

SHEFFIELD RESOURCES LTD (SFX AU, \$0.52. Market cap A\$204m)

Bulk shipments scheduled to commence by month-end. Full production rates expected in the June quarter

Investment view

SFX's has a 50% interest in Kimberley Mineral Sands (KMS) which owns 100% of the world scale Thunderbird operation. Thunderbird is forecast to become of the world's largest and lowest cost sources of zircon with coproduct Ti feedstock. We are encouraged that Thunderbird's commissioning and ramp-up appears to be proceeding without any major issues. SFX is guiding to full production rates by the end of the June quarter.

With high grades of valuable zircon-rich concentrate, underpinned by significant volumes of Ti-concentrate, at our commodity price assumptions EBITDA margins are estimated at around 55-60%, delivering industry-leading ROIC for Stage 1 of 36-43% and ROE of 20-27% in the project's early years. This should be an impressive mine.

SFX trades at what we consider to be an unjustifiably large discount to our \$2.00/share valuation. We see the likely rerating of the SFX share price as commissioning/production/sales risks dissipate.

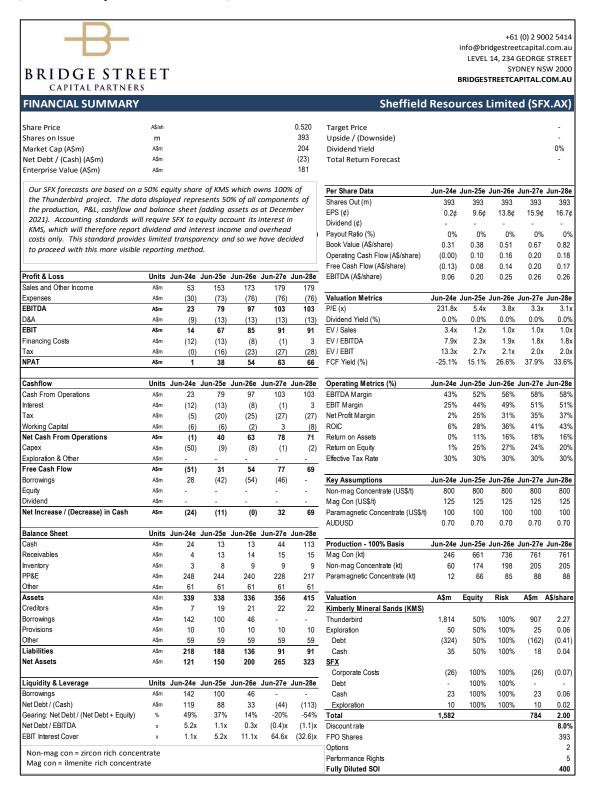
We have seen an encouraging series of recent reports from SFX. Key points include:

- The Thunderbird mine and process plant are ramping up, with only minor technical issues and commissioning interruptions.
- One issue which appeared from left-field has been delays to final permitting by the Kimberley Port
 Authority, which required State Government approvals for bulk shipments. We believe this oversight
 has been rectified, and bulk shipping of zircon and Ti feedstock will commence in March. This was an
 issue outside the control of KMS.
- Wisely, KMS had put in place contingency arrangements to allow bagging and export of the high value zircon concentrate as an interim solution.
- We expect ramp up to full throughput rates by the end of the March quarter, a remarkably rapid
 achievement, in our view. We forecast the project achieving full production rates in the June quarter
 as target plant availability is achieved.
- Total ore mined for the December quarter was around 740kt at an HM grade of 13.3% (in line with our expectations). Total saleable concentrate production for the December quarter was 34.3kt, including ca. 27kt of magnetic concentrate (Ti feedstock), 7kt tonnes of non-magnetic concentrate (zircon rich). In our modelling, we had no production expected for the December quarter.
- Over 5000t of concentrate has been exported to end January. Shipment rates should ramp up quickly with the commencement of bulk shipping.
- Regarding the Thunderbird orebody itself, SFX reports ore grade and mineral assemblage has reconciled well with Ore Reserve assumptions, and, importantly, there are no issue with slimes.
- Tailing deposition is performing well with no issues emerging regarding storage capacity. (This was an early problem at Strandline's Coburn operation.
- KMS (SFX 50%) has ca. \$75m in working capital at the start of the March quarter (\$35m cash, balance
 an overrun facility). With costs we estimate running at around A\$15m per month (100% basis), and
 with revenues starting this quarter, we see no reason for concern during the ramp up period.
 Separately SFX's cash balance is \$23.2m.
- A minor issue has emerged with the Traditional Owners and a previously unknown item of heritage importance. SFX states that this will not impact mine planning.

As we discuss in more detail in this report, mineral sand prices have been steady over the past 12 months. However, volumes have been under significant pressure, driven largely by a troubled Chinese property market. This has triggered a recently announced wind-back in production by Iluka (which now holds a significant zircon inventory position). In contrast, major producer, Tronox, comments that improved sales volumes are being seen into the March quarter (up 15-30% on the December quarter).



Little has changed from our earlier SFX estimates, with minor revisions to the ramp-up profile. These 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. 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. Note as well that our valuation now comprises 50% of KMS, adjusted for net debt, and further adjustments for SFX G&A, cash and other assets.



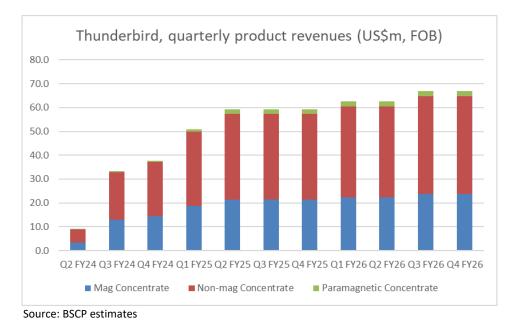


Thunderbird operations (SFX 50%)



Thunderbird process plant site including HMC and product stockpiles. (Source SFX interim results)

The following chart shows the importance of the zircon-rich non-mag concentrate to the Thunderbird project, making up just over 60% of revenues.



Thunderbird Stage 2

In our remodelling of KMS and SFX, we have taken note of guidance provided by SFX in recent presentations, which points to likely deferral of the Thunderbird Stage 2 expansion for what we guess will be around 12-18 months. We think this may happen for the following reasons:

- Based on our cashflow estimates, a delay will enable KMS to fully repay debt (27/28 or earlier by our estimates) and start to build cash to fund the expansion.
- Enable KMS to fine tune the Stage 1 plant, identify bottlenecks and perhaps extract higher production rates with moderate capital expenditure.



• To match increased zircon production with the decline profile of one of the world's largest producers of zircon, ILU's Jacinth-Ambrosia mine. We must always remember that the zircon market is small and can easily become oversupplied.

The impact of this delay on our KMS valuation has been negligible. It does remain a very valuable option for KMS, with SFX's stated valuation for the expansion of A\$548m (100% basis).

South Atlantic Project:

SFX is investing up to US\$2.5 million to earn an option to acquire a 20% interest in the Brazilian South Atlantic project by paying a further US\$12.5 million. This amount is payable in tranches (an additional US\$5m to take SFX to 10%) and then the balance (US\$7.5m) to move to 20%. The option is to be exercised (or otherwise) within 18 months of the signature of the earn-in (so 3Q24).

Given this project is reasonably well advanced, it's quite possible the initial US\$7.5m (\$2.5m plus \$5m) will be sufficient to allow SFX to take a go/no-go decision without the need for further funds. This would be quite manageable with SFX's current cash reserves.

A 10,000m drilling programme is to commence in the current quarter. The exploration target for the Retiro and Bujuru deposits are 500 to 720Mt at attractive grades of 3.2 to 4.0% HM with low slimes. A PFS is to be completed under the supervision of consultants, Hatch by mid year.

This will be an important milestone as it may present SFX with a new development opportunity. In our view, this is a very inexpensive option for SFX.

Commodity view

With China making up around 50% of global zircon demand, its economic woes have taken a toll on volumes. We estimate sales may have dropped >20% in 2023 (YoY) with the lowest demand levels in 2Q and 3Q23. However, discipline from the major producers have kept prices in a narrow band. As has been widely reported by the producers, prices (in US\$ terms) dropped 5-10% over the course of 2023 and look to have stabilised at or around US\$2000/tonne (for premium grade product.





In China, property stats remain mixed, despite further signs of partial support for the country's developers. New home sales in a survey of 44 Chinese cities dropped 40% over the Lunar New Year holiday. However, existing home sales in second tier cities rose 98% YoY and those in tier 3 cities 65% YoY. Meanwhile, land acquisition by China's main developers fell 85% MoM or -23% YoY (for January). We can see good reason for Beijing to continue to support the property market from getting worse. In that regard, it is interesting that Tronox, a significant global producer of zircon is starting to see recovery in zircon demand.

With reporting season drawing to a close, it's important to hear from the major mineral sand miners, especially lluka and Tronox. It's quite clear from both that supply to zircon customers is being carefully monitored, and in the case of ILU prices protected with declining production and a build in inventory.

Much of the trauma from the integrated and downstream during the year has related to titanium pigment pricing and accusations of dumping from Chinese producers. TiO_2 feedstock is of lesser importance for Thunderbird with prices now fixed with KMS partner Yansteel for a period of 5 years.

Iluka: zircon production guided down 33% in 2024

ILU's full year results and presentation presents some interesting insights. The slide which attracted the greatest attention was the outlook for 2024, and the dramatic forecast drop in production.

Key Parameters		20221	2023 reported	2023 restated ²	20243	Comments
Production						
Zircon sand	kt	211	240	n/a	160	Reduced heavy mineral from Jacinth-Ambrosia associated with lower grade. Narngulu operating rates reduced to prioritise value of our products by managing production and inventory settings
Zircon in concentrate	kt	88	88	n/a	40	Less material available
Rutile, including HyTi	kt	55	53	n/a	55	
Synthetic Rutile	kt	238	260	n/a	200	SR2 restarted after MMO in late January 2024. SR1 expected to remain offline in 2024 until supported by market conditions
Total Z/R/SR	kt	591	639	n/a	455	_
Cash costs of production (Z/R/SR)	\$m	508	605	661	660	
Unit cash costs of production	\$/t Z/R/SR	860	947	1,035	1,450	Unit costs are reflective of lower production base, with SR1 production paus planned for 2024, whilst continuing to build HMC inventory
Unit cost of goods sold	\$/t Z/R/SR	974	1,040	1,127	1,270	Impacted by increased input costs and sales mix
Capital expenditure, excl. Eneabba refinery	\$m	142	281	281	450	Includes major spending at: - Balranald \$300m - Wimmera \$40m - Tutunup and Euston projects \$30m

This should come as no surprise. ILU's recent share price performance might suggest otherwise. Grades at ILU's most important source of zircon is the Jacinth-Ambrosia mine, are steadily in decline towards mine closure in 2028. JA has been one of the world's great mineral sands accumulations, but all good things must come to an end.

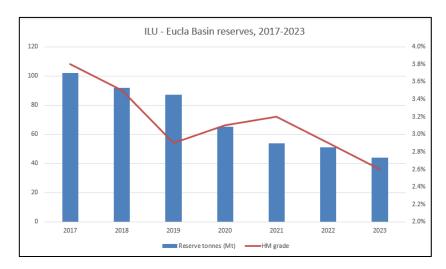
Nonetheless a 33% drop in zircon production from the world's largest producer is highly significant, and largely reflects declining reserve grades from its key assets. An imperfect analogy would be the impending exhaustion of a key iron ore mine in the Pilbara. We're not sure the market fully understands the impact of JA's demise.

As ILU answered to a question at the recent results presentation: "Just in terms of production guidance for 2024 ...is to produce 160kt of zircon sand from both our Jacinth-Ambrosia and Cataby mine. If we think about managing our market and our inventory.... we've built 100kt of zircon inventory across 2023. That enables us to satisfy our customer demands going forward."

100kt represents around 7-8% of total zircon demand.



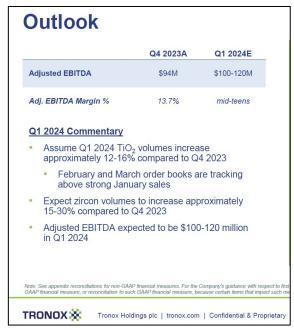
As shown in the following chart, the heady days of +3% HM grades at JA are long gone, with mine closure now scheduled in 3-4 years.



ILU has other options: the underground Balranald project (with significant technical risk in our view), the Atacama deposit in the Eucla Basin (product quality issues) and the Wimmera project (with typical permitting issues in Victoria). JA zircon tonnes cannot be replaced rapidly, nor easily. In our view, ILU has been tardy in husbanding its resource base.

Tronox: zircon volumes projected to rise 15-30% into 1Q24

Tronox's woes lie mainly with the downstream, as evidenced by the company's tight EBITDA margins. Growth in zircon demand is off a low base, and likely represents a recovery in demand following the Chinese New Year slowdown. The projection of 15-30% increase in zircon volumes into the March quarter is encouraging, but partly reflects the difficulties attached to 2023.



Source: Tronox 4Q results presentation.



Sheffield commentary

- SFX commented as follows in its recent quarterly: "Premium zircon from major producers increased from c.US\$1,350 per tonne in mid-2019, peaking in mid-2023 at c.US\$2,200 per tonne prior to softening to approximately US\$2,000 per tonne by then end of 2023.
- "New supply entering the market, including Thunderbird, offset by continued low inventory levels and reduced production from some existing operators is expected to see a modest contraction in pricing for 2024 around US\$1,900 per tonne, well above long term price forecasts.
- "Longer range price forecasts demonstrates price appreciation to continue, as the market outlook for zircon continues to indicate an emerging supply deficit as leading, mature operators representing >50% of the market forecast flat or declining production."

BSCP long term premium zircon price assumptions remain at US\$1750/t (CIF), unchanged for the past 2 years.

Our long-term premium zircon pricing is translated in the following table to an assumed price achievement for the major value-driver for Thunderbird, the non-mag concentrate. Here we have assumed the Asian concentrators will extract a combination of premium and standard grade zircon, with an inferred average pricing of US\$1550/t.

To this we add small credits from ilmenite and monazite and discount the total value achieved by 25%, with 75% a typical payability for concentrates of this type.

In our earnings assumptions we have projected a net concentrate value of US\$800/t going forward.

Pricing of Thunderbird non-mag 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					



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