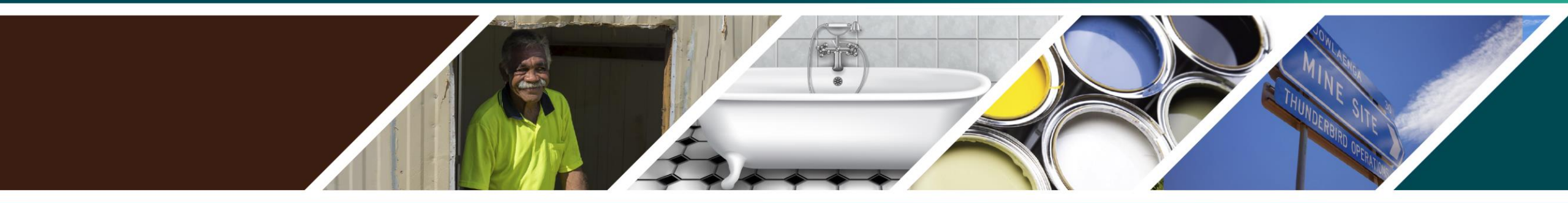




SheffieldResources
LIMITED

Investor Roadshow

Bruce Griffin – Executive Chair



May 2021

ASX:SFX | sheffieldresources.com.au

Notice and Disclaimer

IMPORTANT: You must read the following in conjunction with this document.

Summary information in relation to Sheffield

This document contains summary information about Sheffield Resources Limited (ACN 125 811 083) (Company or Sheffield), its subsidiaries and their activities which is current as at the date of this document, unless otherwise indicated. The information in this document remains subject to change without notice, and Sheffield is not responsible for updating, nor does it undertake to update, it. This document should be read in conjunction with Sheffield's periodic and continuous disclosure announcements lodged with the Australian Securities Exchange (ASX), which are available at <http://www.sheffieldresources.com.au/irm/content/asx-announcements1.aspx?RID=398> or www.asx.com.au.

Industry data

Certain market and industry data used in connection with or referenced in this document, including in relation to other companies in Sheffield's peer group, may have been obtained from public filings, research, surveys or studies made or conducted by third parties, including as published in industry-specific or general publications. Neither Sheffield or their respective representatives have independently verified any such market or industry data.

Compliance Statements

Information and documentation which forms the basis of the Thunderbird Bankable Feasibility Study (BFS) and Bankable Feasibility Study Update (BFSU) in relation to Mineral Resources, Ore Reserves and metallurgy and process design has previously been reported as detailed below. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of the July 2016 Thunderbird Mineral Resources and the July 2019 Thunderbird Ore Reserve, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. In the case of the announcement entitled "BFS Update Materially Improves Project Economics" dated 31 July 2019, the Company confirms that all material assumptions underpinning any production target and any forecast financial information derived from any production target that is disclosed in this announcement continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings are presented and have not been materially modified from the original market announcements.

Not financial product advice

This document does not constitute, and is not intended to constitute, investment or financial product advice (nor tax, accounting or legal advice). This document should not be relied upon as advice to investors or potential investors and has been prepared without taking account of any person's individual investment objectives, financial situation or particular needs. Any investment decision should be made based solely upon appropriate due diligence.

Financial data

A number of figures, amounts, percentages, estimates, calculations of value and fractions in this document are subject to the effect of rounding. Accordingly, the actual calculation of these figures may differ from the figures set out in this document. All currency amounts are in Australian Dollars (\$) or A\$) unless otherwise stated.

Future performance, forward-looking statements and key risks

This document contains certain "forward-looking statements". Forward-looking statements can generally be identified by the use of forward looking words such as "forecast", "likely", "believe", "future", "project", "opinion", "guidance", "should", "could", "target", "propose", "to be", "foresee", "aim", "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", "indicative" and "guidance", and other similar words and expressions, which may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production dates, expected costs or production outputs for the Company, based on (among other things) its estimates of future production of the Thunderbird Project and the future operation of Sheffield and the Thunderbird Project.

To the extent that this document contains forward-looking information (including forward-looking statements, opinions or estimates), the forward-looking information is subject to a number of risk factors, including those generally associated with the mineral sands industry. Any such forward-looking statement also inherently involves known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated. These factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations, general economic and share market conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development (including the risks of obtaining necessary licenses and permits and diminishing quantities or grades of reserves), changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, geological and geotechnical events, and environmental issues, and the recruitment and retention of key personnel.

Estimates of Mineral Resources and Ore Reserves and exploration results

This document contains estimates of Sheffield's Ore Reserve and Mineral Resources and information that relates to exploration results.

The Mineral Resources and Ore Reserves of Sheffield have been extracted from Sheffield's ASX releases;

"BFS UPDATE MATERIALLY IMPROVES PROJECT ECONOMICS" 31 July 2019

"HIGH GRADE MAIDEN MINERAL RESOURCE AT NIGHT TRAIN" 31 January 2019

"THUNDERBIRD ORE RESERVE UPDATE" 16 March 2017

The exploration results have been extracted from Sheffield's ASX releases;

"NEW LARGE HIGH GRADE DISCOVERY SOUTH OF THUNDERBIRD" 13 November 2018

A copy of these announcements is available at <http://www.sheffieldresources.com.au/irm/content/asx-announcements1.aspx?RID=398> or www.asx.com.au.

"THUNDERBIRD ORE RESERVE UPDATE" 31 July 2019

"MINERAL RESOURCE AND ORE RESERVE STATEMENT" 3 October 2018

"SHEFFIELD DOUBLES MEASURED MINERAL RESOURCE AT THUNDERBIRD" 5 July 2016

"EXCEPTIONAL RESULTS CONFIRM MAJOR DISCOVERY AT NIGHT TRAIN" 9 October 2018

Bankable Feasibility Study ("BFS")

This document contains information that relates to a Bankable Feasibility Study. This information was extracted from the following ASX releases by Sheffield:

THUNDERBIRD BFS DELIVERS OUTSTANDING RESULTS" 24 March, 2017

Other Extracted Information

In addition to those ASX releases referred to above, this document contains information extracted from the following ASX releases:

"TRANSFORMATIONAL THUNDERBIRD JOINT VENTURE" 11 August 2020

"QUARTERLY ACTIVITIES REPORT" and "QUARTERLY CASHFLOW REPORT" 30 April 2021

"MINING LEASE GRANTED OVER THUNDERBIRD MINERAL SANDS PROJECT" 26 September 2018

"THUNDERBIRD PROJECT AND JOINT VENTURE UPDATE" 16 September 2020

"NATIVE TITLE AGREEMENT SIGNED BY TRADITIONAL OWNERS" 1 November 2018

"FEDERAL ENVIRONMENTAL APPROVAL GRANTED FOR THUNDERBIRD" 28 September 2018

The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources and Ore Reserves, 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 announcements.

ASX listed mineral sands developer

- Market Cap of \$170 million (346 million shares at \$0.49/share)¹
- \$10.8 million cash balance (31 March 2021)*
- Enterprise value of \$159 million

50% owner of the Tier 1 Thunderbird Mineral Sands Project in Western Australia via Kimberley Mineral Sands JV

- Thunderbird is large, high grade ore body in a low risk jurisdiction
- Good quality zircon and ilmenite products with demonstrated market acceptance
- Development aligned with supply gap for zircon and need for new ilmenite supply for chloride slag and sulfate pigment
- Targeting FID in late 2021, with site works commencing in Q3 2021 and construction completion in late 2023
- Phase 1 production of around 210ktpa zircon concentrate and around 500ktpa ilmenite at first quartile R/C margins²
- Phase 1 capital and economics yet to be finalised but expected to be similar to the 2019 BFSU²
 - Capital of A\$392 million and NPV of A\$980 million
- Project funding from A\$130 million in JV cash + A\$10 million equity from Sheffield (post FID) + NAIF and commercial debt
- Upside from Phase 2, other KMS resources and mineralised zones within the Dampier Project

Fully funded through to FID

100% owner of the Eneabba and McCalls mineral sands projects in the North Perth Basin

1. Market data as at 3 May 2021 and sourced from ASX
2. ASX Announcement "BFS Update Materially Improves Project Economics" 31 July 2019
* Cash balance excludes joint venture proceeds of \$129.4 as at 31 March 2021

Board and Management restructured for execution

Sheffield Resources Board and Management (ASX:SFX)



Bruce Griffin
Executive Chairman

Previously Senior VP of Strategic Development with Lomon Billions following Executive Management roles in several companies including CEO of TZMI.



John Richards
Lead Independent Director

Economist with more than 35 years' experience in the resources industry; holding various positions within mining companies, investment banks and private equity groups.



Bruce McFadzean
Managing Director
(NED from 1 July 2021)

Mining engineer with over 40 years experience leading the financing, development and operation of mines in Australia and overseas



Ian Macliver
Non-Executive Director

Experienced in corporate activity including capital raisings, acquisitions, divestments, takeovers, business & strategic planning, debt & equity, financial review & valuations.



Gordon Cowe
Non-Executive Director

Mechanical engineer with over 30 years experience involved in leading business start-up, planning & delivery of multiple complex projects.



Mark Di Silvio
CFO / Company Secretary

CPA with 30 years experience in the resources sector leading both financing and project development activities across Australia and Africa

Kimberley Mineral Sands (Sheffield – 50% interest)

Board: Sheffield Directors

Bruce Griffin

Bruce McFadzean

Technical Committee: Sheffield Representatives

Bruce Griffin

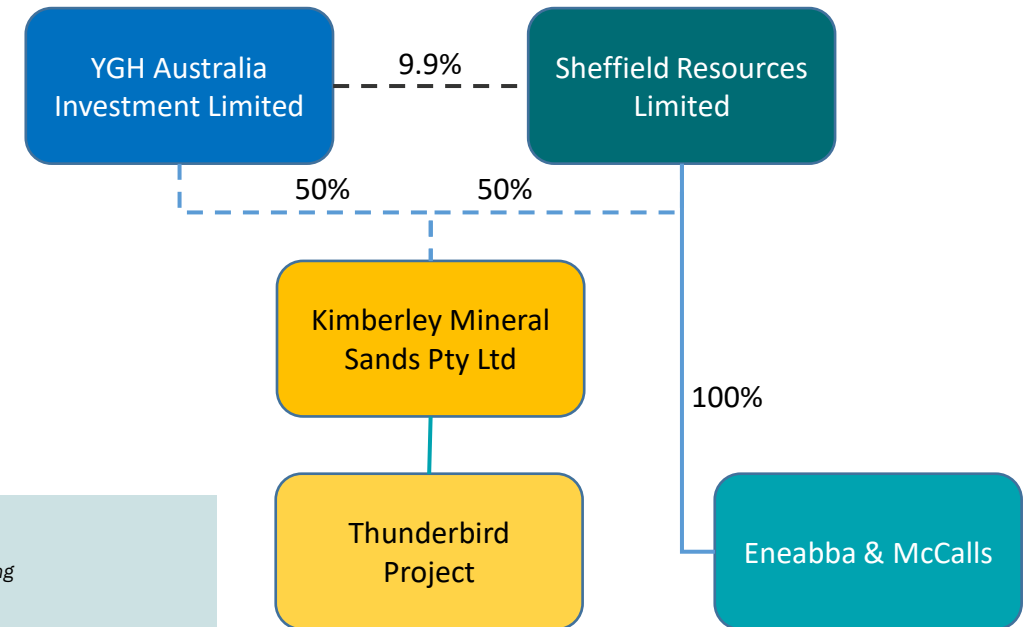
Steve Gilman

Principal Consultant with TZMI since 2000 with extensive experience in mineral sands operations since his employment at Allied Eneabba Limited as Metallurgist in 1976. Steve held senior roles including General Manager Operations for Florida and Eneabba and Group Operations Manager for RGC Mineral Sands (now Iluka Resources).

Kimberley Mineral Sands

Kimberley Mineral Sands¹

- Owns 100% of the Thunderbird Project
- Yansteel (via YGH Australia) contributed A\$130.1m in equity to acquire 50%
- Sheffield retains 50%
- Four person Board with two Yansteel and two Sheffield directors
- Key decisions require unanimous approval of both Yansteel and Sheffield
- Operates as a standalone entity with its own management and employees



Kimberley Mineral Sands Executive Management



Stuart Pether
 CEO - Kimberley Mineral Sands
 Mining engineer with over 25 years technical and operating experience in the resources industry, both in Australia and overseas



TBA
 Project Director
 Currently recruiting



TBA
 CFO
 Currently recruiting



Geoff Williams
 General Manager Operations
 Mining engineer with over 25 years mining experience in operational roles. A resident of Broome, having lived and worked in the Kimberley for many years



Neil Patten-Williams
 General Manager Marketing
 Experienced mineral sands marketing and operations manager with over 23 years experience in the mineral sands industry.



TBA
 General Manager People
 Currently recruiting

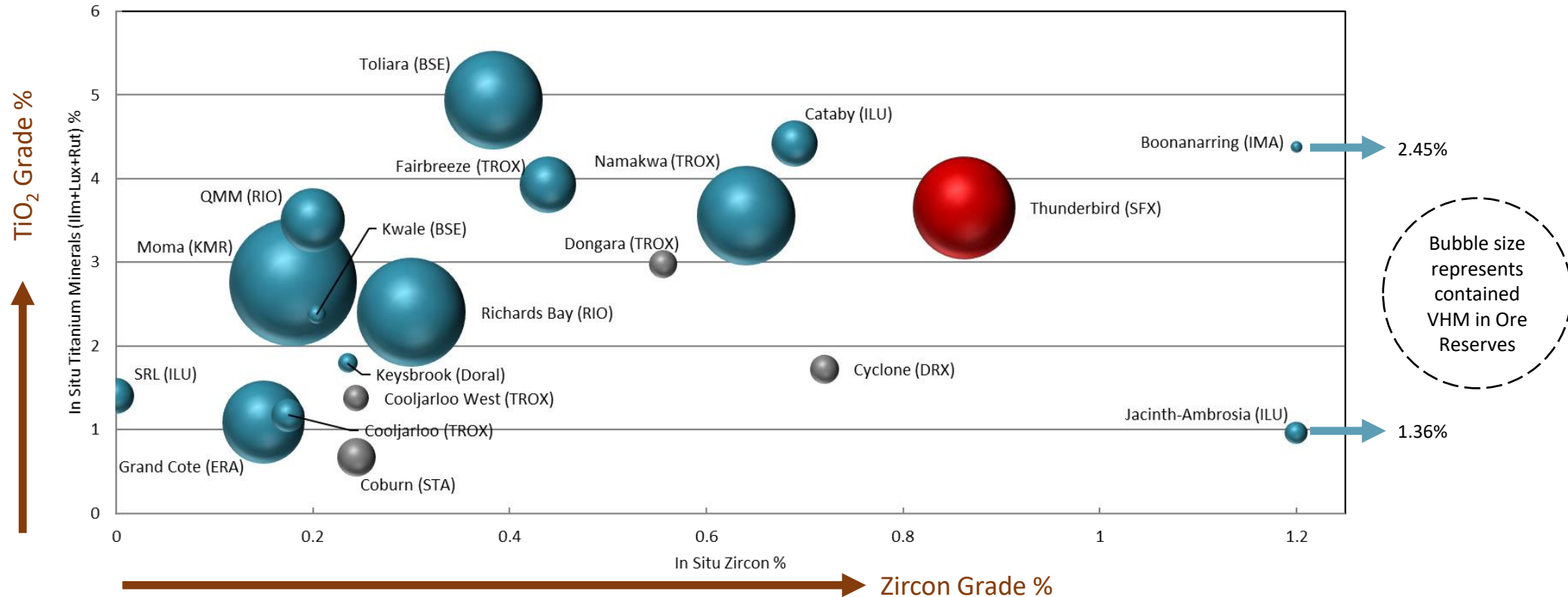
Reference:

1. ASX Announcement "Joint Venture Completion and Board Restructure" 12 March 2021
2. ASX Announcement "Transformational Thunderbird Joint Venture" 11 August 2020

Thunderbird – Large, high grade ore body ... in a low risk jurisdiction

Ore Reserves and Grade for selected mineral sands deposits ^{1,2,3}

- Large, mature mineral sands deposits globally typically show accelerating grade depletion trend with each new published Ore Reserve update
- The highest grade and most significant zircon producing mine, Jacinth-Ambrosia (Iluka) is nearing the end of its mine life
- The Zulti-South Project (currently on hold) is required to sustain RBM in the medium term
- Increasing throughput and production rates at mature operations are accelerating the depletion of Ore Reserves and mine life



Notes:

1. Thunderbird Ore Reserve as published on the ASX on 31 July 2019. Thunderbird Ore Reserves ranked against latest published Ore Reserves of current mineral sands operations and projects under investigation globally. Accordingly, for the operating projects, no account is made for any volumes of product already produced
2. Blue bubbles are operating mines, grey bubbles are Ore Reserves reported but the project is not operating. Only Ore Reserves > 1.2Mt contained VHM shown
3. Data compiled by Sheffield from public sources. This analysis does not illustrate the variance in product value between rutile, leucoxene and ilmenite

Thunderbird – Quality products from simplified flowsheet

LTR (Low Temperature Roast) Ilmenite (35% of revenue)

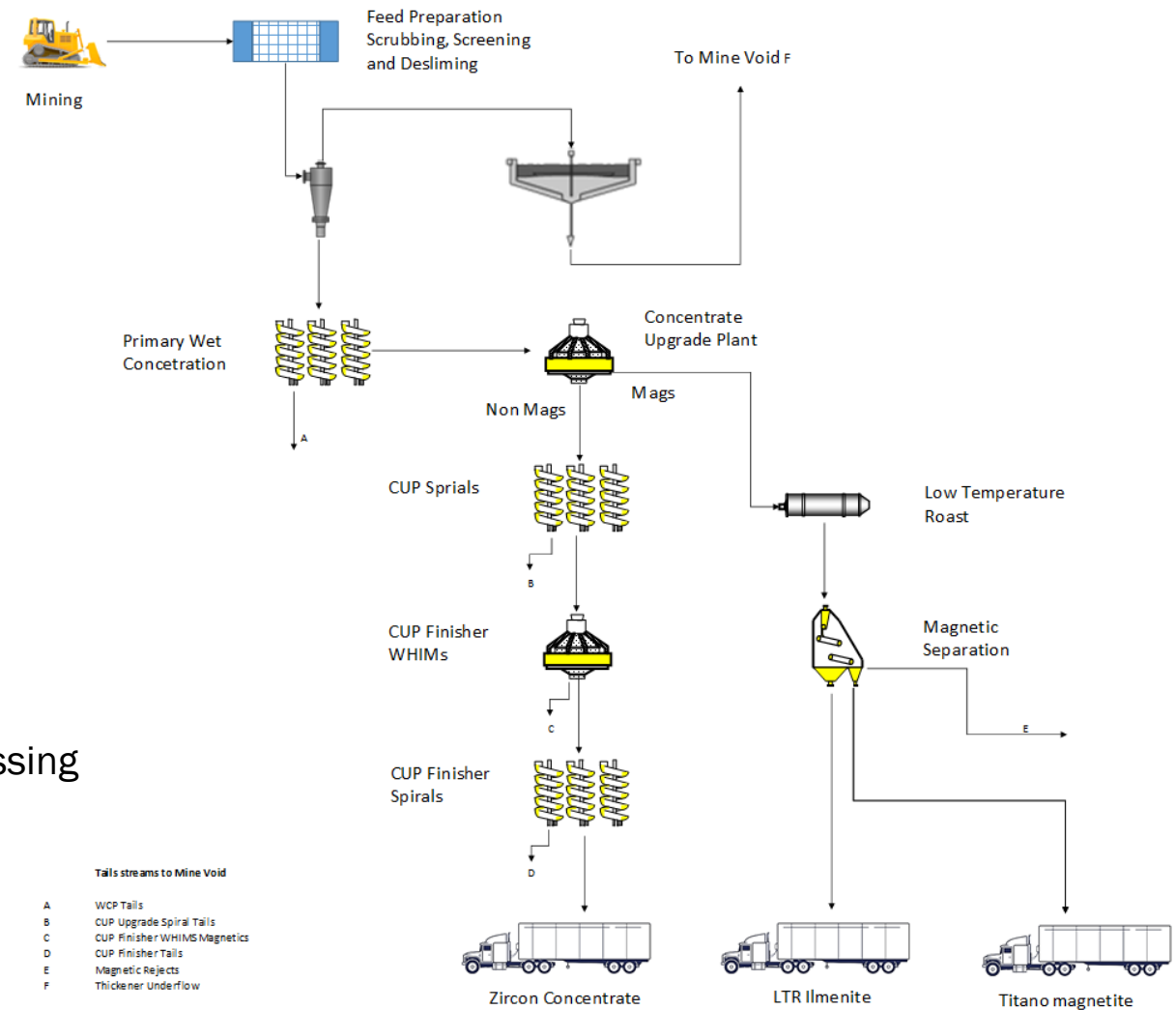
- 500,000¹ tonnes per annum in Phase 1
- 50% TiO₂ and low in key contaminants
- Suitable for chloride slag or sulphate pigment
- Binding offtake with Yansteel
 - Market price, life of mine, take or pay, 100% from Phase 1
 - First right of refusal, market price, 100% from expansions

Zircon concentrate (60% of revenue)

- No zircon mineral separation plant (MSP) required
- 210,000¹ tonnes per annum in Phase 1
- 39% ZrO₂, 25% TiO₂, 1% monazite
- ~40% of zircon recoverable as premium with standard processing
- Offtake discussions with customers ongoing

Titano-magnetite (5% of revenue)

- 250,000¹ tonnes per annum in Phase 1
- Potential offtake with Yansteel



Note:

1. Average annual tonnage of first 4 years of Phase 1 production

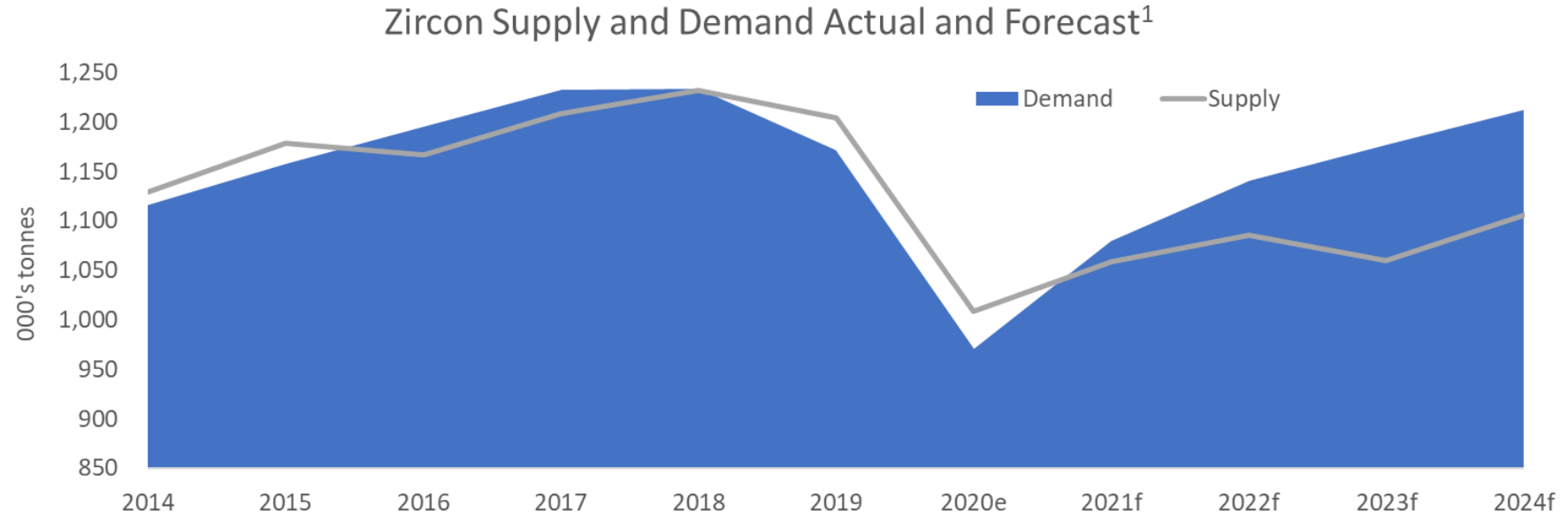
Thunderbird – Why Zircon Concentrate?

- The market for zircon concentrates is deep (around 800,000 tpa)
- China zircon concentrate imports have grown to ~2x zircon sand imports
- Large creditworthy counterparties
- Contract pricing based upon contained minerals, recoveries, quality and market prices
 - Rule of thumb: concentrate price is ~75% of the contained value of the minerals
- IRR from converting concentrate into final products on-site via an MSP is only c.15%
- Customers have lower capital and operating costs
- Customers have the ability to blend a variety of products to increase overall revenue
- Lower risk monetisation of monazite credits in zircon concentrate vs monazite concentrate
- Option to produce final products by installing a zircon MSP in the future retained

Thunderbird – Why LTR Ilmenite?

- Thunderbird magnetic concentrate is a mix of ilmenite and titano-haematite
 - The ilmenite is naturally high in TiO_2 (~55%) and low in impurities (including Cr_2O_3 , CaO , and MgO)
 - The titano-haematite is physically similar to the ilmenite preventing conventional separation
- The Low Temperature Roast (LTR) reduces the titano-haematite to titano-magnetite
- Conventional magnetic separators can split the ilmenite and titano-magnetite
- The TiO_2 of the ilmenite can be varied (50 to 55%) by adjusting the magnetic separation
- The resulting LTR Ilmenite has low impurities
- The LTR Ilmenite is suitable for making chloride slag or direct use for sulfate pigment plant

Zircon supply gap forecast from 2021/22 onwards



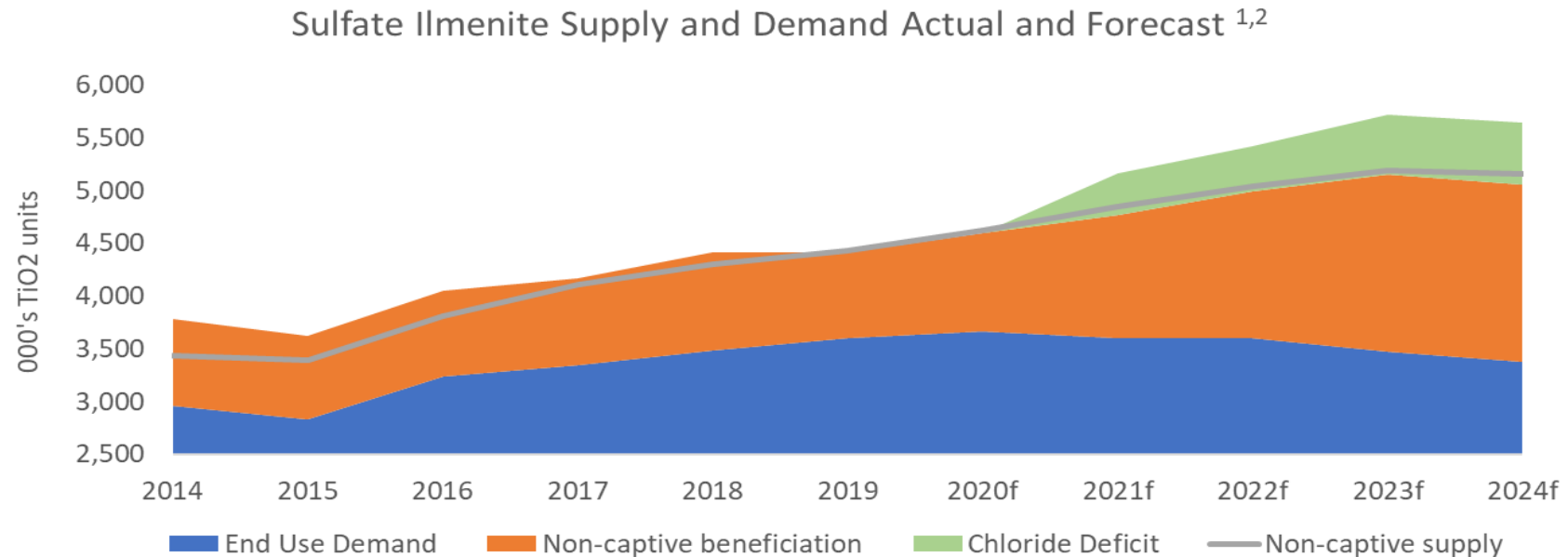
Observations

- Covid-19 2020 demand impact significant but less than predicted
- Major suppliers have adjusted supply to match reduced demand
- This supply response eased the pressure on price
- Supply deficit forecast from late 2021 onwards
- Ore Reserve depletion and jurisdictional risks
- Mid-term shortfall is supply not demand driven

Note:
1. Sourced from TZMI and Sheffield estimates

Thunderbird – New ilmenite supply is required

New non-captive projects required to meet non-captive demand



Observations

- Sulfate ilmenite demand remained strong during 2020
- Sulfate pigment provides solid demand base
- New Chinese chloride slag smelters driving increasing beneficiation demand
- Chloride feedstock deficit most likely to be filled by additional chloride slag capacity – driving further ilmenite demand
- Non-captive supply deficit emerges from 2023 unless new projects are developed

Note:
1. End Use includes Sulfate Pigment and Other Sectors that consume sulfate ilmenite without upgrading to slag
2. Sourced from TZMI May 2020 and Sheffield estimates

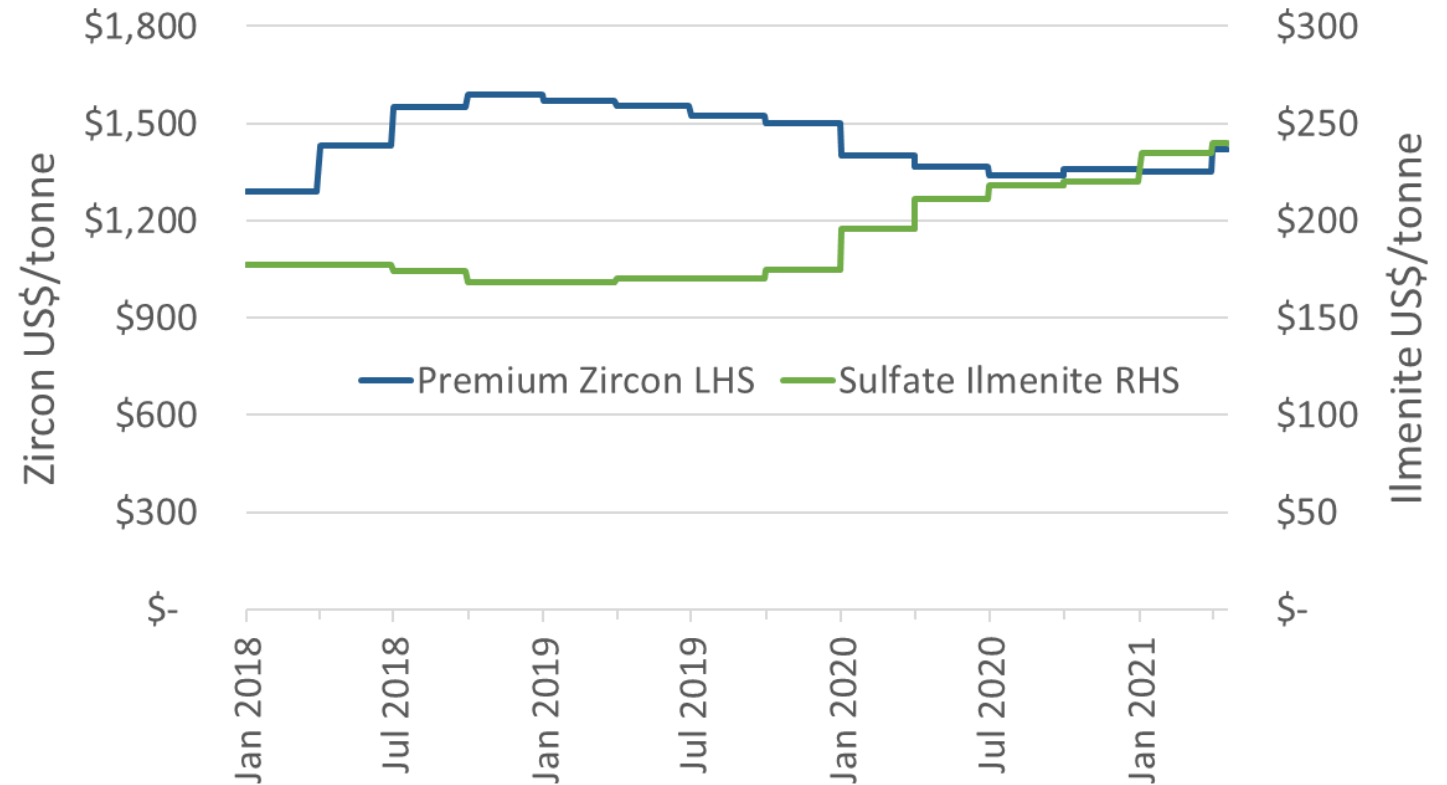
Sulfate ilmenite

- Price up ~40% since January 2020
- Long term price assumption ~\$200/t real

Premium Zircon

- Q3 2020 recent low of \$1340/t
- Prices started to recover in Q1 2021
- Current price +/- \$1400/t
- Long term price assumption ~\$1500/t real

Product Prices (nominal)¹



Note:
1. Source TZMI

Thunderbird – De-risking: Trial mining

- Trial Mining completed in Q4 2020
- 220kt including 120kt of ore and 100kt of waste
- 30m deep including 21m of the high grade T2 ore
- Utilised small scale equipment:
 - 1 x 70t excavator,
 - 1 x D9 dozer and
 - 3 x 65t trucks
- 25t bulk ore sample for scrubber/MUP design
- Geotechnical mapping for wall design
- Further mining trial scheduled for Q3 2021
 - Alternative mining method identified during the first trial that may be more suitable for the upper ore layer



Site Works in 2H 2021

- Maximise construction in 2022 dry season
- Complete site works prior to 2021/2022 wet season, including
 - Access road
 - Process plant site
 - Village
 - Construction water
 - Communications
- Enables rapid mobilisation for full construction post wet season

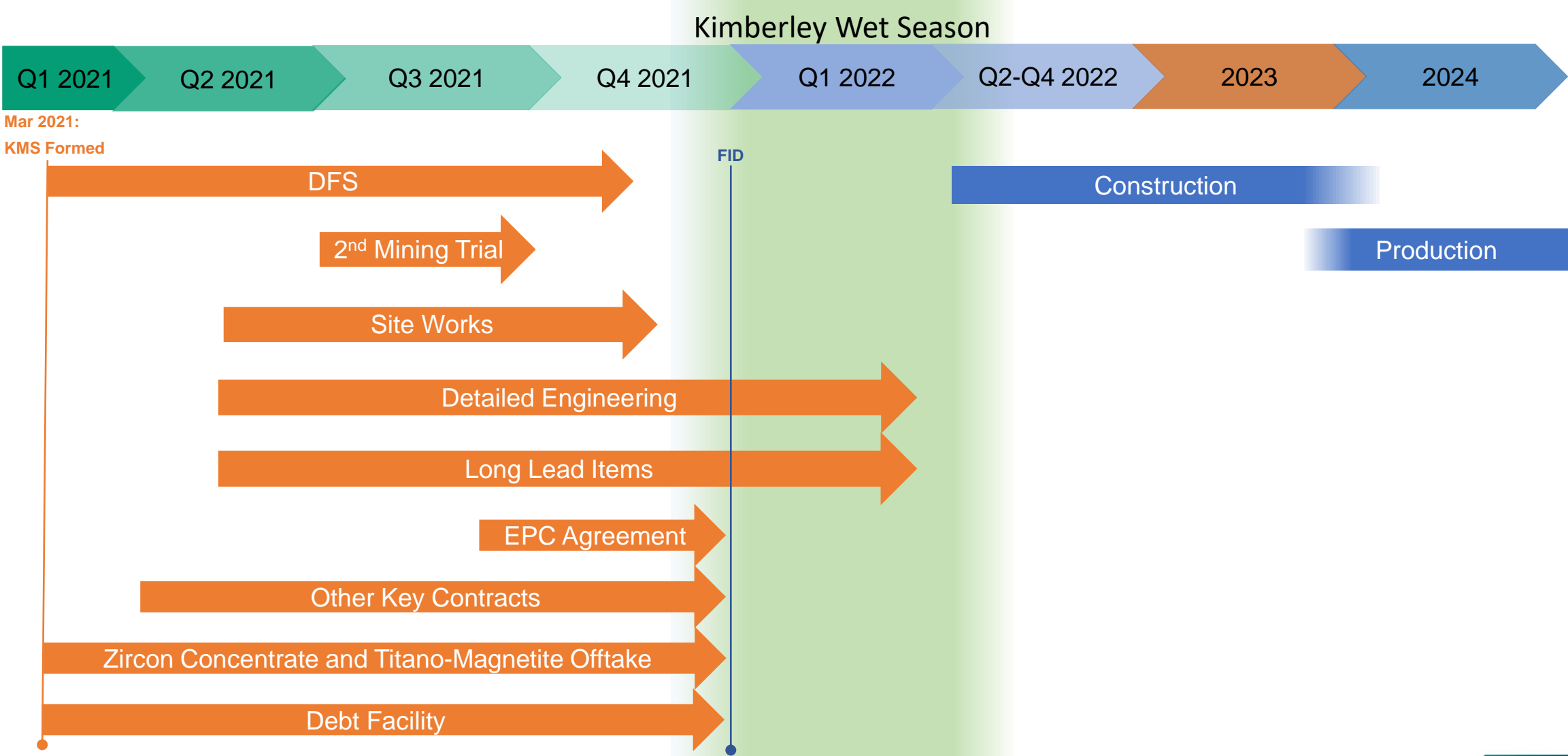
Detailed Engineering

- Increase engineering definition to reduce EPC ‘risk allowance’ prior to contract

Long Lead Items

- Early ordering to align delivery times with project execution schedule

Thunderbird – Pathway to FID, Construction and Production



Mar 2021:
KMS Formed

Note:
1. All timelines are estimated and subject to further study and confirmation

Process capital expected to be lower than BFSU¹ with simplified flowsheet

- Added capital with reintroduction of the LTR; offset by
- Simplified ilmenite circuit
- Removal of zircon MSP including hot acid leach

DFS to finalise capital and operating cost estimates

- Capital and financial metrics expected to be similar to the BFSU

Option		Project Capital A\$m	Total Funding A\$m	Ungeared	
				NPV ₈ Post Tax A\$m	IRR Post Tax
2017 BFS	LTR Ilmenite + Full MSP	463 ²	579 ²	620 ²	21% ²
2019 BFSU	Ilmenite Concentrate + Full MSP	392 ¹	478 ¹	980 ¹	30% ¹
2021 BFS	LTR Ilmenite + Zircon Concentrate	TBC	TBC	TBC	TBC

Project Funding

- Kimberley Mineral Sands cash A\$129.3m at 31 March 2021
- Sheffield Resources to contribute A\$10m to Kimberley Mineral Sands 60 days after FID
- Reconfirmed NAIF³ facility expected to be more flexible (not infrastructure specific) and expanded
- Balance from reconfirmed debt facility³

Reference:

1. ASX Announcement "BFS Update Materially Improves Project Economics" 31 July 2019
2. ASX Announcement "Thunderbird BFS Delivers Outstanding Results" 24 March 2017
3. ASX Announcement "Sheffield Signs Taurus Debt Facility and EPC Contract" 12 November 2018

A\$10.8m cash balance at 31 March 2021

Kimberley Mineral Sands transaction and reorganisation costs payable in Q2

- A\$4.0m expected net outflow in Q4 FY2021

Restructured Board and Management further reduces corporate cost

- Annual Sheffield net cost of <\$2.0m from FY2022

Equity contribution to Kimberley Mineral Sands post FID

- A\$10m payable 60 days after FID

Phase 2: Expansion in Year 5

- Offset decline in high grade
- Increase production of ilmenite and zircon concentrate by ~40%
- BFSU capital estimate for Phase 2 was \$237 million¹

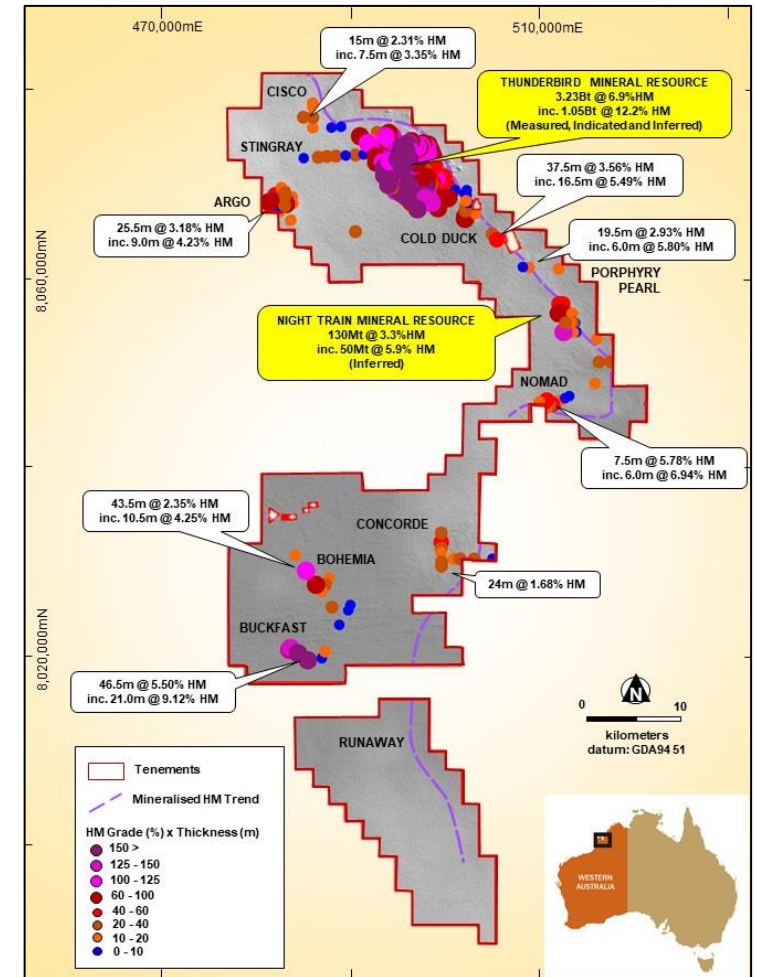
Resource base to support further growth

- Thunderbird resource 1,050 Mt ore @ >7.5% HM, 3,230 Mt ore @ >3% HM²
 - Inclusive reserve of 748Mt ore @11.2%HM³
- Night Train deposit, 20km to the east of Thunderbird⁴
 - Inferred Mineral Resource 130Mt @ 3.3% HM
- Dampier Project
 - 12 zones of significant mineralisation along a 120km long trend⁵

Reference:

1. ASX Announcement "BFS Update Materially Improves Project Economics" 31 July 2019
2. 5 Refer to ASX Announcement 5 July 2016 titled "Sheffield Doubles Thunderbird Measured Mineral Resource"
3. Refer to ASX announcement 31 July 2019 titled "Thunderbird Ore Reserve Update"
4. Refer to ASX announcement 31 January 2019 titled "High Grade Maiden Mineral Resource at Night Train"
5. Refer to ASX announcement 13 November 2018 titled "New Large High Grade Discovery South of Thunderbird"

Dampier Project



Favourable outlook for sulfate ilmenite

- Large sulfate pigment production base requires feedstock – sulfate ilmenite preferred
- Chloride slag is a core feedstock for chloride pigment – sulfate ilmenite is used to make chloride slag
- New pigment capacity growth predominantly chloride – alternatives to chloride as feedstock are limited

The key to robust ilmenite project economics is co-product credits

- Zircon, rutile, garnet, monazite

Thunderbird, and therefore Sheffield, is aligned with these trends

- Ilmenite product is suitable for use in both chloride slag and sulfate pigment
- Zircon rich assemblage

APPENDIX: Sheffield Resources Corporate Overview



Sheffield Resources is an ASX listed mineral sands developer which owns 50% of the large scale shovel ready Thunderbird Mineral Sands Project

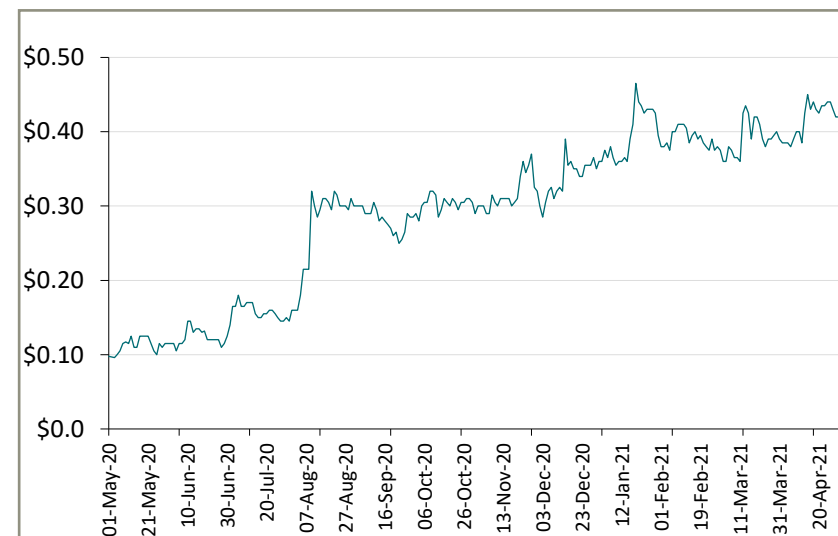
- Sheffield Resources Limited (“Sheffield” or the “Company”) is an ASX listed mineral sands developer and explorer based in Perth, Western Australia (ASX:SFX)
- Sheffield is focused on the development of the 50% owned Thunderbird Mineral Sands Project (“Thunderbird” or the “Project”) located on the Dampier Peninsula in Northern Western Australia.
- Thunderbird has been developed as a greenfield project since discovery in 2012 and is one of the largest and highest grade zircon rich discoveries in the last 30 years and is one of a few greenfield mineral sands deposits globally in a secure jurisdiction
- Experienced and skilled Board and management (>150 years’ collective experience) with strong in-house intellectual property and knowledge and capable of developing, delivering and operating Thunderbird
- Sheffield has a portfolio of mineral sands assets in Australia with a focus on zircon rich assemblages which includes:
 - Thunderbird with Ore Reserve of 748Mt @11.2%HM²
 - Night Train deposit, 20km to the east of Thunderbird and with an Inferred Mineral Resource³ of 130Mt @ 3.3% HM, containing 3.6Mt of VHM
 - Dampier Project has delineated 12 zones of significant mineralisation along a 120km long highly mineralised trend⁴

Capital structure¹

Item	Unit	Value
Ordinary Shares Outstanding (as at 31 Mar 2021)	#m	346.1
Share Price (as at 4 May 2021) ¹	A\$/sh	0.49
Market Capitalisation	A\$m	169.6
Cash Balance (31 March 2021)*	A\$m	10.8
Debt	A\$m	-
Enterprise Value	A\$m	158.8

*Cash balance excludes joint venture proceeds of \$130.1m as at 12 March 2021

Share Price Information



1. Market data as at 3 May 2021 and sourced from ASX
 2. Refer to ASX announcement 31 July 2019 titled “Thunderbird Ore Reserve Update”
 3. Refer to ASX announcement 31 January 2019 titled “High Grade Maiden Mineral Resource at Night Train”
 4. Refer to ASX announcement 13 November 2018 titled “New Large High Grade Discovery South of Thunderbird”

APPENDIX: Thunderbird Ore Reserves

Thunderbird Ore Reserves: Valuable Heavy Mineral in-situ grade¹

Ore Reserve Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade (%)	Valuable Heavy Mineral Grade (In-situ) ²					
				Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Proved	219	30.0	13.7	1.02	0.30	0.28	3.68	14.0	16.1
Probable	529	53.4	10.1	0.79	0.27	0.27	2.87	10.5	14.5
Total	748	83.8	11.2	0.86	0.27	0.27	3.11	11.6	15.0

Thunderbird Ore Reserves: Mineral assemblage as percentage of HM grade¹

Ore Reserve Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade (%)	Mineral Assemblage ³					
				Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Proved	219	30.0	13.7	7.4	2.2	2.0	26.9	14.0	16.1
Probable	529	53.4	10.1	7.8	2.6	2.7	28.4	10.5	14.5
Total	748	838	11.2	7.7	2.4	2.4	27.8	11.6	15.0

Notes:

- Ore Reserves are presented both in terms of in-situ VHM grade, and HM mineral assemblage. Tonnes and grades have been rounded to reflect the relative accuracy and confidence level of the estimate, thus the sum of columns may not equal. Ore Reserves reported for the Dampier Project were prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX Announcement dated 31 July 2019 titled "Thunderbird Ore Reserve Update" for further detail. Ore Reserve is reported to a design overburden surface with appropriate consideration for modifying factors, costs, mineral assemblage, process recoveries and product pricing
- The in-situ grade is determined by multiplying the HM Grade by the percentage of each valuable heavy mineral within the heavy mineral assemblage
- Mineral Assemblage is reported as a percentage of HM Grade. It is derived by dividing the in-situ grade by the HM grade

APPENDIX: Thunderbird Mineral Resources

Thunderbird Mineral Resources: Valuable Heavy Mineral in-situ grade¹

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade ² (%)	Valuable Heavy Mineral Grade (In-situ) ³					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Slimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	0.71	0.20	0.19	2.4	18	12
	Indicated	2,120	140	6.6	0.55	0.18	0.20	1.8	16	9
	Inferred	600	38	6.3	0.53	0.17	0.20	1.7	15	8
	Total	3,230	223	6.9	0.57	0.18	0.20	1.9	16	9
>7.5% HM	Measured	220	32	14.5	1.07	0.31	0.27	3.9	16	15
	Indicated	640	76	11.8	0.90	0.28	0.25	3.3	14	11
	Inferred	180	20	10.8	0.87	0.27	0.26	3.0	13	9
	Total	1,050	127	12.2	0.93	0.28	0.26	3.3	15	11

Thunderbird Mineral Resources: Mineral assemblage as percentage of HM grade¹

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade ² (%)	Mineral Assemblage ⁴					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Slimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	8.0	2.3	2.2	27	18	12
	Indicated	2,120	140	6.6	8.4	2.7	3.1	28	16	9
	Inferred	600	38	6.3	8.4	2.6	3.2	28	15	8
	Total	3,230	223	6.9	8.3	2.6	2.9	28	16	9
>7.5% HM	Measured	220	32	14.5	7.4	2.1	1.9	27	16	15
	Indicated	640	76	11.8	7.6	2.4	2.1	28	14	11
	Inferred	180	20	10.8	8.0	2.5	2.4	28	13	9
	Total	1,050	127	12.2	7.6	2.3	2.1	27	15	11

Notes:

- The Thunderbird Mineral Resources are reported inclusive of (not additional to) Ore Reserves. The Mineral Resource reported above 3% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off. All tonnages and grades have been rounded to reflect the relative accuracy and confidence level of the estimate and to maintain consistency throughout the table, therefore the sum of columns may not equal. The Mineral Resource estimate was prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX announcement dated 5 July 2016 titled "Sheffield Doubles Thunderbird Measured Mineral Resource" for further detail
- Total heavy minerals (HM) is within the 38µm to 1mm size fraction and has been reported as a percentage of the total material quantity
- The Valuable HM in-situ grade is reported as a percentage of the total material quantity and is determined by multiplying the percentage of total HM by the percentage of each valuable heavy mineral within the HM assemblage at the resource block model scale
- The Mineral Assemblage is represented as the percentage of HM grade. Estimates of mineral assemblage are determined by screening and magnetic separation. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: >90% liberation; ilmenite 40-70% TiO₂; leucoxene 70-94% TiO₂; high titanium leucoxene (HiTi Leucoxene) >94% TiO₂ and zircon 66.7% ZrO₂+HfO₂. The non-magnetic fraction was analysed by XRF and minerals determined as follows: Zircon ZrO₂+HfO₂/0.667 and HiTi Leucoxene TiO₂/0.94

APPENDIX: Primary Approvals, Leases & Agreements in Place

Thunderbird is fully permitted and construction ready

Party	Topic	Scope	Date Complete	In Place
Dept of Environment & Energy (Cwth)	<i>Environmental Approval</i>	Federal Government environmental approval for project	Sep 2018	<input checked="" type="checkbox"/>
Department of Water & Environmental Regulation (WA)	<i>Environmental Approval</i>	State Government environmental approval for project	Aug 2018	<input checked="" type="checkbox"/>
	<i>Works Approvals</i>	Minor or preliminary works (MoPW) – trial mining pits	Sep 2017	<input checked="" type="checkbox"/>
		Approval for mining, processing, sewage facility and waste	Aug 2018	<input checked="" type="checkbox"/>
	<i>Licence to Take Water</i>	Groundwater license for project construction and operations	Oct 2018	<input checked="" type="checkbox"/>
Department of Mines, Industrial Regulation & Safety (WA)	<i>Mining Lease</i>	• Tenure for mining and processing	Sep 2018	<input checked="" type="checkbox"/>
		• Final Phase 1 mining proposal & mine closure plan granted	Sep 2019	<input checked="" type="checkbox"/>
		• Final Phase 1 works approval granted	Oct 2019	<input checked="" type="checkbox"/>
	<i>Miscellaneous Licences</i>	Tenure for infrastructure, roads and accommodation	Jun 2018	<input checked="" type="checkbox"/>
Shire of Derby & West Kimberley	<i>Port of Derby Lease</i>	Tenure for facilities at Port of Derby	May 2018	<input checked="" type="checkbox"/>
Native Title Claimants	<i>Aboriginal Heritage Agreements</i>	Heritage protocols for exploration tenure	Nov 2015	<input checked="" type="checkbox"/>
	<i>Native Title Agreements</i>	Agreed terms and conditions for project operations	Oct 2018	<input checked="" type="checkbox"/>

APPENDIX: Kimberley Mineral Sands

Kimberley Mineral Sands

- In March 2021, Sheffield and Yansteel formed Kimberley Mineral Sands Pty Ltd (“KMS”)
- KMS owns and will develop the Thunderbird Mineral Sands Project and adjacent tenements on the Dampier Peninsula
- The parties have agreed that the development concept for Phase 1 of the Project will be a 10.4mt per annum mine and process plant producing a zircon concentrate and LTR ilmenite.
- Yansteel contributed A\$130.1m to acquire its 50% interest in the Joint Venture.
- Sheffield will fund project equity between A\$130.1m and A\$143m, less project costs incurred prior to a Final Investment Decision (FID).
- KMS is governed by a four person Board of Directors with Sheffield and Yansteel each nominating two directors.
- Key Joint Venture decisions will require unanimous approval of both Yansteel and Sheffield.
- If required, project equity in excess of A\$143 million will be funded 50:50 by Yansteel and Sheffield.
- KMS operates as a standalone entity with its own management and employees.

Placement

- Approximately 34.3m fully paid ordinary shares (9.9% of Sheffield’s issued ordinary shares) were issued to Yansteel on 12 August 2020.
- The shares were issued at A\$0.376 per share a 131% premium to Sheffield’s 10-day VWAP prior to the placement.

Offtake

- Market price, life of mine, take or pay, for 100% of the Phase 1 LTR Ilmenite.
- First right of refusal at market price for 100% of ilmenite from subsequent expansions.
- In the unlikely event the Joint Venture cannot be formed, the offtake will become a 7 year, renewable for 3 years, market price take or pay, offtake agreement for 100% of the ilmenite produced from Phase 1 of the Project.

Yansteel

- Yansteel is a wholly-owned subsidiary of Tangshan Yanshan Iron & Steel Co., Ltd a privately owned steel company headquartered in Hebei, China
- Tangshan produces around 10mt per annum of steel products and has annual revenues of ~A\$6bn
- Tangshan has commenced construction of a 500ktpa integrated titanium dioxide processing facility
- This complex will consume the Low Temperature Roast (“LTR”) ilmenite offtake from Phase 1 of the Thunderbird Mineral Sands Project

APPENDIX: Bankable Feasibility Study Update (BFSU)¹

Metric	2019 BFSU
NPV ₈ post-tax	A\$0.98B
IRR post-tax %	24.0%
NPV ₁₀ pre-tax	A\$1.13B
IRR pre-tax %	30.1%
Total Funding Requirement	A\$478m
Project Debt (Taurus & NAIF)	A\$335m
Equity Requirement	A\$143m
Project Capital	A\$392m
Offtake (Phase 1 binding take or pay)	~100%
Mine Life	37 years
Long Term Average FX Rate (A\$/US\$)	0.75
Revenue to Cost Ratio (yrs 1 – 10)	>2.3
EBITDA Phase 1 & 2 (years 5 – 10)	A\$250m

- c. A\$1 billion post tax NPV₈
- 24% post tax IRR
- A\$1.1 billion pre-tax NPV₁₀
- 30% pre-tax IRR
- 2.3 Revenue to cost ratio
- A\$131m annual EBITDA years 1 - 4
- A\$250m annual EBITDA years 5 - 10
- A\$335m long tenor debt
 - Taurus US\$175m (7 year tenor)
 - NAIF A\$95m (15 & 20 year tenor)
- A\$143m equity gap includes all funding costs
- Final funding/partner process well advanced
- 100% Phase 1 binding off-take agreements signed
- 37 year mine life
- TZMI long term commodity pricing
- Conservative exchange rate

Reference:
1. ASX Announcement "BFS UPDATE MATERIALLY IMPROVES PROJECT ECONOMICS" 31 July 2019

APPENDIX: Significant Regional Exploration Upside

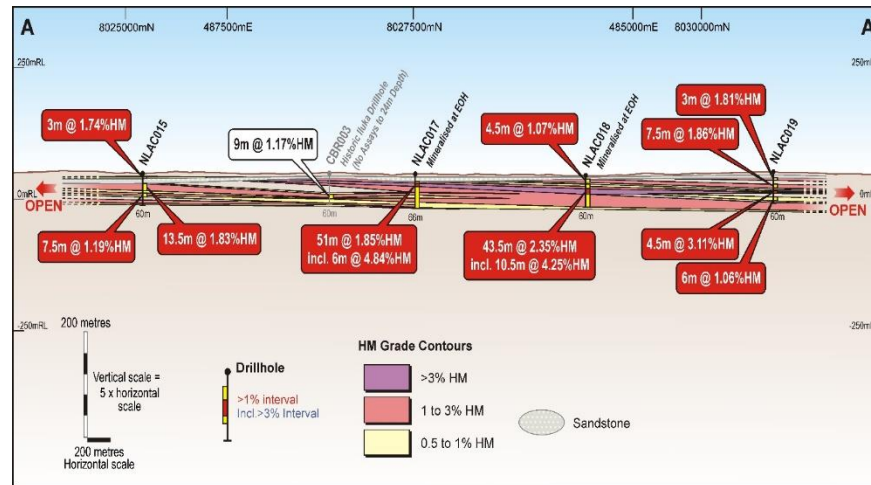


SheffieldResources
LIMITED

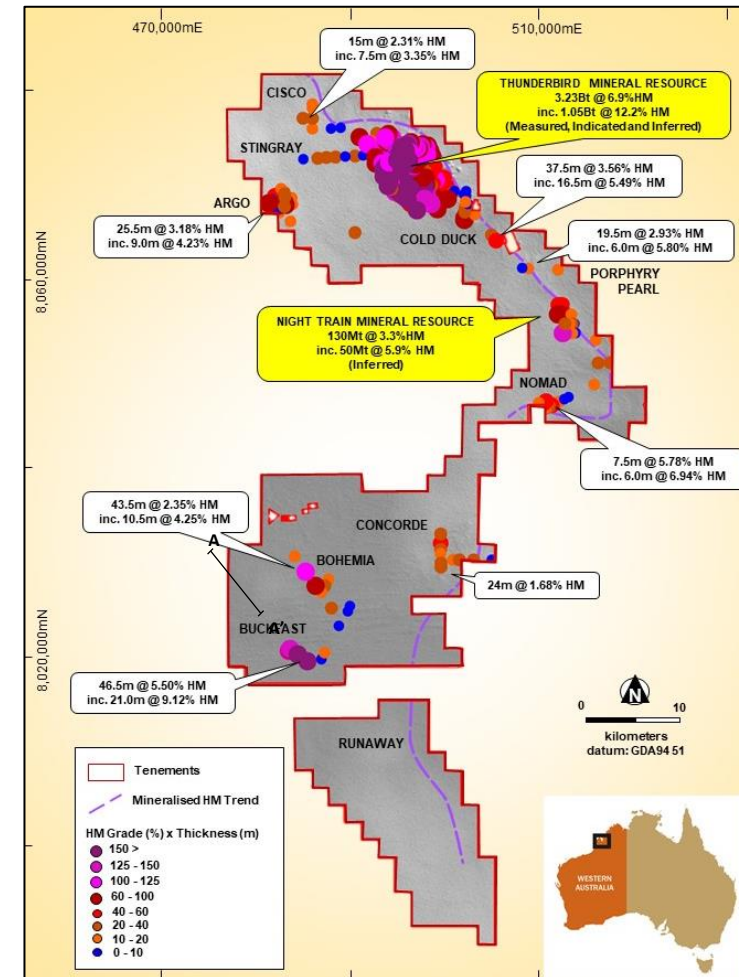
Strategic value demonstrated through multiple discoveries made along a 120km long trend

- Exploration has delineated 12 zones of significant mineralisation along a 120km long highly mineralised trend which extends from Cisco in the north to Runaway in the south¹
- Maiden high grade Mineral Resource¹ outlined at Night Train
- Mineral sands discoveries include Argo, Buckfast, Bohemia, Cisco, Cold Duck, Concorde, Nomad, Night Train, Porphyry Pearl
 - Characterised by broad sheet-like geometries with varying thickness (ie exceptionally thick intervals at Thunderbird, thick intervals at Buckfast, moderate thicknesses at Bohemia and narrow thicknesses at Nomad)
 - Mineral assemblages domains where different TiO₂ minerals dominate (ie ilmenite at Thunderbird, Leucoxene at Night Train and Cisco Upper and altered ilmenite at Concorde to Buckfast regions)
- Thick high grade intervals² have been intersected, including;
 - 43.5m @ 2.35% HM from 16.5m (NLAC018), including 10.5m @ 4.25% HM from 25.5m (Bohemia)
- Numerous zircon-rich targets identified for follow-up drilling

Bohemia – Cross Section²



Dampier Project – Regional Plan¹



Notes:

1. Refer to ASX announcement 31 January 2019 titled "High Grade Maiden Mineral Resource at Night Train"
2. Refer to ASX announcement 13 November 2018 titled "New Large High Grade Discovery South of Thunderbird" page 2 note

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