



BRIDGE STREET
CAPITAL PARTNERS

SHEFFIELD RESOURCES LTD (SFX AU, \$0.34. Market cap A\$117.8m)

“Early works” commence at Thunderbird. DFS/debt yet to be finalised

A number of important messages have emerged from a recent presentation from SFX, which followed release of the September quarterly. This is against a backdrop of what we consider to be a very positive medium term outlook for Thunderbird’s main commodity mix: zircon and ilmenite.

- **Early works have commenced at Thunderbird**, including plant and camp site clearance and construction of the 30km mine access road. This will provide all weather access to site from the main Great Northern Highway which in turn provides access to the ports of Broome and Derby. Around 50 personnel are now on site. The wet season will soon be upon northern Australia, so to have completed initial earthworks will allow a rapid kick-off for constructors, scheduled for April.
- **Trial mining exercise completed.** We were pleased to hear that a second mining trial has been completed and that conventional dozer trap mining is proposed. There had been some thought that a surface miner might have been required to deal with indurated material near surface. The use of a D11 ‘dozer is described as being “more than adequate”. This is by far the lowest cost earthmoving method. In the 2015 BFS total mining costs (including overburden stripping and rehab) was estimated at \$2.32/t.



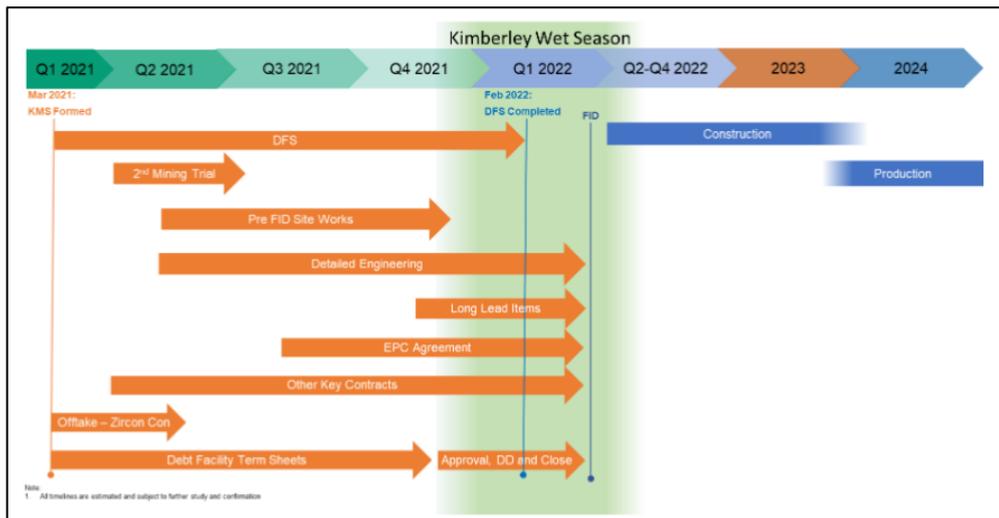
Dozer trap mining at Iluka’s Jacinth mine. Source: Port Lincoln Times

- **FID now scheduled for early 2022.** We had expected the DFS to be completed by now. Instead the final engineering of a key section of the flowsheet, the low temperature roaster (LTR), is yet to be completed. Getting the design right here is essential to the final capex estimate from the EPC contractor, GRES. This is expected to be concluded in early 2022.
- **Capex appears unchanged on BFSU.** Capex and opex inflation is becoming a major issue in WA. SFX is working hard to get the final number little different to the \$392m estimate (pre-production) from 2019.
- **No news yet on debt.** SFX state that it is “continuing to progress project financing arrangements with NAIF and potential commercial lenders”.

MiFID II compliance statement: Bridge Street Capital Partners are Corporate Advisors to this company and receive fees from this company for services provided. See disclaimer/disclosure below for more detail

Investment overview

- We are pleased to see that the Thunderbird DFS is advancing, but probably a little slower than we had thought. But it's a good opportunity to get it right, and a fully engineered project is the only way to get the best contract pricing, especially in the current market.
- Completion of the DFS is important to finalise the debt piece to allow a final investment decision (FID) and the start of construction, now scheduled for 1Q22 with first production in late 2023/early 2024.



Source: SFX

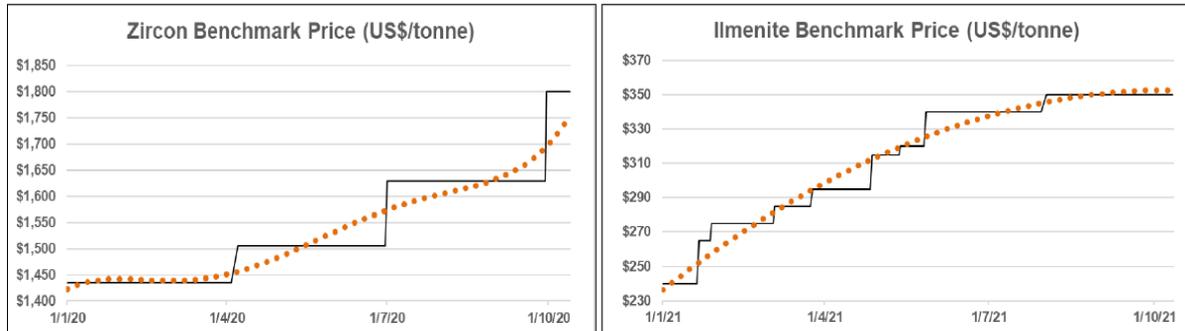
- As we've demonstrated in previous reports, with the sale of 50% of the project to Yansteel, SFX is now quite straightforward to value. We have revisited our valuation model and have escalated commodity price assumptions (+5% compared to our previous report). This has been offset by an increase in operating cost assumptions. Our valuation is now slightly lower than previous estimates at around A\$1bn for 100% of the project.
- Critical as well is finalisation of the debt package.
- SFX has flagged the likely sale of non-core assets which may offset the need for a modest equity raise at FID. (We have assumed \$10m in 1Q/2Q2022).
- Our fully funded valuation is now \$1.45/SFX share. We await the final DFS to sharpen our project valuation numbers, but expect little change from our current estimates.
- SFX continues to trade at an unjustifiably large discount to this valuation.

Commodity overview

The mineral sand commodities were early movers in the current cycle, largely responding to fundamental supply shortages. Over the past 5 years we have seen progressive production decline from key global mining operations, including the giant Richards Bay dredge/dry mining operation, and from two of Iluka's key operations, Jacinth-Ambrosia and Eneabba. Rutile and zircon production was also impacted with the temporary closure of Iluka's Sierra Rutile operations. Iluka (ILU:ASX) has been doing an excellent job managing zircon supply with swing production from reprocessed tails from the

Eneabba tailings dams. This, together with small Asian suppliers, have been important swing production during these challenging times.

Our model has around 56% of Thunderbird’s revenue from zircon concentrates and around 34% from ilmenite/HiTi products. The balance is from lower value by-product streams and titanomagnetite.



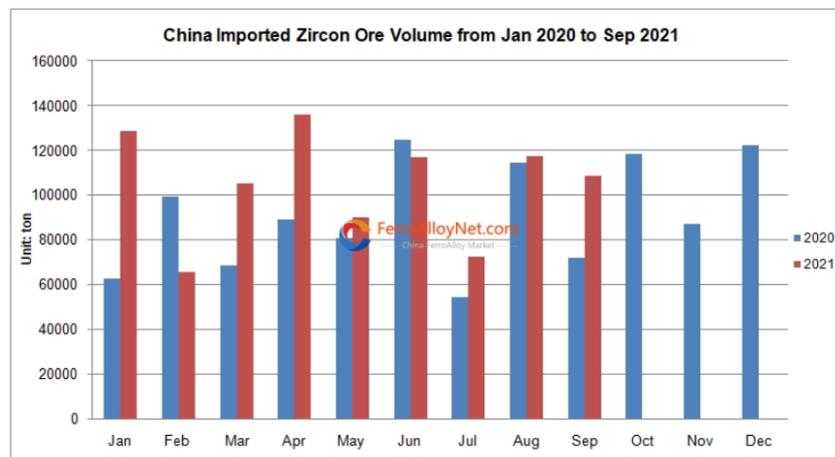
Zircon: prices now at 8 year highs

The rapid return of Chinese tile manufacturers — one of the largest consumers of zircon — shortly after the Chinese new year holiday and the recovery of other markets following the Covid-19 outbreak have contributed to a strong uptick in demand this year.

At its interim results presentation ILU reported:

- 2Q zircon sales were up 70% YoY.
- A US\$70/t price increase locked in for 2Q with a further US\$125/t increase from 1 July.
- Chinese tile production is back at pre-pandemic levels and production lines in Spain, Italy, Brazil and Turkey are operating at 90% capacity.
- Indian capacity has been curtailed due to COVID.
- Customer inventories are reported to be low.

As shown in the following chart, China’s demand for zircon has rebounded strongly from the worst of COVID in 2020. Import volumes for most months this year have far exceeded those in 2020.



It is becoming a little difficult to see where new zircon production will come from in over the next 2-4 years. In the Murray Basin, two projects, Donald (Astron, ATR: ASX) and Fingerboards (Kalbar, unlisted)

appear to have stalled, awaiting final permitting. WIM Resources' (unlisted) Avonbank project appears to be progressing its Environment Effects Statement and is now suggesting that full licencing will emerge in late 2022/early 2023 with first production in perhaps late 2024. ILU's most advanced project, Balranald, also in the Murray Basin, appears to us to be technically challenging.

FID for Base Resources' (BSE: ASX) Tolliara project is awaiting the finalisation of fiscal terms with the Madagascan Government. All site activities have ceased until that is resolved. Production had been scheduled for 2025, but delays appear to be inevitable. Life-of-mine zircon production is estimated at 66ktpa or around 5-6% of global supply.

Supply has been disrupted at Rio Tinto's mineral sands operation in Richard's Bay, South Africa, with the firm abandoning the US\$500m Zulti South expansion project in response to violent protests. There is also a possibility that the company could close the mine entirely in the future.

We sense that the world's ceramic industries will be screaming for supply over the next 2-3 years, and prices are responding accordingly.

We have been asked about U+Th levels in Thunderbird concentrate, quoted in the BFS study at 570 - 614ppm. There is a view expressed by some that zircon with U+Th of over 500ppm U+Th represents a 'marketing issue'. We note in this week's presentation to the TZMI conference that Iluka (ILU:ASX) states that "China's strict enforcement of radiation limits is impacting some supply". We would make the following points:

- Low U+Th zircon supply is in decline.
- A 500ppm limit is only applicable in the US.
- Higher levels of U+Th in zircon concentrates is often attributable to associated monazite, which the mineral concentrators take as a by-product credit. Shipment of such concentrates is limited to specified levels of radioactive emissions.
- SFX readily contracted 75% offtake of its zircon concentrate with major Chinese zircon concentrate producers. Together with a life of mine offtake agreement for the ilmenite, SFX estimates that around 80% of Stage 1 revenues are covered. This is thought to be sufficient to secure project financing for Thunderbird.

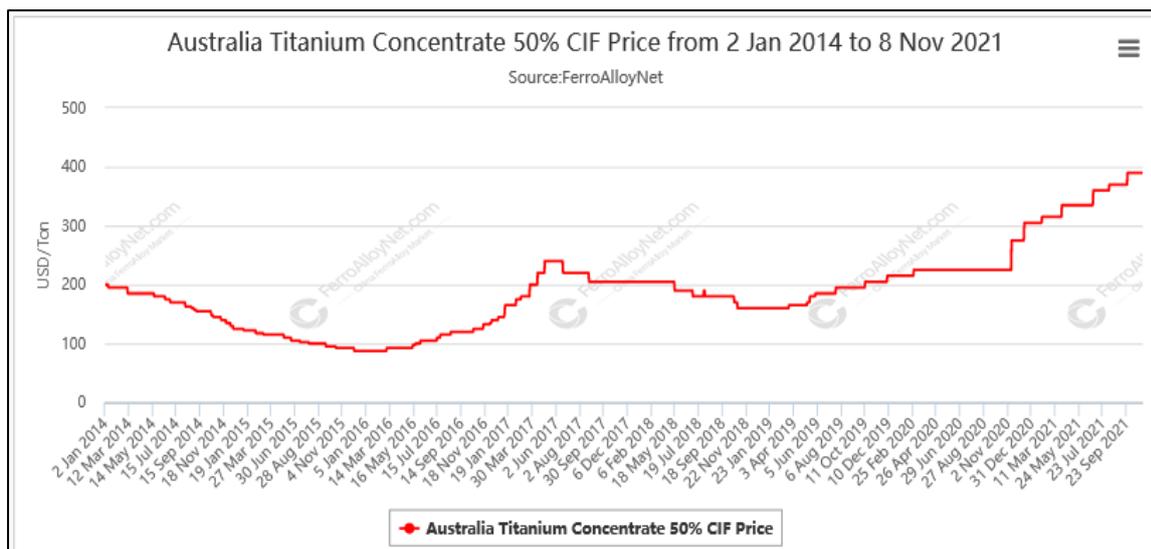
We note that while Australian premium zircon is selling for US\$1785 to 1820/t (CIF) currently swing supply out of Indonesia is enjoying premium pricing. We have seen prices of US\$2200-2450/t in recent weeks and ask the question: is this the future for pricing of Australian zircon? We would not be surprised to see pricing move to these levels.

As we discuss below, our assumed long term zircon price (from which we estimate the pricing of zircon concentrate) remains at US\$1550/t. We sense this is too low for the medium term.

Ilmenite: setting new records

Since our last report prices for ilmenite have moved up further and appear to have settled in a US\$350-400/t range. These we believe are record prices. It in part reflects a solid demand base from sulphate pigment producers. As well, new Chinese chloride slag smelters appear to be driving strong ilmenite demand.

In an already tight market Iluka have flagged the closure (for 6 months at least) of their Sierra Rutile project in West Africa. This will take some over 100,000 TiO₂ units out of a ca. 7 million tonne market.



Source: Ferroalloy.net.com

Consultants TZMI have said that there is likely to be a non-captive supply deficit emerging from 2023 unless new projects are developed. Therefore we would not rule out further price increases for TiO₂ feedstock prices. The market is tight.

We turn to large ilmenite producer Kenmare Resources for a recent snapshot of a producer's eye on the market following a strong interim profit release.

- Solid demand has continued into 2H2021 and Kenmare expects to achieve higher prices in Q32021
- Ilmenite inventories remain at low levels and supply constraints are adding to the demand for Kenmare ilmenite
- The market is absorbing Kenmare's increased production
- Kenmare is experiencing very strong demand for its rutile product, driven by the closure of Sierra Rutile.

Pricing of Thunderbird zircon concentrate: our price received estimate up 5% on an improved long term zircon price outlook.

The following table shows our calculation for the approximate pricing of Thunderbird's zircon concentrate. This is based on the zircon and a mixed feedstock content and assumes a payability of around 75%. This translates to a concentrate price of US\$789/t (CIF basis). Note that these are BSCP estimates and assume a \$1500/t long term zircon price (a cocktail of premium and standard grade products). This is up from US\$746/t (CIF) from our review in June.

Pricing of concentrate	
ZrO ₂ content	39%
Gross up to zircon content	59%
Zircon price assumed (US\$/t)*	1500
Value of zircon in concentrate	878
TiO ₂ in concentrate	25%
Value of feedstock mix (US\$/t)	500
Value of TiO ₂ in concentrate (US\$/t)	125
Monazite (approx)	50
Total contained value (US\$/t)	1053
Payability (approximate)	75%
Net value of concentrate (US\$/t)	789
*Premium + standard zircon	

The most significant unknown is 'payability' or how much of the revenue the concentrators keep to themselves. This we understand represents somewhat of a fixed cost, so the higher the underlying commodity price, the higher the payability (in theory).

Much of the 'zircon concentrate' currently sold to the Asian concentrators is of low to moderate grade, often with low levels of premium zircon. One example we are aware of is the zircon concentrate produced by Iluka from the Eneabba tailing ponds, from which much of the premium zircon has been extracted. Thunderbird will be producing a high-value zircon concentrate.

The price a processor will pay for a zircon concentrate depends on the saleable products that can be recovered, the market price of those products adjusted for quality, the cost of processing and the processor margin. The price is calculated as a \$/% mineral with different values for zircon, magnetitic TiO₂(ilmenite), non-magnetic TiO₂ (rutile and HiTi) and other saleable products.

Valuation of SFX

Our valuation of SFX has edged down slightly from our earlier estimates. We have re-examined our commodity price assumptions and bumped zircon concentrate pricing up by around 5%. Ilmenite pricing has been left at US\$250/t. We have also included the 90ktpa by-product stream referred to in the quarterly. (This expands to 120ktpa in our estimates for Stage 2 of Thunderbird.). Despite this, our project NPV had edged back by 7% as we took a harder look at the cost structure of the operation. There can be no doubt operating expenses have edged up 5-10% in WA. Cash has also reduced into the September quarter (\$5.8m).

Thunderbird (NPV8), post tax	A\$m	\$ 1,014	
Ownership by SFX	%	50%	"Kimberley Mineral Sands"
Thunderbird (NPV8)	A\$m	\$ 507	Fully funded
Dampier project exploration (50%)	A\$m	\$ 20	Notional
Perth Basin exploration (100%)	A\$m	\$ 20	Notional
PV of overheads for SFX	A\$m	-\$ 18	"<\$2m per year"
Cash (at September 2021)	A\$m	\$ 6	
SFX valuation	A\$m	\$ 535	
Number of shares, current	m	346	
New equity required	A\$m	\$ 10	Estimate
Number of new shares	m	31.3	Raised at \$0.32/share
Total number of shares	m	377.3	Post final raise
NAV adding new cash	A\$m	\$ 545.2	
NAV/share	A\$	\$ 1.45	

Sensitivities

		Project NPV8, post tax			
		+10%		-10%	
Base	A\$m	1014		1014	
Capital costs (pre prod'n)	A\$400m	978	3.6%	1050	-3.6%
Opex	A\$18.1/t	845	16.7%	1183	-16.7%
Zircon price	US\$1500	1203	-18.6%	825	18.6%
Ilmenite price	US\$250/t	1128	-11.2%	900	11.2%
A\$/US\$	0.75	708	30.2%	1388	-36.9%

Disclosures and disclaimers

Bridge Street Capital Partners Pty Ltd is licensed to provide financial services in Australia; CAR AFSL 456663; Level 14, 234 George Street, Sydney NSW 2000

Bridge Street Capital Partners Pty Ltd is providing the financial service to you.

General Advice Warning

Please note that any advice given by Bridge Street Capital Partners Pty Ltd or its authorised representatives (BSCP) is GENERAL advice, as the information or advice given does not take into account your particular objectives, financial situation or needs. You should, before acting on the advice, consider the appropriateness of the advice, having regard to your objectives, financial situation and needs. If our advice relates to the acquisition, or possible acquisition, of a particular financial product you should read any relevant Prospectus, PDS or like instrument.

Disclaimers

BSCP provides this financial advice as an honest and reasonable opinion held at a point in time about an investment's risk profile and merit and the information is provided by BSCP in good faith. The views of the adviser(s) do not necessarily reflect the views of the AFS Licensee. BSCP has no obligation to update the opinion unless BSCP is currently contracted to provide such an updated opinion. BSCP does not warrant the accuracy of any information it sources from others. All statements as to future matters are not guaranteed to be accurate and any statements as to past performance do not represent future performance. Assessment of risk can be subjective. Portfolios of equity investments need to be well diversified and the risk appropriate for the investor. Equity investments, made by less experienced investors, in listed or unlisted companies yet to achieve a profit or with an equity value less than \$50 million should collectively be a small component of a balanced portfolio, with smaller individual investment sizes than otherwise. Investors are responsible for their own investment decisions, unless a contract stipulates otherwise. BSCP does not stand behind the capital value or performance of any investment. Subject to any terms implied by law and which cannot be excluded, BSCP shall not be liable for any errors, omissions, defects or misrepresentations in the information (including by reasons of negligence, negligent misstatement or otherwise) or for any loss or damage (whether direct or indirect) suffered by persons who use or rely on the information. If any law prohibits the exclusion of such liability, BSCP limits its liability to the re-supply of the Information, provided that such limitation is permitted by law and is fair and reasonable.

Disclosures

Dr Chris Baker, an authorised representative of BSCP, certifies that the advice in this report reflects his honest view of the company. He has 29 years investment experience in wholesale capital markets. He worked as a mining analyst for brokers BZW and UBS for 11 years and has a further 16 years' experience as a mining analyst and portfolio manager with Colonial First State and Caledonia Investments. He now provides independent financial advice on a part time basis. He may own securities in companies he recommends but will declare this when providing advice. He currently owns shares in SFX. He is remunerated by BSCP but is not paid a specific fee for providing this report. BSCP, its directors and consultants may own shares and options in SFX and may, from time to time, buy and sell the securities of SFX.

BSCP earned fees from a capital raising undertaken by SFX in 2019. BSCP are Corporate Advisors to the company and receive fees from this company for services provided.

By downloading this report you acknowledge receipt of our Financial Services Guide, available on our web page www.bridgestreetcapital.com.au.

Appendix 1

US Disclaimer: This investment research is distributed in the United States by Bridge Street Capital Partners Pty Ltd and in certain instances by Enclave Capital LLC (Enclave), a U.S.-registered broker-dealer, only to major U.S. institutional investors, as defined in Rule 15a-6 promulgated under the U.S. Securities Exchange Act of 1934, as amended, and as interpreted by the staff of the U.S. Securities and Exchange Commission. This investment research is not intended for use by any person or entity that is not a major U.S. institutional investor. If you have received a copy of this research and are not a major U.S. institutional investor, you are instructed not to read, rely on or reproduce the contents hereof, and to destroy this research or return it to Bridge Street Capital Partners Pty Ltd or to Enclave. The analyst(s) preparing this report are employees of Bridge Street Capital Partners Pty Ltd who are resident outside the United States and are not associated persons or employees of any U.S. registered broker-dealer. Therefore, the analyst(s) are not subject to Rule 2711 of the Financial Industry Regulatory Authority (FINRA) or to Regulation AC adopted by the U.S. Securities and Exchange Commission (SEC) which among other things, restrict communications with a subject company, public appearances and personal trading in securities by a research analyst. Any major U.S. institutional investor wishing to effect transactions in any securities referred to herein or options thereon should do so by contacting a representative of Enclave.

Enclave is a broker-dealer registered with the SEC and a member of FINRA and the Securities Investor Protection Corporation. Its address is 19 West 44th Street, Suite 1700, New York, NY 10036 and its telephone number is 646-454-8600. Bridge Street Capital Partners Pty Ltd is not affiliated with Enclave or any other U.S. registered broker-dealer