Dr Chris Baker
August2023

BRIDGE STREET
CAPITAL PARTNERS

SHEFFIELD RESOURCES LTD (SFX AU, $0.51. Market cap A$204m)

Thunderbird begins commissioning. First sales scheduled for 1Q24.

Investment view

Construction of SFX's 50%-owned Thunderbird project is now over 90% complete with commissioning of elements of the project already underway. Thunderbird is a Tier 1, zircon-dominated mineral sands project boasting low costs (R/C of over 2x life of mine). In contrast to several other mineral sand projects developed over recent years, Thunderbird's revenue will be derived from the sale of mineral sand concentrates to Asian upgraders. This, in our view, greatly reduces commissioning risk for Thunderbird for two main reasons:

- *The process flowsheet is simpler, and does not require the commissioning of a final mineral separation (or dry) plant.*
- *The specification ranges are much wider than are required for final products (eg premium zircon).*

In this report we compare and contrast the highly successful start up of Image Resources' Boonanarring project in 2019/20 (IMA) with that of the troublesome Coburn project of Strandline (STA) and what might be expected for Thunderbird. We conclude Thunderbird's start-up should be more akin to that of Boonanarring.

Our project NPV_8 for Thunderbird of A$1.8bn post-capex translates to a fully funded valuation of $1.95/share for SFX, based on a long term premium zircon price of US$1750/t (contract prices are around US$2200-2300) and A$/US$ of 0.70. On our estimates SFX is trading on an effective EV/EBITDA of under 2x (2024/25f) based on its 50% share of project economics. In all, these metrics suggest to us that the market is already discounting a slower than expected start-up of Thunderbird.

SFX has recently taken an inexpensive option to acquire the ilmenite-rich South Atlantic mineral sands project in Brazil, which may deliver growth beyond Thunderbird. This to us is a very sensible approach to building SFX into a significant mid-cap miner. In a sector searching for new production capacity, we are surprised that a project of this calibre seems not to have been evaluated by the major producers. Planning is underway for a ca. 10,000m drilling programme in late 2023.

The Thunderbird Project (Kimberley Mineral Sands, SFX 50%): a snapshot:

- The largest and one of the highest grade zircon deposits globally (6.3Mt contained zircon at 0.84%).
- At Stage 2 production levels (ca. 170ktpa pure zircon basis), Thunderbird will be one of the world's largest zircon producers.
- Tier 1 jurisdiction with relatively short trucking distance to the Port of Broome, WA (150km).
- Approximately 62% of revenues derived from zircon sales.
- Revenues supported by take-or-pay contract over ilmenite concentrate (TiO_2 feedstock) with partner and emerging pigment producer Yansteel.
- Straightforward dozer push mining and wet concentration/upgrade to produce three readily marketable concentrates. Some 80% of production is subject to binding offtake contracts.
- Straightforward mineral processing, with no requirement for a mineral separation plant.
- Low forecast cash costs (R/C of 2x).
- 36 year mine life with highly attractive exploration opportunities close to Thunderbird.
- Stage 1 fully funded: funding requirement of A$484m satisfied by debt (ca. A$315m), balance from equity/sell-down of 50% to Yansteel. Ca. $50m available within KMS for working capital.
- Processing to commence in 4Q23 with first shipments from 1Q24.

BRIDGE STREET
CAPITAL PARTNERS

BRIDGE STREET
CAPITAL PARTNERS

+61 (0) 2 9002 5414
info@bridgestreetcapital.com.au
LEVEL 14, 234 GEORGE STREET
SYDNEY NSW 2000
BRIDGESTREETCAPITAL.COM.AU

FINANCIAL SUMMARY — Sheffield Resources Limited (SFX.AX)

Share Price	A$/sh	0.51	Target Price	
Shares on Issue	m	400	Upside / (Downside)	
Market Cap (A$m)	A$m	204	Dividend Yield	0%
Net Debt / (Cash) (A$m)	A$m	(40)	Total Return Forecast	
Enterprise Value (A$m)	A$m	164		

Profit & Loss	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Sales and Other Income	A$m	50	162	177	221	217
Expenses	A$m	(37)	(79)	(80)	(97)	(110)
EBITDA	**A$m**	**14**	**83**	**97**	**124**	**107**
D&A	A$m	(13)	(13)	(13)	(13)	(13)
EBIT	**A$m**	**1**	**70**	**84**	**112**	**95**
Interest	A$m	(11)	(12)	(10)	(13)	(12)
Tax	A$m	-	(17)	(22)	(30)	(25)
NPAT	**A$m**	**(9)**	**41**	**52**	**69**	**58**

Cashflow	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Cash From Operations	A$m	14	83	97	124	107
Interest	A$m	(11)	(12)	(10)	(13)	(12)
Tax	A$m	-	(17)	(22)	(30)	(25)
Working Capital	A$m	(3)	(6)	(2)	3	(8)
Net Cash From Operations	**A$m**	**0**	**47**	**63**	**85**	**62**
Capex	A$m	(60)	(9)	(21)	(73)	(41)
Exploration	A$m	-	-	-	-	-
Acquisitions / Investments	A$m	-	-	-	-	-
Free Cash Flow	**A$m**	**(60)**	**38**	**42**	**12**	**21**
Borrowings (repaymnt of borrowings)	A$m	69	(18)	(35)	107	(41)
Equity	A$m	-	-	-	-	-
Dividend	A$m	-	-	-	-	-
Net Increase / (Decrease) in Cash	**A$m**	**9**	**20**	**7**	**118**	**(20)**

Balance Sheet	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Cash	A$m	99	119	125	244	224
Receivables	A$m	4	13	14	18	17
Inventory	A$m	3	8	9	11	11
PP&E	A$m	157	153	162	223	251
Other	A$m	116	116	116	116	116
Assets	A$m	**379**	**410**	**426**	**612**	**620**
Creditors	A$m	4	13	14	18	17
Borrowings	A$m	145	127	92	199	158
Other	A$m	1	1	1	1	1
Liabilities	A$m	**150**	**141**	**107**	**217**	**176**
Net Assets	A$m	**229**	**268**	**319**	**394**	**443**

Liquidity & Leverage	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Borrowings	A$m	145	127	92	199	158
Net Debt / (Cash)	A$m	46	8	(33)	(45)	(66)
Gearing: Net Debt / (Net Debt + Equity)	%	17%	3%	-12%	-13%	-17%
Net Debt / EBITDA	x	3.4x	0.1x	(0.3)x	(0.4)x	(0.6)x
EBIT Interest Cover	x	0.1x	5.7x	8.4x	8.8x	7.7x

Per Share Data	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Shares Out (m)	400	400	400	400	400
EPS (¢)	(2.4¢)	10.1¢	13.0¢	17.4¢	14.4¢
Dividend (¢)	-	-	-	-	-
Payout Ratio (%)	0%	0%	0%	0%	0%
Book Value (A$/share)	0.57	0.67	0.80	0.99	1.11
Operating Cash Flow (A$/share)	0.00	0.12	0.16	0.21	0.16
Free Cash Flow (A$/share)	(0.15)	0.09	0.10	0.03	0.05
EBITDA (A$/share)	0.03	0.21	0.24	0.31	0.27

Valuation Metrics	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
P/E (x)	(21.6)x	5.0x	3.9x	2.9x	3.5x
Dividend Yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%
EV / Sales	3.3x	1.0x	0.9x	0.7x	0.8x
EV / EBITDA	12.0x	2.0x	1.7x	1.3x	1.5x
EV / EBIT	146.7x	2.3x	1.9x	1.5x	1.7x
FCF Yield (%)	-29.4%	18.5%	20.5%	5.8%	10.2%

Operating Metrics (%)	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
EBITDA Margin	27%	51%	55%	56%	49%
EBIT Margin	2%	43%	48%	51%	44%
Net Profit Margin	-19%	25%	29%	31%	27%
ROIC	0%	25%	29%	32%	25%
Return on Assets	-2%	10%	12%	11%	9%
Return on Equity	-4%	15%	16%	18%	13%
Effective Tax Rate	0%	30%	30%	30%	30%

Key Assumptions	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Non-mag Concentrate (US$/t)	965	965	965	965	811
Mag Con (US$/t)	125	125	125	125	125
Paramagnetic Concentrate (US$/t)	110	110	110	110	110
AUDUSD	0.70	0.70	0.70	0.70	0.70

Production	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Mag Con (kt)	203	620	648	810	889
Non-mag Concentrate (kt)	49	163	182	227	249
Paramagnetic Concentrate (kt)	21	70	78	97	107

Valuation	A$m	Equity	Risk	A$m	A$/share
Thunderbird	1,804	50%	100%	902	2.25
Exploration	60	50%	100%	30	0.07
Corporate Costs	(26)	100%	100%	(26)	(0.07)
Net Cash (Debt)	(134)	100%	100%	(134)	(0.34)
Total	**1,703**			**771**	**1.95**

Our SFX forecasts are based on a 50% equity share of KMS which owns 100% of the Thunderbird project. The data displayed represents 50% of all components of the production, P&L, cashflow and balance sheet (adding assets as at December 2021). Accounting standards will require SFX to equity account its interest in KMS, which will therefore report dividend and interest income and overhead costs only. This standard provides limited transparency and so we have decided to proceed with this more visible reporting method.

BRIDGE STREET
CAPITAL PARTNERS

Thunderbird moves toward commissioning and first production

Always a challenging time for any project: the move from construction to commissioning and then to full production. Our recent site visit to Thunderbird (in May) confirmed that the project was on schedule and on budget, and even at that time planning for the start of commissioning had already started.

In summary:

- Completion of the Wet Concentrate Plant and Concentrate Upgrade Plant are on schedule.
- The tailings dam, bore field and stormwater storage pond are largely complete.
- Commissioning of the bore field has commenced.
- Temporary diesel power supply has been installed to allow the start of commissioning.
- The gas-fired turbines for power generation are progressively being installed, with the planning for LNG 'first fills' underway.
- Waste mining has already commenced.
- Rotainers for the shipment of concentrate to the Port of Broome have been ordered.
- First product shipments are scheduled for 1Q24, in line with original projections.

While the principal of separating mineral sands into their various valuable components is reasonably straightforward – and certainly tried and tested over many decades - the plants themselves can be quite complex. Commissioning of any mineral separation plant will be challenging, and driven by the quality of the design, the owners and construction teams and their ability to seamlessly hand over to the commissioning team and operators.

Constructors GR Engineering (GRES) are amongst the best in the business and appear to have done their part in keeping the project on budget and on schedule. A watchful eye from an impressive KMS owners team has undoubtedly kept expenditure on the straight and narrow.

In this report we will examine two mineral sand projects and their pathway through commissioning and into production. These are the Boonanarring project of Image Resources which began commissioning in 2019 and moved rapidly to full production, and the Coburn Project of Strandline Resources, currently midway through a troublesome commissioning phase.

Before we tackle the comparisons, it is important to understand the products being produced and sold by each on of these operations. The developers of Boonanarring and Thunderbird have chosen to produce a variety of intermediate concentrate products which are shipped to Asian upgraders. The trend towards China importing and processing concentrates to supply zircon and titanium feedstocks is now well established with perhaps as much as a third of Chinese zircon imports by way of concentrate. Pricing of these concentrates is quite straightforward, and we understand it to be a deep market.

Boonanarring produces a heavy minerals concentrate (HMC), a cocktail of zircon, ilmenite, rutile and monazite. Thunderbird is targeting three concentrates, one zircon rich ("non-mag"), one ilmenite rich ("magnetics") and a small volume intermediate product with zircon, titanium minerals and monazite.

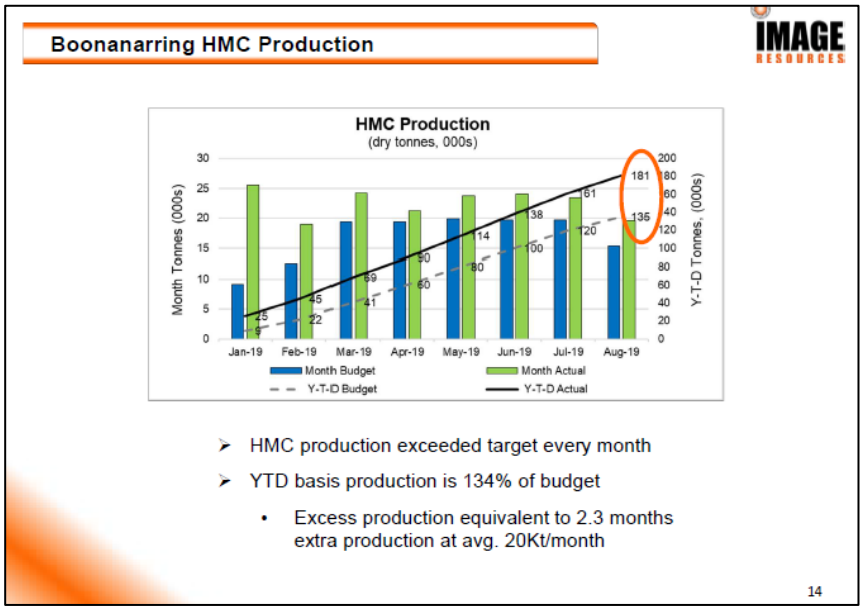
Other mineral sands projects – including STA's Coburn project - have chosen to go down the 'final product' route, one which requires precise separation of the main mineral sand commodities, zircon, rutile and ilmenite (and more recently monazite) using a mineral separation (or dry) plant. Optimal pricing will undoubtedly be obtained with these products but specifications are tight. As Strandline reported in a 2021 release premium zircon requires a ZrO_2 content of over 66% and it must demonstrate high whiteness (ie low iron) and low U+Th.

Boonanarring (Image, IMG, 100%)

The Boonanarring project can be used as an example of how to build a low capex project and effectively ramp up to full production within just 3 – 4 months. Certainly, it helped that the project was small (500tph or ca. 4Mtpa), favourably located, so construction was straightforward and transport costs to the port of Geraldton are quite low.

The plant was designed to produce around 240ktpa heavy minerals concentrate (HMC) containing 15-20% zircon and 30 to 35% ilmenite. This material has since been sold to Chinese upgraders.

In 3Q2019 Image reported the following chart:



Source: Image Resources presentation, October 2019

The green bars demonstrate during the forecast commissioning ramp-up, the project was already achieving well above its nameplate capacity of 20kt concentrate/month. This performance was assisted by an outperforming orebody, where actual ore grades exceeded target every month. The ore itself is quite coarse grained – which assists in mineral separation – and slimes were said to be reasonably low.

So, in summary, a rapid and largely incident-free commissioning period from Boonanarring.

Coburn (Strandline, STA, 100%)

In contrast, commissioning of the Coburn project has been challenging. The Coburn plant is large, with nameplate capacity of 22.5Mtpa (around 2800t/hour).

STA has been providing the market with mineral sands shipping data, which suggests to us that while operating cashflows appeared positive, margins are fairly tight. Below are the reported data:

Monthly shipments	KT shipped	A$ revenue (CIF)	A$/t (CIF)
1	6.5	6.5	1000.0
2	8.6	8	930.2
3	10	9	900.0
4	10.1	11	1089.1
5	10.6	11.7	1103.8
6	11	12	1090.9
7	7.8	9.1	1166.7

Source: STA public releases

Tonnages of heavy mineral concentrate (HMC) from Coburn had been ramping up quite well, as had revenues (and there appears to be nothing wrong with price achievement for the HMC). But the project had not been designed to deliver optimal returns based on the sale of HMC.

STA's June quarterly highlights the issues faced by Coburn during commissioning. These included:

- Mining rates constrained due primarily to low availability of the dozer mining units and mining plant and equipment.
- Tailings disposal issues.
- Power supply and network communications interruptions.
- Failure of pump mechanical seals.
- Instrument calibration issues.
- Operator errors.

STA state that the mineral separation plant (MSP or dry plant) ramped up during the quarter following refinements to the dust extraction system and other circuits. Ilmenite product is now being produced on a consistent basis according to STA and stockpiled for first shipment in the September quarter, now well over 6 months since commissioning started. The focus is now on the production of premium zircon and rutile, which is where a good proportion of future revenues will lie.

Commissioning of Coburn not gone smoothly with production rates of 55-60% of capacity against 75% planned at the time of the June quarterly. A working capital deficiency, in part driven by these issues, in part likely due to slow payment terms, has resulted in a recent $33.8m equity raise at 18c. As well, we've seen the MD stand aside from the position of CEO, with the appointment of credentialled mineral sands engineer Jozsef Patarica (ex MDL and Kalbar) to overcome operational challenges.

This is not an outcome that management or investors were expecting. Just a few months ago the company reported that the ramp up was going well. While STA has been able to sell HMC, likely into a spot market, this is not what was planned and certainly does not optimise revenue.

The June quarterly showed that the operation was roughly cashflow breakeven, with the company cashflow negative after corporate costs but excluding capital items. STA's bankers were obviously getting nervous.

Thunderbird (SFX 50%) compared with Coburn (STA 100%)

As we've said in past research, we've preferred SFX's Thunderbird's mineral sands project and the approach it is taking to product sales. As we presented in our August 2022 report (see Appendix 1), Thunderbird with its substantially higher grades (zircon reserve grade of 0.84% vs Coburn of 0.24%) and larger mineral production capacity should reduce risks during startup.

Importantly, the Thunderbird plant has done away with the high capex/high start-up risk MSP with the bulk of the project's revenue coming from the non-magnetic stream, or a zircon concentrate containing >30% zircon). This material is locked into offtake contracts into Asia.

As has been explained to us by mineral sands specialists, MSPs these days simply do not justify the capital spend. And, they add another level of complexity to the process flow sheet. The original Thunderbird BFS incorporated an MSP. Subsequent design iterations saw it removed.

Other products from Thunderbird include a lower value zircon/titanium/monazite product (a small revenue component and not yet contracted) and a ilmenite dominant magnetic stream sold at fixed price for the first 5 years of production to SFX's partner, Yansteel on a take-or-pay basis. Our estimates suggest that at around US$125/t – our estimate of the sales price of this magnetic concentrate – site costs are covered with the sale of this material alone.

In total around 80% of Thunderbird's production has been locked into firm offtake agreements.

In our view the advantages of the Thunderbird project are:

- Higher grades, with Stage 1 supported by 1.5-2% zircon grades from the higher grade "GT Zone".
- Throughput rates of around 10mtpa in Stage 1, under half that of Coburn and 2.5x that of Boonanarring.
- Sales of mineral concentrate to Asian upgraders, eliminating the need for an MSP
- Therefore, significantly lower risk to achieve final product specifications.
- Significantly higher zircon production rates (in Stage 2).
- A large TSF has been constructed to deal with the tailings.
- Comparable unit costs (on a revenue to cost basis), despite significantly higher unit costs budgeted by SFX (C1 costs of around $11/t vs $2.7/t for Coburn). As an aside, we have never been comfortable with Coburn's DFS cost estimates. (See further commentary in Appendix 1).
- Shorter trucking distance for Thunderbird product to port.
- Higher margins. Based on comparable commodity price assumptions, Thunderbird's margins appear to be over 3 times that of Coburn.

No doubt Thunderbird will have its challenges. The deposit has indurated sections near surface, and ripping will be required in part (against the free-running sands at Coburn). But as described in the company's 24 March 2022 release, mine planning has been adjusted to avoid the areas of indurated sands. Following two trial mining programmes, the starter pit was actually moved some 1.25km to avoid the harder material. This resulted in a higher strip ratio in the early stage of mining, but with significantly less mining and processing risk.

As we always say, grade can cover a multitude of sins. We greatly prefer high grade deposits especially during the commissioning phase.

With the Thunderbird plant now >90% complete, and with commissioning already started we look forward to shipments of final product early in 2024. It is never wise to forecast a trouble-free start-up of any project, and no doubt at Thunderbird's scale, there will be issues. From what we can see from our detailed understanding of the project, meetings with management at a site visit in May, obvious risks have been recognised and mitigated. **As we discuss above, the hefty discount to underlying NPV, suggests to us that the market is already expecting a slower than expected ramp up.**

The South Atlantic mineral sands project in Southern Brazil – a summary:

As described in more detail in our April report, SFX has been evaluating additional mineral sand opportunities with Thunderbird now fully funded and moving toward production. SFX's Executive Chair Bruce Griffin, a mineral sands specialist, and his team, have been successful in reconfiguring and fully funding the Thunderbird project. We believe SFX has a management team well positioned to identify quality mineral sand opportunities to add to its Tier 1 asset base. In our view, mineral sands developments require an in-depth knowledge of this complex sector, from technical, permitting, marketing and financing viewpoints. Few companies globally are able to deliver these skills, in our view.

- Located in the state of Rio Grande do Sul in the far south of Brazil, consisting of a sequence of dunes and beach sands extending for some 80km. The deposit comprises 4 contiguous deposits: Retiro, Estreito, Capão do Meio and Bujuru.
- The exploration target for Retiro and Bujuru alone is 500 to 720Mt at 3.2 to 4.0% total heavy mineral content (THM). To us, there appears to be good potential for additional resources.
- THM grades are reported at 3-10%, low slimes (<5%, which is very important) and 3 to 12m in thickness. The deposits are at surface, and therefore could be amenable to low-cost dredge mining.
- The valuable mineral assemblage (VHM) is dominated by ilmenite (a critical feedstock for the global pigment industry) which makes up around 78-79% of the VHM assemblage.
- While a lower zircon deposit than Thunderbird the zircon content is typical of this style of deposit and will be welcome in a market with medium term supply shortages expected from the decline of existing mines. From a revenue perspective the ilmenite might be around 50% and zircon 35%.
- The project has been well-explored, suggesting that a JORC Resource and even a feasibility study might emerge quite quickly.
- The project appears to be exceptionally well-located, lying adjacent to the town of Rio Grande, an industrial town with access to significant port infrastructure roads and power.
- Project risk seems to us to be related to environmental issues, lying adjacent to the coast and wetlands. A local "mining ban" has been overturned, ruled by the courts as unconstitutional.

In the June quarterly, SFX reported a 10,000m drilling program designed to convert the exploration targets at Retiro and Bujuru into resources is planned for late 2023. Metallurgical consultants IHC Robbins have commenced a test work program in Australia on bulk samples taken from Bujuru and is expected to be completed during the December quarter. IHC undertook much of the metallurgical work for the Thunderbird project, and are well credentialled in mineral sands.

As discussed below, we apportion no value to the South Atlantic project.

Our valuation for SFX

We have rebased our valuation from Thunderbird to the current financial year (2023/24) which will see all the Stage 1 capex disappear from our net cashflows and debt appear on the KMS balance sheet (which effectively flows through to a SFX debt position). Our after-tax valuation for Thunderbird, post capex is now A$1.8bn on a fully funded basis (and debt carried at the KMS level) with an after tax IRR of 30%. This is indeed a valuable project.

Our valuation is based on the following assumptions:

- Stage 1 production ramping up to Stage 2 from 2028 (the first full year). Incremental capital has been estimated at $260m funded largely by equity. KMS have not yet committed to Stage 2, but it is regarded by most as a 'no brainer'. There have been many studies undertaken by SFX over the years into Stage 2.
- The basis for our commodity price assumptions is summarised below under "Commodity Overview". In summary our long term price assumption for the zircon-rich non-mag concentrate is just over US$800/t (derived from a US$1750/t premium zircon price assumption, or $1550/t average of premium + standard), US$125/t for the magnetic (Ti-rich) concentrate contracted with Yansteel's pigment plant and US$110/t for the paramag con (a small proportion of the cashflows, and not yet contracted).
- Short term (years 1-3) we have assumed a higher zircon price, reflective of current price levels of over US$2000/t. In these years we have used US$965/t of concentrate incorporating an average zircon price (premium + standard) of US$1900/t.
- FX of 0.70, royalties (state, traditional owners and to one of the debt providers in years 7 to 25) averaging 6 to 7% over the life of the mine; tax rate of 30%.
- We have included a notional value for the KMS exploration assets, in our view worth significantly more than our assumed $60m.
- As discussed above, we have apportioned no value to SFX's option over the South Atlantic project.
- Modest overheads for SFX, with the bulk of G&A incorporated at the KMS level.
- SFX share of KMS debt, fully drawn, together with SFX's current cash position.
- This aggregates to a sum-of-the-parts NAV for SFX of A$1.95/share.

Sum-of-the-Parts	A$m	Equity	Risk	A$m	A$/share
Thunderbird (23/24)	1,804	50%	100%	902	2.25
Exploration	60	50%	100%	30	0.07
Corporate Costs	(26)	100%	100%	(26)	(0.07)
Debt	(158)	100%	100%	(158)	(0.40)
Cash	24	100%	100%	24	0.06
Total	**1,703**			**771**	**1.95**
WACC					**8.0%**
FPO Shares					393
Options					2
Performance Rights					5
Fully Diluted SOI					**400**

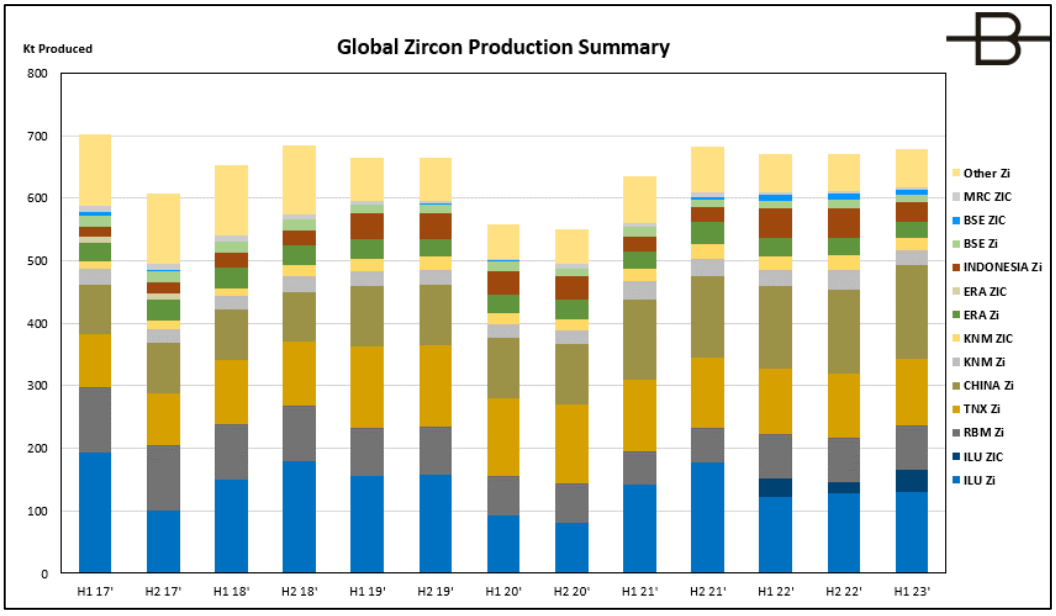
(Note: in our March 2023 we quoted an NPV/share of A$2.15. This was incorrect as it did not correctly account for the debt position of KMS at that point in time).

Commodity Overview: Zircon

In our April 2023 report we concluded that the outlook for zircon appeared positive, important for SFX in that over 60% of Thunderbird's revenue is derived from this opacifier. The mineral sand industry is mature, and a number of key zircon (and ilmenite and rutile) producers are in reserve decline. The two largest sources of zircon, globally, ILU's Jacinth-Ambrosia and RIO's Richards Bay/Zulti North operations are now old mines. Replacement mines, ILU's Balranald project in the Murray Basin (which is more of a rutile play) and RIO's Zulti South are not yet in production. Future supply may emerge from the large WIM deposits of Victoria's Murray Basin (such as Avonbank and Donald) but these are not yet fully permitted, nor financed. There are some questions regarding zircon quality as evidenced by ILU's removal or zircon revenue from its recent WIM100 reserve update (21 February 2023).

As we've written in the past, we don't believe Zulti South will ever become a mine. We also question the viability of the underground Balranald project. So we see a good five years of potential supply tightness which should allow Thunderbird to embed itself as a core source of global zircon supply..

As shown in the following chart, global zircon production appears to have flattened, following a dip in demand (and therefore supply) during the global pandemic. Production really hasn't shifted over the past 5 years (or longer). Note that the chart below applies equal weighting to pure zircon (usually 64-66% ZrO_2) and zircon in concentrate or zircon in HMC (typically 35-50% ZrO_2), This is work in progress as we work through available data to more accurately identify the supply/demand outlook for zircon. Data is not always freely available.



Source: Company disclosure, BSCP estimates

Short term there may be oversupply of zircon, driven largely by an over-inflated Chinese property bubble. Recent announcements from the zircon 'majors' Iluka and Tronox suggest there may be an oversupply over the short to medium term, driven largely by slowing global growth, especially from China. China is the largest importer of zircon.

Commentary from ILU's June quarterly is worth repeating:

"China's recovery was relatively muted in Q2 2023. Ongoing softness in the real estate market impacted the ceramic market and industrial activity slowed, contributing to uncertainty in other zircon segments. The government has started to ease some restrictions, including lowering interest rates and introducing other measures that could support the domestic economy. European demand remained stable in Q2 2023, however activity is expected to ease during the typically quieter summer quarter.

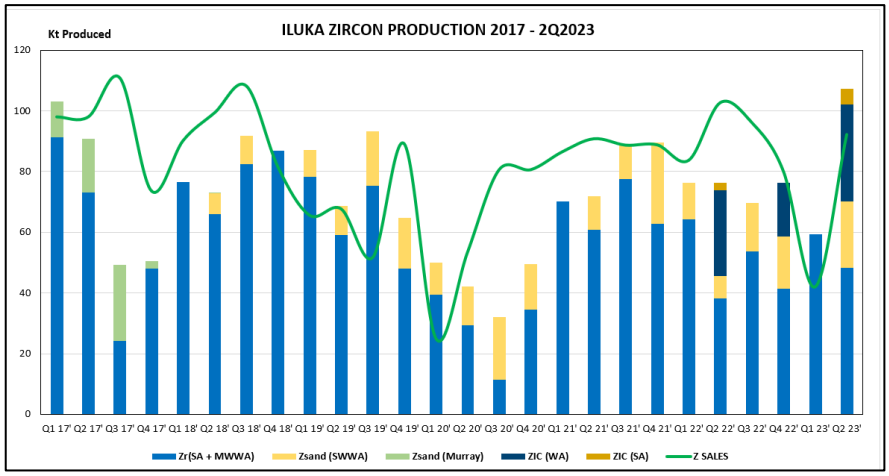
India's ceramic industry continues to outperform, notwithstanding a production hiatus caused by cyclone Biparjoy, which affected ceramic production in the Morbi area. Despite the disruption, the Indian property market is expected to continue to grow strongly.

Factory activity in other Asian economies has started to contract due to China's subdued recovery, which is also expected to weigh on US and European economic growth. Consumers through the supply chain appear unwilling to hold or build inventory citing the broader macro-economic uncertainties."

ILU state that Q3 2023 zircon prices will remain flat on Q2 2023 pricing

In the conference call following its 2Q23 financials, Tronox stated that there had been a rapid drop off in zircon orders out of China in August following a fairly normal July. While stating that demand could improve the company said that it will be lowering operating rates to avoid a large inventory build.

Making up roughly 30% of global zircon supply, Iluka has continued to be critical in maintaining supply demand balance for zircon, and therefore in maintaining prices. The following chart plots ILU's zircon production and sales history for the past 6 years.



Source: ILU quarterly releases

Note 1: SA + MWWA = Jacinth/Ambrosia, SA + Mid West WA; SWWA = South West + Cataby operations, WA
Note 2: ILU began releasing ZIC production statistics in early 2023;
Note 3: We have not discounted volumes of zircon-in-concentrate for lower ZrO_2 content.

There seems to be little doubt that Iluka (perhaps with the assistance of Tronox) has been managing excess supply quite rigorously. Sales fell dramatically during the pandemic and as well into 2Q23 as China's economy failed to rebound as rapidly as many commentators expected. Its possible into the next two quarters we will see ILU sales drop again.

As shown in the following chart, prices into China have remained remarkably steady at well over US$2000/t (CIF), although the small spot cargoes from Indonesia appear to be edging back a little. Indonesian production is regarded a swing supply.

We have been running with our long term zircon price of US$1750/t CIF and see no reason to change that estimate.

Pricing of Thunderbird zircon concentrate

The following table summarises our estimate for the long term value of zircon concentrate to be produced by Thunderbird. It is based on an estimate of the value of a 50/50 mix of premium and standard zircon at an average price of US$1550/t. Co-product credits are obtained from ilmenite and monazite within the concentrate.

ZrO2 content	39%
Gross up to zircon content	59%
Zircon price assumed (US$/t)*	1550
Value of zircon in concentrate	907
TiO2 in concentrate	25%
Value of feedstock mix (US$/t)	500
Value of TiO2 in concentrate (US$/t)	125
Monazite (approx)	50
Total contained value (US$/t)	1082
Payability (approximate)	75%
Net value of concentrate (US$/t)	811
*Premium + standard zircon (pricing of premium assumed at US$1750).	

Source: BSCP estimates

BRIDGE STREET
CAPITAL PARTNERS

Appendix 1: A comparison of Thunderbird and Strandline/Coburn

This is repeated from our August 2022 report. Some changes to the projects' scope and other details may have changed in the intervening period. The conclusions are unchanged.

Strandline (ASX STA) took the jump on SFX as it rapidly concluded its debt and equity for the WA Coburn project. This was an excellent achievement.

Coburn represents quite a similar mineral sands concept to Thunderbird, so it is worth comparing and contrasting the two operations from publicly available information to understand the drivers for each project.

The most important characteristics of both projects are summarised in the following table. Note that the comparison is on a project level basis, with SFX owning 50% of Thunderbird.

100% project basis,		Thunderbird	Coburn	Difference
TZMI assumptions for zircon, AUDUSD 0.75				
Ownership		SFX 50%	STA 100%	
Reserves				
Tonnes	Mt	754	523	44%
Zircon grade	%	0.84%	0.24%	244%
Contained zircon	Mt	6.3	1.3	396%
Ti grade	%	3.6%	0.67%	447%
Contained Ti feedstock	Mt	27.4	3.5	688%
Mine life	Years	36	22.5	60%
Mine life (extension case)*			37.5	
Strip ratio (LOM)	X:1	0.84	0.7	20%
Ore throuput - stage 1	Mtpa	8.7	23.4	-63%
- stage 2	Mtpa	17.4	-	
Concentrate production (av. LOM)	Ktpa	1430	220	550%
Zircon production**	Ktpa	146	60	143%
Zircon as % of revenue	%	62%	60%	3%
Capex - stage 1	A$m	361	260	39%
- stage 2	A$m	258	-	-
Total capex	A$m	619	260	138%
Capital intensity/ annual t zircon	A$/t	4240	4333	-2%
Mining cost/t material moved	A$/t	**2.41**	**0.63**	283%
Mining cost/t mill feed	A$/t	**3.0**	**1.1**	186%
Processing cost/t mill feed	A$/t	**3.8**	**1.6**	142%
C1 cost/t mill feed	A$/t	**11.1**	**2.7**	316%
Basket price/t mill feed	A$/t	**21.7**	**6.0**	264%
Cash margin/ t mill feed	A$/t	**10.6**	**3.3**	222%
Power useage and costs				
Power source		LNG	LNG	
Power station capacity	MW	14.0	16.0	-13%
Average load	MW	8.6	12.0	-28%
Cost of power	A$/KWh	0.20	0.17	18%
Trucking distance to port	km	148	240	-38%
Revenue/cost***	x	2.1	2.2	-5%
NPV_8 (post tax)	A$m	1279	367	249%
NPV_8 (pretax)*	A$m		825	
NPV/capex		2.1	1.4	46%
* Based on upgrading Amy South resource to Measured and Indicated; post tax VPV not available.				
** pure zircon equivalent				
*** based on LT zircon pricing of US$1516/t FOB, ilmenite, etc as DFS, FX of 0.75				

Source: Company disclosures, BSCP estimates

- STA claims Coburn to be a world-class mineral sands export project. (While a solid project, we're not quite sure it meets the conditions of "world-class"). It is targeting the production of around 58ktpa contained zircon (comparable to Image's Boonanarring Project) for a 22-year mine life using conventional open pit mining and wet and dry concentration methods.
- Coburn is aiming to produce a premium zircon product from the dry plant as well as a zircon concentrate. By-products will include ilmenite and rutile. We estimate zircon revenues will represent around 60% of Coburn's revenues.

Resources and production

- Thunderbird is a significantly larger deposit with 44% more tonnes in reserves and much higher grades (especially zircon grades: 0.84% vs 0.24% at Coburn).
- This leads to nearly 5 times the amount of contained zircon at Thunderbird, and nearly 8 times the amount of contained Ti feedstock. (Coburn's Ti feedstock is of higher quality than that of Thunderbird).
- This leads to a significantly longer mine life at Thunderbird, based on current reserves. However, note comments below on Coburn's proposed extension, which is stated to deliver a 37-year mine life.
- With the Stage 2 expansion, Thunderbird will be producing over twice the amount of zircon compared with Coburn and doing that with a 26% lower throughput rate.
- Strip ratios for the mines are similar as is the proportion of revenue delivered by zircon (in the case of Coburn pure zircon plus low-grade concentrate; in the case of Thunderbird, high grade concentrate).

Capital

- Total capital for Stages 1 and 2 of Thunderbird is significantly higher than Coburn (+138%).
- However capital intensity expressed on a 'per annual tonne of zircon' basis is almost identical.
- In a recent release STA state that the Coburn project is 65% constructed and is on time and on budget, a creditable result. This bodes well for Thunderbird achieving its capex goals.

Operating costs and cash margins

- This seems to be where the largest differences lie. On a $/t of material moved, Thunderbird's mining costs are estimated at $2.41/t against 63c/t for Coburn. Both projects will use dozer trap mining methods.
- We are aware that Thunderbird's ore is harder than typical mineral sand mines and in the upper sections will require ripping by a D11 dozer. However, we find it hard to imagine how earthmoving costs could be nearly 4 times that of Coburn.
- Processing costs appear to be similarly skewed, with Thunderbird nearly two and a half times the cost of Coburn. And Coburn includes a dry plant to produce premium zircon. We are puzzled by this.
- Power costs are important as they could make up as much as 25-30% of total costs. Power will be generated using LNG at both projects, with top up power from solar at Coburn. STA quotes A$0.17/kwh for its power costs, against 20c for Thunderbird. The reason for the difference is not clear to us but might in part be driven by the use of solar at Coburn.
- Transport costs will be higher for Thunderbird. With 100% of the material shipped as concentrate, Thunderbird will truck over 6 times the volume of Coburn. However, Thunderbird

is much closer to a port than Coburn (by around 90km). This we estimate will add 75c/t to Thunderbird's costs per tonne of ore processed compared with Coburn (using a transport cost of 10c/t/km).

- C1 costs for Thunderbird are estimated to be over 4 times that of Coburn. Again, this tests the credibility of these estimates. Has the Thunderbird project had particularly conservative costs applied, or are Coburn costs stretch targets? The transport costs for final product don't make that much of a difference.
- Both projects offer very attractive revenue to cost ratios and if correct, both will be in the highest margin quartile at over 2x. (Note we have recalculated Coburn's economics to the current long term zircon price assumption of US$1,516/t FOB and have used commodity price assumptions from the respective project feasibility studies).
- In total, Thunderbird's margin is A$10.60/t (revenue – C1 cost) against A$3.30/t for Coburn. The latter leaves less room for error or slippage.

Project economics

- A common financing metric, NPV/capex, both appear quite attractive with Thunderbird at 2.1x against Coburn at 1.8x.
- Thunderbird's NPV_8 is 2.8x that of Coburn for 2.4x the capex, in part reflecting Thunderbird's longer mine life and higher production rates.
- By comparison, Thunderbird looks to be a very robust project, and by our judgement certainly is a Tier 1 asset. Coburn, based on the DFS release, appears to be an attractive project, but we are concerned that costs may have been underestimated. Time will tell.

In conclusion, this comparison raises some interesting issues for us. Thunderbird is exploiting the increasingly attractive zircon-concentrate path, eliminating a relatively high capex dry plant. SFX argues that with the emergence of large Asian concentrators, returns from a dry plant don't warrant their installation. We believe that zircon concentrates now make up over 50% of all imports into Asia. This is a very liquid market.

Despite the additional capex for a dry plant at Coburn, capital intensity for both projects is about the same. This gives us additional comfort that the Thunderbird capex is achievable, despite inflationary pressures in Western Australia.

Of greatest concern to us are the large differences in operating cost estimates. We are left to conclude that the Thunderbird DFS has been very conservatively estimated and see the opportunity of even higher margins from this world-class project.

BRIDGE STREET
CAPITAL PARTNERS

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 32 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 has earned fees from this and other capital raisings undertaken by SFX. 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