platform for PFS





# Recent Developments

## METALLURGY & PRODUCT QUALITY

### RECOVERIES

- 12.5 tonne bulk sample processed by Robbins Metallurgical using full scale and scalable equipment
- Improved recoveries of all products over those achieved in Scoping Study
- Overall zircon recovery increased by 5% (to 67%) with high percentage of primary zircon (80%)

### TAILINGS CO-DISPOSAL TESTWORK

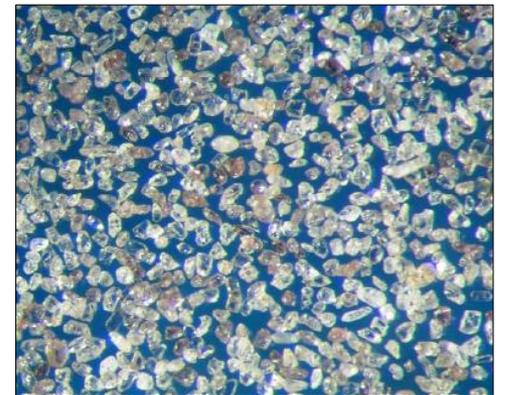
- Results indicate likely feasibility of co-disposal of slimes & sand tails
- High consolidating rates/water recoveries with low-moderate flocculant dosages => reduced operational footprint and faster rehabilitation

### PRODUCT QUALITY

- Scoping Study product assessment by TZMI & Ruidow indicates products readily marketable:
  - Premium grade zircon suitable for ceramics market
  - Primary ilmenite featuring low  $\text{Cr}_2\text{O}_3$  and low alkalis suitable for sulphate pigment process or sulphate or chloride slag
  - HiTi80 product suitable for welding rod market
- PFS product assessment & marketing studies underway



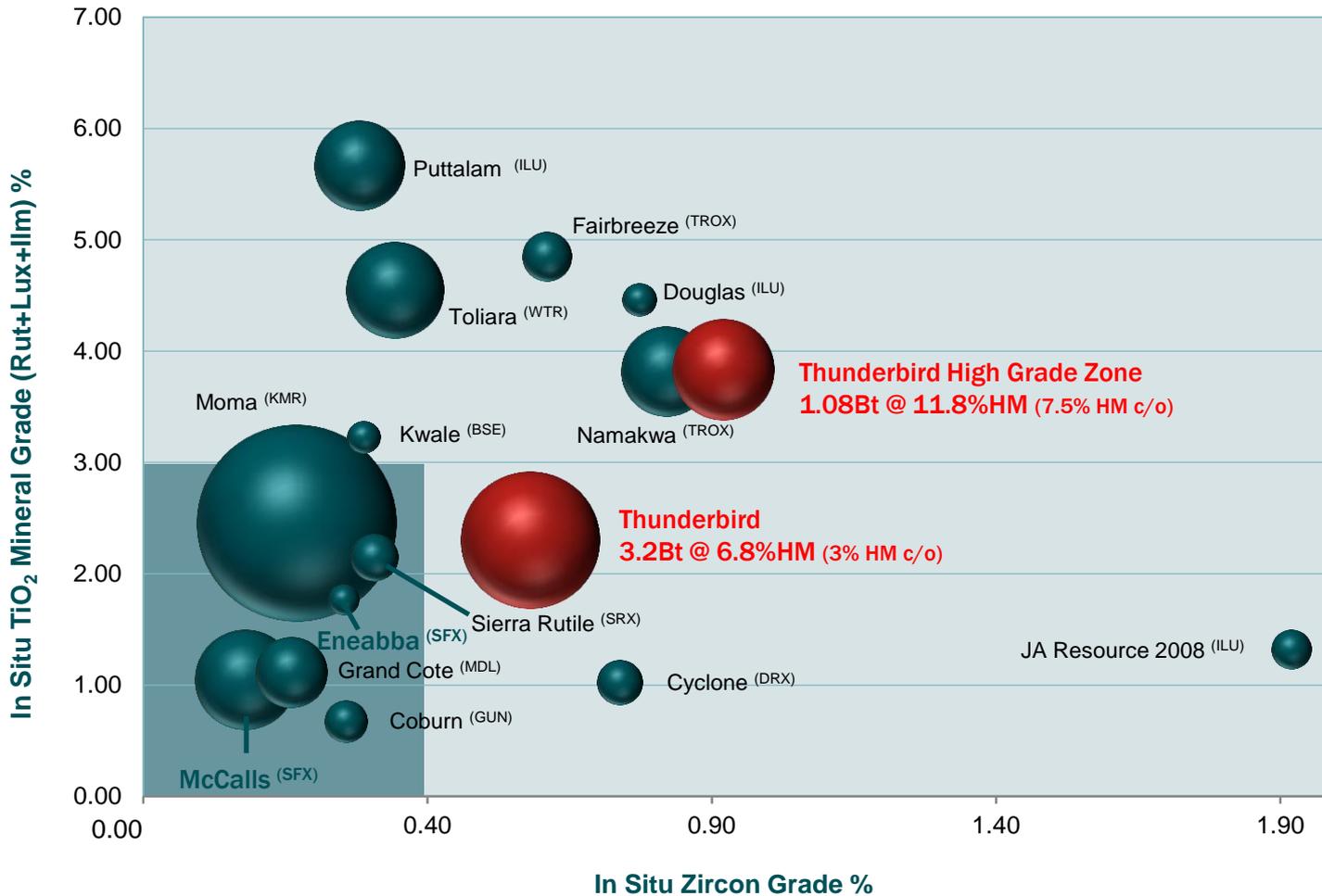
12.5 tonne sample processed at RJ Robbins laboratory, Brisbane



Primary zircon product from 12.5t testwork

# Tier 1 Project

## THUNDERBIRD MINERAL SANDS



Amongst the world's largest and highest grade deposits

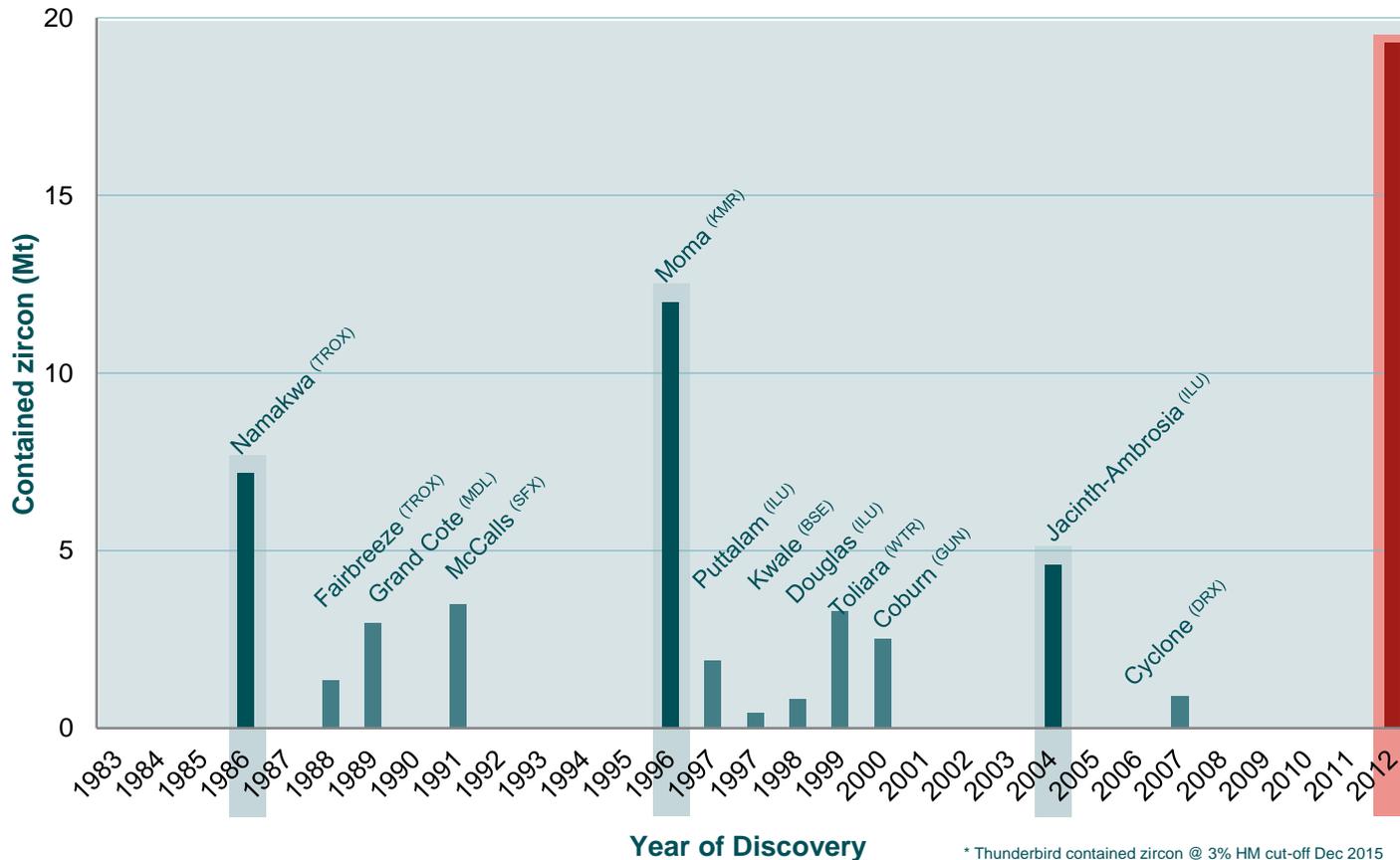
Only deposits greater than 100Mt are shown. Bubble size proportional to contained VHM tonnes

Data compiled by SFX from open file sources. Rio Tinto's deposits excluded (unable to be sourced)

# Tier 1 Project

## THUNDERBIRD MINERAL SANDS

LARGE ZIRCON DEPOSITS DISCOVERED OVER PAST 30 YEARS



Thunderbird (SFX)

Most significant discovery in decades: Grade and Scale

\* Thunderbird contained zircon @ 3% HM cut-off Dec 2015

# Thunderbird Project Metrics

## RESULTS OF SCOPING STUDY APRIL 2014

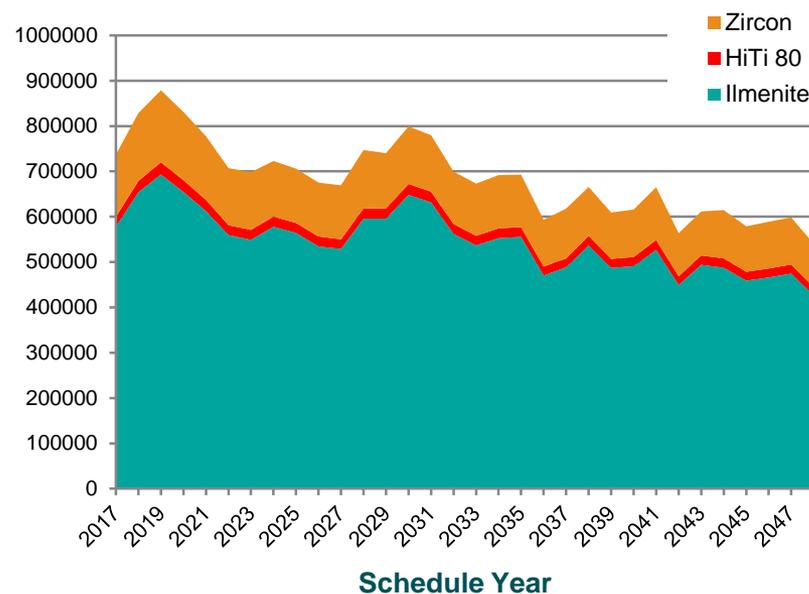
### PHYSICALS

- 32 Year Mine Life
- 20.8Mtpa average mining rate (dry mining)
- Average annual production is estimated to be:
  - 118,200tpa zircon (approx. 8% of global supply)
  - 545,000tpa ilmenite (approx. 4% of global supply)
  - 21,700tpa HiTi80
- High grades and very low strip ratio in initial years

### FINANCIALS

- Long life, strong margin project
- Projected \$140mpa EBITDA for 32 years<sup>1</sup>
- LOM R:C ratio 2:1, first 10 years 2.4:1
- Modest estimated Capex<sup>2</sup> requirement of A\$294m, with short payback period of 2 years
- Revenue split: zircon 57%, ilmenite 36%, HiTi80 7%

### PFS DUE APRIL 2015



Thunderbird Projected Saleable Product Physicals

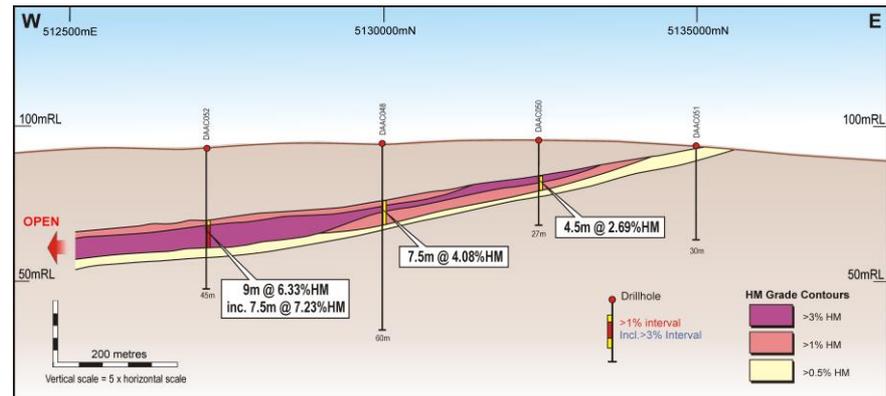
<sup>1</sup> Assuming long term pricing: US\$1,475 zircon, US\$185 ilmenite, US\$870 HiTi80, A\$:US\$ 0.90

<sup>2</sup> Excludes estimated cost of PFS (\$5m) and DFS (\$10m).

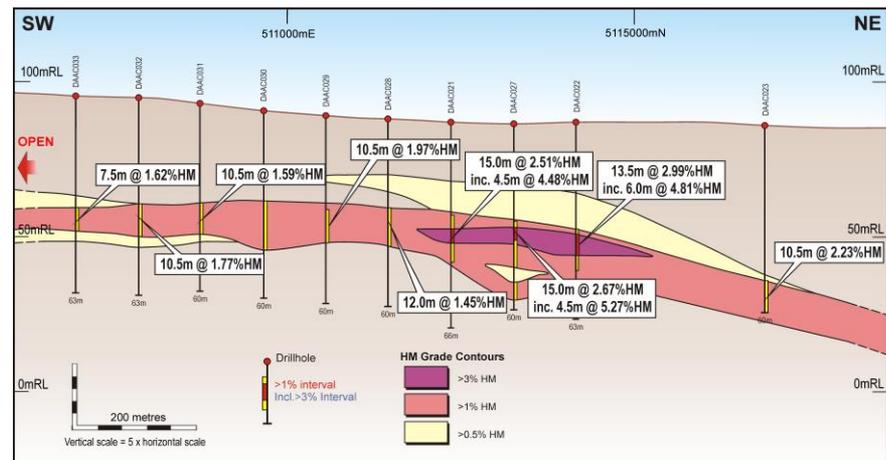
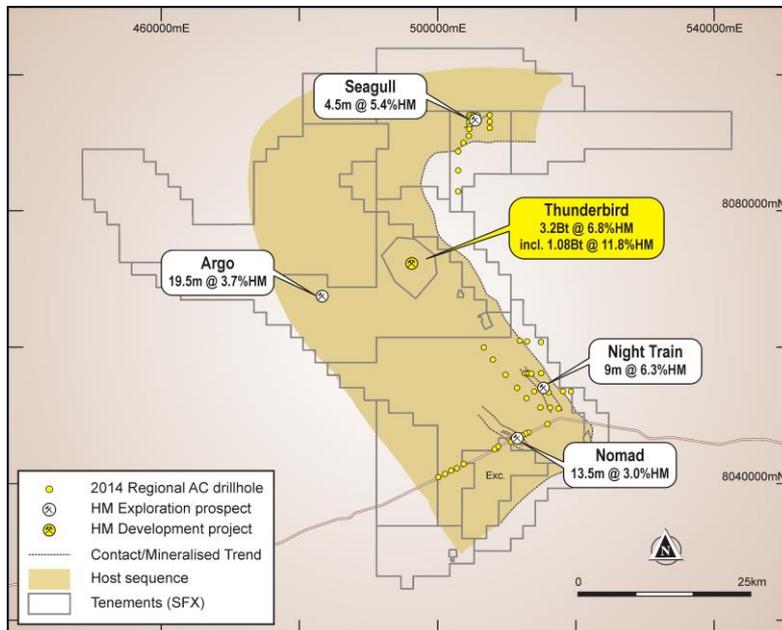
# Regional Exploration Success

## NEW PROVINCE - THREE NEW DISCOVERIES

- Discoveries from limited scout drilling:
  - Night Train – best 9m @ 6.3% HM
  - Nomad – best 13.5m @ 3.0% HM
  - Seagull - best 4.5m @ 5.4% HM
- High value mineral assemblage: 92% VHM including 15% zircon, 61% leucoxene+HiTi at Night Train
- New fertile province => high rate of discovery
- 3,275km<sup>2</sup> of new tenure applications since Dec 2014



Night Train Cross Section



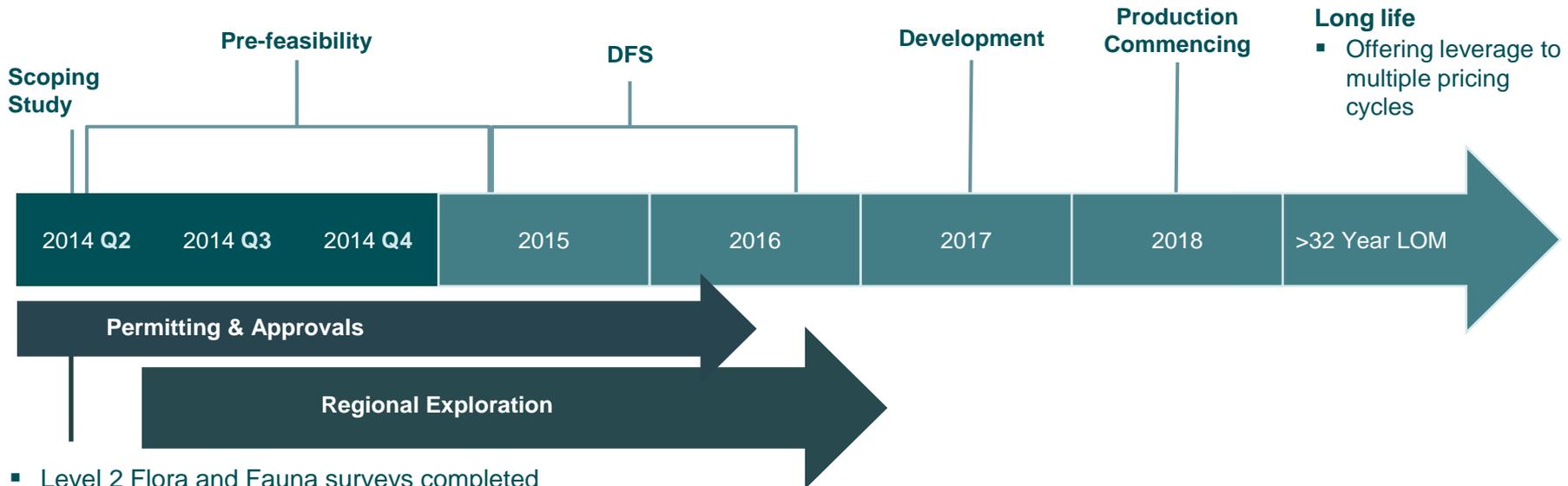
Nomad Cross Section



# Timeline to Production

## Upcoming Milestones Will Drive Shareholder Value

- PFS April 2015
- Resource & PFS Updates Q3 2015
- DFS Q4 2016
- Permitting & Approvals
- Regional Exploration – follow up recent discoveries



- Long life**
- Offering leverage to multiple pricing cycles

- Level 2 Flora and Fauna surveys completed
- Mining Lease application lodged July 2014
- Lead Agency Framework Project Proposal March 2015
- Native Title negotiations Q2-Q3 2015

# Fraser Range Nickel

## LARGE FOOTPRINT IN NEW PROVINCE

### FRASER RANGE

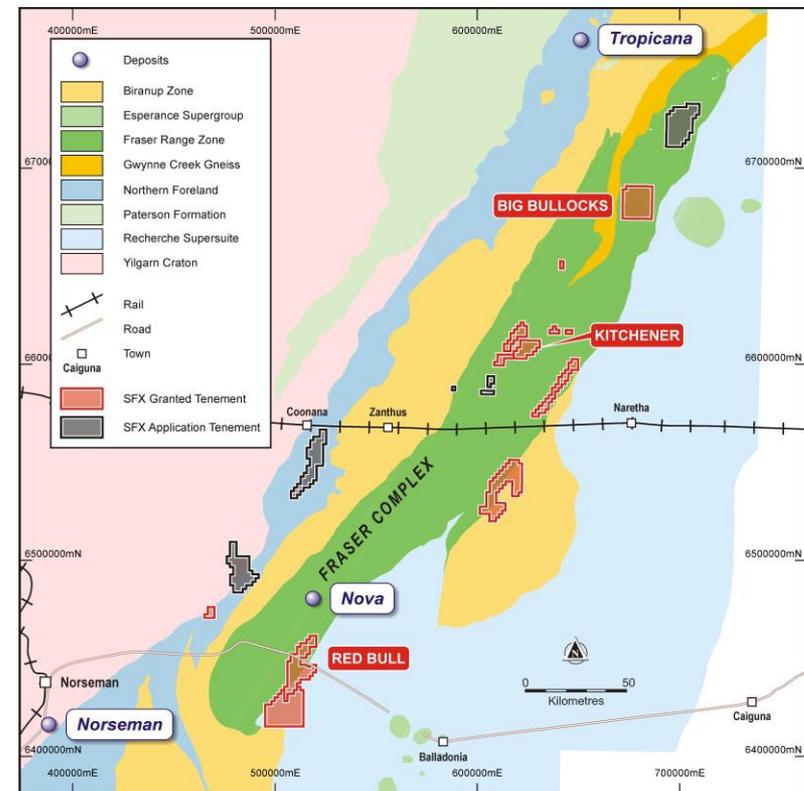
- Fraser Range tenement position grown to 2,300km<sup>2</sup>
- Red Bull and Big Bullocks projects are main focus
- Aim is to generate new targets for RC drilling Q2-Q3 2015

### RED BULL

- Moving Loop EM survey underway over Northern Targets
- Targeting areas of Ni-Cu-Co-Cr anomalism in aircore drilling and soils
- Results expected early Q2 2014

### BIG BULLOCKS

- Sits over main gravity ridge of Fraser Complex
- Multiple magnetic lows (interpreted ultramafic bodies)
- Scout aircore drilling program underway
- Results expected Q2 2014



Sheffield's tenement position in Fraser Range region

# Conclusion

## ADVANCING THUNDERBIRD TOWARDS DEVELOPMENT

- World class, large scale, long life project
- One of very few large zircon-rich projects in the global development pipeline
- High estimated cash margins with leverage to multiple pricing cycles
- Modest estimated development capital
- Globally significant projected production levels of zircon and ilmenite
- Preferred proponent for Derby port bulk handling facility
- Further upside from recent developments
- Near-term major milestones:
  - PFS completion April 2015
  - PFS update Q3 2015





# Appendix 1: Resource Inventory

## SHEFFIELD'S CONTAINED VALUABLE HM (VHM)\* RESOURCE INVENTORY AT 12 DECEMBER 2014

Deposit	Resource Category	Zircon ('000t)	Rutile ('000t)	HiTi Leuc. ('000t)	Leuc. ('000t)	Ilmenite ('000t)	Total VHM ('000t)
Thunderbird	Measured	500	-	200	200	1,800	2,600
Thunderbird	Indicated	15,900	-	5,200	6,500	50,400	78,100
Thunderbird	Inferred	2,800	-	1,000	1,300	9,000	14,100
Yandanooka	Measured	13	2	-	3	87	105
Yandanooka	Indicated	240	81	-	83	1,440	1,840
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	3,490	1,060	-	2,580	42,910	50,040
<b>Total</b>	Measured	530	35	200	245	2,090	3,100
<b>Total</b>	Indicated	16,500	300	5,200	6,720	53,590	82,310
<b>Total</b>	Inferred	6,420	1,160	1,000	3,915	52,740	65,235
<b>Total</b>	All	23,450	1,500	6,400	10,880	108,420	150,650

All tonnages have been rounded to reflect the relative uncertainty of the estimate, thus sum of columns may not equal. 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 3% HM cut-off) detailed in Appendix 2. \* Valuable Heavy Minerals are classified as zircon, rutile, HiTi leucosene, leucosene and ilmenite. See the compliance statements at the beginning of this presentation for important information relating to the reporting of these Mineral Resources.



# Appendix 2: HMS Mineral Resources<sup>1</sup>

INVENTORY 12 DECEMBER 2014

Project	Deposit	Resource Category	Cut-off (% HM) <sup>3</sup>	Material (Mt)*	Bulk Density	HM %	Slimes % <sup>3</sup>	Osize %	In-situ HM (Mt)*	Zircon <sup>2</sup> %	Rutile <sup>2</sup> %	HiTi Leuc. % <sup>2</sup>	Leuc. <sup>2</sup> %	Ilmenite <sup>2</sup> %
THUNDER BIRD	Thunderbird	Measured	3.0	75	2.1	7.9	19	11	6	9.3	-	2.7	2.7	30
	Thunderbird	Indicated	3.0	2,550	2.1	7.0	16	9	180	8.9	-	2.9	3.6	28
	Thunderbird	Inferred	3.0	580	2.0	5.6	16	9	32	8.8	-	3.0	4.1	28
	<b>Total Thunderbird</b>	<b>Total</b>	<b>3.0</b>	<b>3,205</b>	<b>2.1</b>	<b>6.8</b>	<b>16</b>	<b>9</b>	<b>218</b>	<b>8.9</b>	<b>-</b>	<b>2.9</b>	<b>3.7</b>	<b>28</b>
ENEABBA	Yandanooka	Measured	0.9	3	2.0	4.1	15	14	0.1	11	1.9	-	2.2	72
	Yandanooka	Indicated	0.9	90	2.0	2.3	16	15	2.1	11	3.9	-	3.9	69
	Yandanooka	Inferred	0.9	3	2.0	1.2	18	21	0.03	11	3.9	-	4.6	68
	Yandanooka	Total	0.9	96	2.0	2.3	16	15	2.2	11	3.8	-	3.9	69
	Durack	Indicated	0.9	50	2.0	2.0	15	21	1.0	14	2.8	-	5.1	69
	Durack	Inferred	0.9	15	1.9	1.2	14	17	0.2	14	2.5	-	7.2	66
	Durack	Total	0.9	65	2.0	1.8	15	20	1.2	14	2.8	-	5.6	68
	Drummond Crossing	Indicated	1.1	49	2.0	2.1	16	9	1.0	14	10	-	3.6	53
	Drummond Crossing	Inferred	1.1	3	2.0	1.5	16	8	0.05	13	10	-	2.8	55
	Drummond Crossing	Total	1.1	52	2.0	2.1	16	9	1.1	14	10	-	3.5	53
	Ellengail	Inferred	0.9	46	2.0	2.2	16	2	1.0	8.9	8.7	-	1.9	64
	Ellengail	Total	0.9	46	2.0	2.2	16	2	1.0	8.9	8.7	-	1.9	64
	West Mine North	Measured	0.9	6	2.0	5.6	15	1	0.4	4.9	9.1	-	12	55
	West Mine North	Indicated	0.9	36	1.9	2.3	13	3	0.8	8.4	10	-	5.4	60
	West Mine North	Total	0.9	43	1.9	2.8	13	3	1.2	7.9	10	-	6.4	59
	Total	Measured	Var.	9	2.0	5.2	15	5	0.5	6.7	6.8	-	8.7	60
	Total	Indicated	Var.	225	2.0	2.2	15	13	5.0	12	6.0	-	4.4	64
	Total	Inferred	Var.	68	2.0	1.9	15	6	1.3	10	7.2	-	3.2	64
	<b>Total Eneabba</b>	<b>All</b>	<b>Var.</b>	<b>302</b>	<b>2.0</b>	<b>2.2</b>	<b>15</b>	<b>11</b>	<b>6.8</b>	<b>12</b>	<b>6.3</b>	<b>-</b>	<b>4.2</b>	<b>64</b>
	MCCALLS	McCalls	Inferred	0.9	4,431	2.3	1.2	27	1.4	53	6.6	2.0	-	4.9
<b>Total McCalls</b>		<b>All</b>	<b>0.9</b>	<b>4,431</b>	<b>2.3</b>	<b>1.2</b>	<b>27</b>	<b>1.4</b>	<b>53</b>	<b>6.6</b>	<b>2.0</b>	<b>-</b>	<b>4.9</b>	<b>81</b>

\* All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate and maintain consistency throughout the table, thus sum of columns may not equal. 1 See the compliance statements at the beginning of this presentation for important information relating to the reporting of these Mineral Resources. 2 The Mineral Assemblage is represented as the percentage of the Heavy Mineral (HM) component of the deposit, determined by QEMSCAN for Eneabba & McCalls, with TiO<sub>2</sub> minerals defined according to the following ranges: Rutile >95% TiO<sub>2</sub>; Leucocoxene 85-95% TiO<sub>2</sub>; Ilmenite <55-85% TiO<sub>2</sub>; for Dampier the mineral assemblage was determined by screening and magnetic separation. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: Ilmenite: 40-70% TiO<sub>2</sub> >90% Liberation; Leucocoxene: 70-94% TiO<sub>2</sub> >90% Liberation; High Titanium Leucocoxene (HiTi Leucocoxene): >94% TiO<sub>2</sub> >90% Liberation; and Zircon: 66.7% ZrO<sub>2</sub>+HfO<sub>2</sub> >90% Liberation. Non-magnetic fractions were submitted for XRF analysis and minerals determined as follows: Zircon: ZrO<sub>2</sub>+HfO<sub>2</sub>/0.667 and High Titanium Leucocoxene (HiTi Leucocoxene): TiO<sub>2</sub>/0.94. 3 West Mine North, Drummond Crossing, Durack and McCalls deposits are reported below 35% slimes cut-off.