



SHEFFIELD RESOURCES LTD (SFX AU, \$0.17. Market cap A\$52.5m)

Thunderbird: the next steps forward

- The release of SFX's June quarterly, together with a discussion with Bruce Griffin, SFX's newly appointed Commercial Director, has provided further insights into the future of the Thunderbird mineral sands project and the outlook for mineral sand commodity prices in general.

Thunderbird as a "world class" project

- Mr Griffin confirmed his view that Thunderbird is of world class stature, based on the following metrics (and derived from his experience with BHP):
 1. Thunderbird is long life.
 2. It is scalable, with expansions having the ability to dilute initial capital intensity
 3. It is likely to be low cost/high margin (1st quartile R/C) allowing the project to withstand commodity price troughs.
- His view of Thunderbird has been derived from a recent consulting engagement by the company. We are encouraged that these insights have led him to join the board in an executive capacity.

How will the Thunderbird project change going forward?

The zircon circuit

- As highlighted in the recently released June quarterly, the next iteration of the Thunderbird BFS is likely to remove a mineral separation plant (MSP) which was to produce both premium zircon and zircon in concentrate. This will "materially reduce upfront capital costs" and produce a zircon + leucoxene rich concentrate (ZIC) for sale to processors in China and elsewhere.
- Mr Griffin's advice to greenfields mineral sands developers in recent years has been not to install MSP's as it can be difficult to obtain a satisfactory return on the extra capital investment. The ZIC market is now sufficiently mature and deep to obtain bankable off-take agreements.
- An MSP can be added at a later stage, if warranted.
- In the BFSU the capex estimate for the zircon circuit was A\$52.3m.

The ilmenite circuit

- As has been discussed widely, one of the issues for potential financiers/partners for the Thunderbird project was the reliance on a single offtake agreement for the ilmenite by-product. Ilmenite makes up +30% of revenues, so is an important contributor to the project economics. This remains a "key question" for Thunderbird.
- As disclosed in the quarterly, SFX will now look to produce alternative ilmenite streams to be sold to the sulphate pigment and chloride slag producers. The off-take agreement with emerging Chinese pigment producer Bengbu, which formed the basis of the BSFU, might still form a part of ilmenite sales going forward, and to this end the company announced that a bulk sample had been dispatched to Bengbu for metallurgical test work.
- In Mr Griffin's view, this approach substantially reduces the perceived marketing risk attached to the ilmenite stream, and should therefore be more acceptable to potential funders/partners for the project.

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Thunderbird's capital requirement and likely funding outcome

- SFX has long stressed the need to reduce Thunderbird's pre-production capital and reduce SFX's equity requirement for the project. This will be done in two ways: a continued focus on engineering out capital costs and the continued search for a suitable equity partner, either at a corporate or project level.
- In the search for a suitable partner, Mr Griffin referred to a 'Goldilocks outcome' where a sustainable level of debt is to be balanced with a strategic equity investor (possibly an ilmenite off-taker) at the asset level, rather than at the company level. He was quick to point out that Thunderbird's funding will be based on a pragmatic "do what you can rather than do what you want" approach. The key is very much aligning the mine's product with end users and their specific requirements, and the requirements of debt and equity providers.
- There was no discussion on capex, which must await final decisions on the final process flowsheet. However, the move away from the production of final products and the elimination of the need for an MSP seems likely to drop pre-production capex further.

Commodity overview

- **On zircon**, Mr Griffin's view is quite positive. Despite a softening in demand and pricing toward the end of 2019, and despite more recent disruptions with COVID-19 issues, prices have been quite resilient.
- In line with our view, he sees significant supply shortages in a couple of years. Iluka's Jacinth-Ambrosia project is past peak production and is likely to see production decline into middle of the decade. In the short term, he thinks ILU is doing a good job in balancing a modestly oversupplied market.
- As the largest mineral sands supplier globally, expansions for the South African Richards Bay Minerals expansion into the new Zulti South project remains under a cloud. The project has been placed on hold on several occasions.
- **On feedstock including ilmenite**, the cycle is somewhat different. He foresees a significant drop in demand from the global pigment producers, a function of slowing global industrial production. This could translate to weaker feedstock pricing over the balance of the year. Longer term the outlook is positive.

We thought Mr Griffin's closing remarks were worth repeating. In the mining sector, it's often difficult to get commodity price strength matched with both project funding then with project start-up. The current supply/demand outlook for mineral sands suggest to him that the outlook for both zircon and feedstock pricing should be supportive for both financing and for the mine's start-up.

Other key points from the quarterly include:

- SFX's cash at the end of the quarter was \$7.1m, assisted by cost savings and the sale of non-core accommodation units not currently installed at site.
- Expenditure for the September quarter is forecast at \$2.5m, with a \$1m cash payment (and issue of 2.8m shares at \$1.05/share) under the terms of the Native Title agreement.
- The current cash balance is forecast to be sufficient to support SFX's activities into 2021.
- Further test work is being undertaken by consultants IHC Robbins to determine the range of potential products from Thunderbird. This work is to be completed in the current quarter.

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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.

Appendix 1

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