28 October 2019

ASX Code:
SFX

Directors:

Mr Will Burbury
Non-Executive Chairman

Mr Bruce McFadzean
Managing Director

Mr David Archer
Technical Director

Mr Ian Macliver
Non-Executive Director

Mr Bruce McQuitty
Non-Executive Director

Mr John Richards
Non-Executive Director

Registered Office:

Level 2, 41-47 Colin Street
West Perth WA 6005

Share Registry:

Link Market Services
Level 12, QV1 Building
250 St Georges Terrace
Perth WA 6000

Capital Structure:

Ordinary Shares:	289.4M
Unlisted Options:	6.8M
Unlisted Rights:	9.3M

Market Capitalisation:
A$104 million

Cash Reserves:
A$10.6 million
(as at 30 September 2019)

Investor Relations:

Bruce McFadzean
T: +61 8 6555 8777
E: info@sheffieldresources.com.au

Paul Ryan
Citadel-MAGNUS
T: +61 8 6160 4900
E: pryan@citadelmagnus.com

QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 SEPTEMBER 2019

HIGHLIGHTS

Thunderbird Mineral Sands Project

- Bankable Feasibility Study Update (BFSU), materially improving Thunderbird Project economics released.
- Thunderbird is assessed by TZMI as well inside the highest revenue to cost ratio quartile globally
- BFSU key metrics[1], spanning a 37 year mine life, include:
  - Post-tax NPV_8 of A$0.98 billion and 24% IRR
  - Pre-tax NPV_{10} of A$1.13 billion and 30% IRR
  - Equity funding requirement reduced by A$108 million to A$143 million
  - Stage 1 Project capital expenditure reduced by A$101 million to A$478 million
- Binding take or pay offtake agreements signed for 100% of Stage 1 Premium Zircon, Zircon Concentrate and Primary Ilmenite production
- Final funding process and BFSU project finance due diligence is well advanced
- Project Mining Proposal, and Mine Closure Plan was approved by State Government completing all of the required permitting to commence construction

Mineral Resources & Ore Reserves

- Sheffield's 2019 Mineral Resource and Ore Reserve Statement announced. Highlights include
  - Thunderbird Ore Reserve increased to 748 million tonnes @ 11.2% HM[2]
  - Dampier Mineral Resource increased to 3.36 billion tonnes @ 6.8% HM with the addition of the maiden Night Train Inferred Resource[3]

Corporate Activities

- Share placement announced to raise up to A$18 million
- Appointment of Board directors Mr Ian Macliver & Mr John Richards
- Final funding partner sourcing for the Thunderbird Project advanced

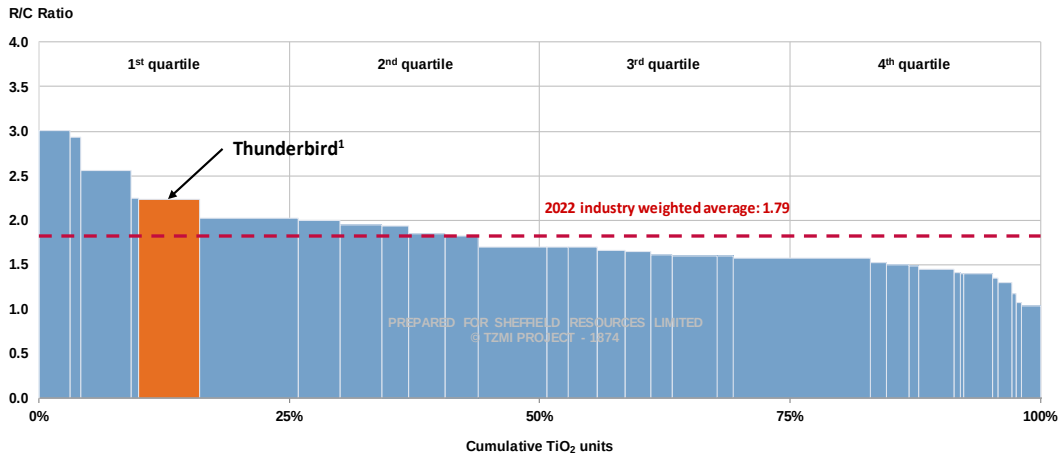

Figure 1: Thunderbird is in the highest Revenue to Cost Ratio quartile globally (TZMI)

[1]ASX Announcement dated 31 July 2019 titled "BFS Update Materially Improves Project Economics".
[2]ASX Announcement dated 31 July 2019 titled "Thunderbird Ore Reserve Update"
[3]ASX Announcement dated 31 January 2019 titled "High Grade Maiden Mineral Resource at Night Train". Dampier Resources reported at 3.0% HM cut-off for Thunderbird and 1.2% HM cut-off for Night Train

OPERATIONAL AND EXPLORATION SUMMARY

Sheffield Resources Limited ("Sheffield" or "the Company") continued to progress its fully permitted and construction ready, world class Thunderbird Mineral Sands Project (Thunderbird or Project), with the release of the completed Bankable Feasibility Study Update (BFSU) in late July (ASX Announcement "BFS Update Materially Improves Project Economics", 31 July 2019).

The BFSU follows detailed technical assessment during the first half of 2019 by Sheffield and GR Engineering Services (GRES) with the primary focus of lowering capital, increasing annual revenue and decreasing operating costs. These improved metrics were achieved by removing the ilmenite processing circuit and increasing zircon production to materially reduce the equity funding requirement and operating costs for the Project. With robust financial metrics including pre-tax NPV_{10} of A$1.13 billion and 30.1% IRR and post-tax NPV_8 and 24% IRR, the BFSU reduces estimated Stage 1 direct Project capital expenditure by A$101 million to A$478 million. The equity funding requirement has materially reduced by A$108 million to a total of A$143 million.

The zircon focused Project increases life of mine average annual zircon production from 145kt (2017 Bankable Feasibility Study) to over 200kt in the BFSU.

Following the release of the BFSU, the Company has been working toward updating key documentation to enable progression of the Thunderbird Project based upon the BFSU. This includes the updates to the EPC Agreement, Taurus Project Finance Facility and execution of the NAIF facility documentation.

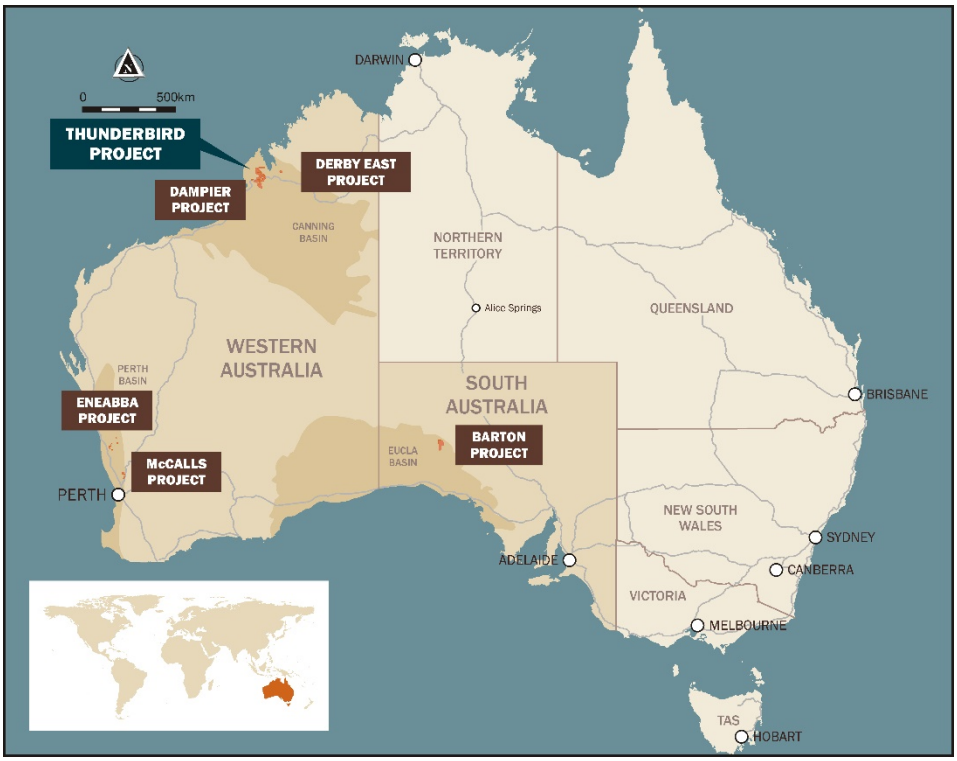

Figure 2: Location of Sheffield's Mineral Sands Projects

The BFSU includes the production of additional volumes of Premium Zircon and Zircon Concentrate in Stage 1, with binding offtake agreements signed with existing customers for the sale of 100% of the additional volumes for all products. In addition, a binding offtake agreement was signed for 100% of Stage 1 Primary Ilmenite production.

Care and maintenance activities continued onsite with the installation of storm water drainage and ground contouring around village buildings, painting and general maintenance of site infrastructure and

assets. This work was performed by our Aboriginal graduates as part of their training for construction and operational activities at Thunderbird.

The accommodation village, communications equipment and the site access road remain in excellent condition and ready to support the start of construction activities upon the completion of the current funding process.

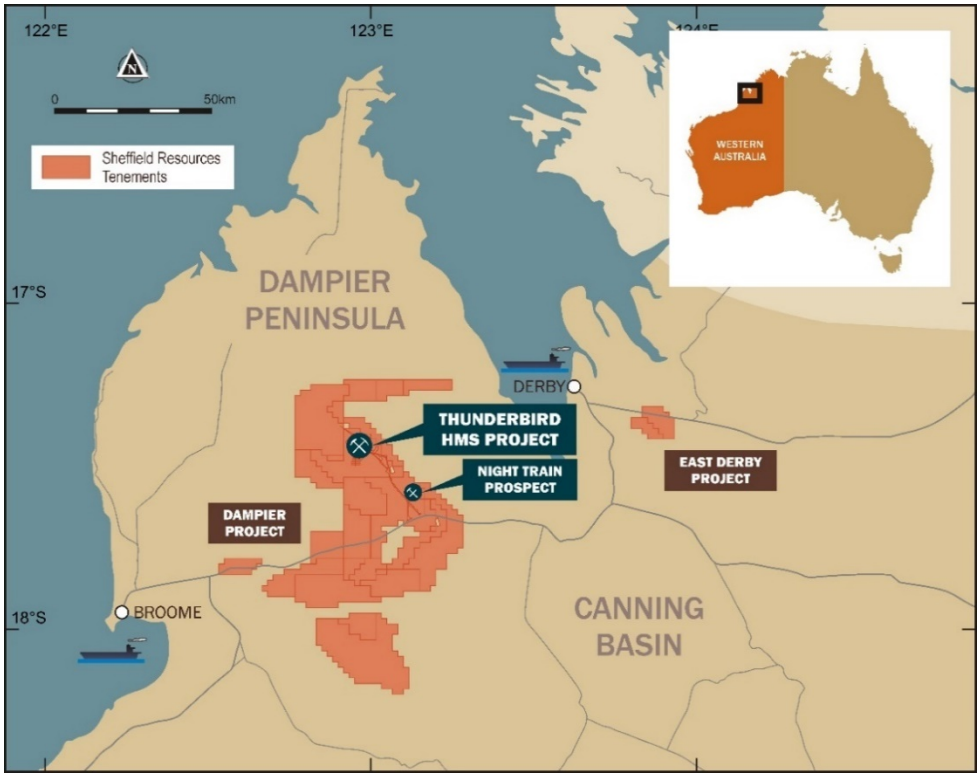

Figure 3: Location of Thunderbird Mineral Sands Project

Sheffield's 2019 Mineral Resource and Ore Reserve Statement was released which included the updated Thunderbird Ore Reserve (Proven and Probable) and a maiden Night Train Inferred Mineral Resource (refer to ASX announcement 24 September 2019). The updated Thunderbird Ore Reserve (refer to ASX announcement 31 July 2019) reported an increase of 68 million tonnes or 10% (ore tonnes) and approximately 9% (HM tonnes) to 748 million tonnes @ 11.2% heavy mineral (HM) compared to the previous Ore Reserve of 680.5 million tonnes at 11.3% HM (refer to ASX announcement 16 March 2017) supporting a 37 year mine life.

The Thunderbird Ore Reserve contains exceptionally high in-situ zircon grades of 1.02% in the Proved Category and high in-situ zircon grades of 0.86% in the Proved and Probable Categories. The updated Ore Reserve includes a substantial 8% (0.5 million tonnes) increase in contained zircon to 6.4 million tonnes which further underlines the significant scale of the Thunderbird deposit (Figure 3).

Sheffield's Dampier Project contains a total Mineral Resource of 3.36 billion tonnes at an average grade of 6.8% HM (Measured, Indicated and Inferred) for both the Thunderbird (3.0% HM cut-off) and Night Train (1.2% HM cut-off) deposits. The increase of 4% for material tonnes and by 2% for contained in-situ HM tonnes is due to the addition of the maiden Inferred Night Train Resource that contains 130 million tonnes @ 3.3% HM above a 1.2% HM cut-off (refer to ASX announcement 31 January 2019).

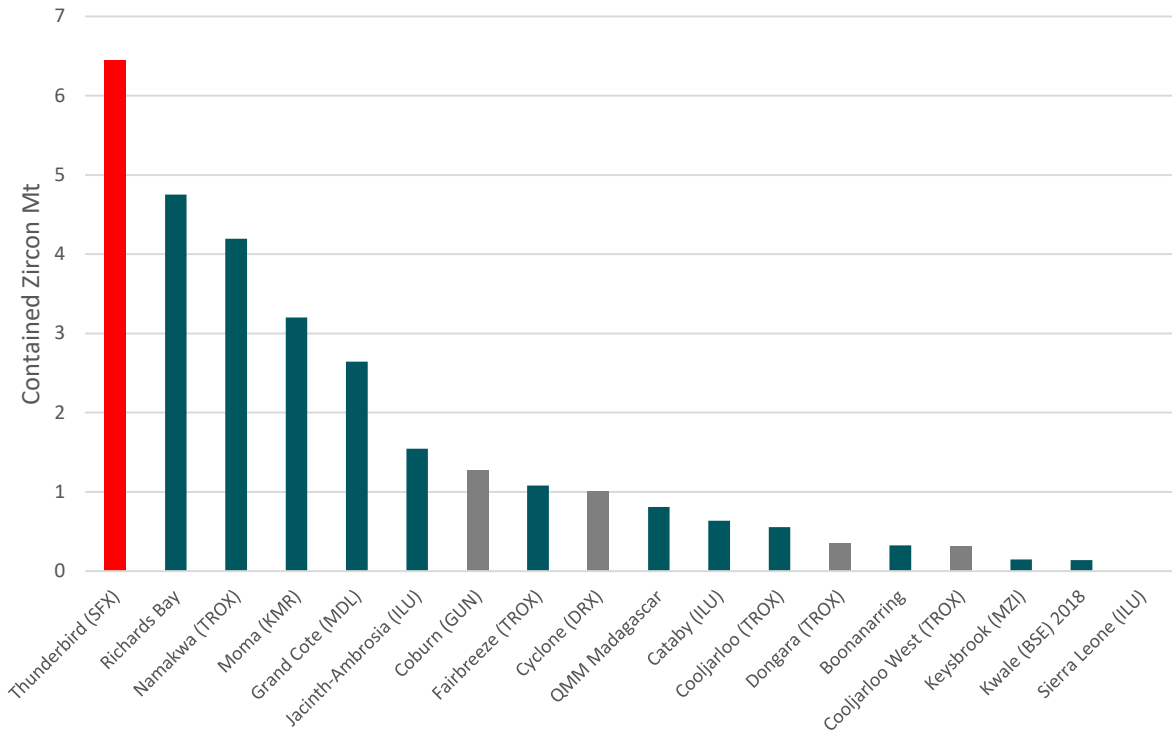

Figure 4: Comparison of contained zircon within Ore Reserves of key global mineral sands deposits[1]

[1]*Thunderbird Ore Reserve (red) as published on the ASX on 31 July 2019. Contained zircon within Thunderbird Ore Reserve ranked against contained zircon within published JORC 2012 compliant Ore Reserves of large current mineral sands operations and projects under investigation globally. Blue bars are operating mines, grey bars are Ore Reserves reported, but projects are not operating. Bar size proportional to tonnes of contained zircon. Only Ore Reserves > 1.2Mt contained VHM shown. Data compiled by Sheffield from public sources.*

THUNDERBIRD MINERAL SANDS PROJECT

Early Works Program

The on-site care and maintenance program delivered various minor projects including storm water management, contouring and compaction of the ground surface around buildings, painting and general maintenance to existing village buildings. These, together with regular inspections and upkeep of key infrastructure, have maintained the site in excellent condition in readiness for construction. The care and maintenance program is executed by our Aboriginal graduates as a site-based team of five.

The site based team participated in bush fire training facilitated by North Regional TAFE, providing them with bush fire management techniques, contributing to their preparation for the fire season and protection of the Thunderbird assets.

The accommodation village, communications equipment and site access road remain in excellent condition and ready to support the start of construction activities upon the completion of the funding process.

Figure 5: Completed mine accommodation stormwater piping & contouring

Figure 6: Mine accommodation flat bar and blue metal installation & painting of PVC piping

Engineering, Procurement and Construction

Subsequent to the release of the BFSU, the Company re-engaged with key suppliers to commence a review of commercial arrangements aligned to the BFSU strategy. Together with GR Engineering Services (GRES), engineering and design activities focused on updating design documentation to reflect the revised design criteria and on amending the EPC Agreement to reflect the BFSU strategy.

Aboriginal Engagement

The Company continues to positively engage with the Native Title Party Claimants over the Mining Lease. An Implementation Committee meeting was conducted and in collaboration with the Native Title party

Implementation Officer discussing and progressing initiatives with the aim to realise future employment and business engagement of Traditional Owners.

The Company continues to achieve high levels of Aboriginal employment as demonstrated below.

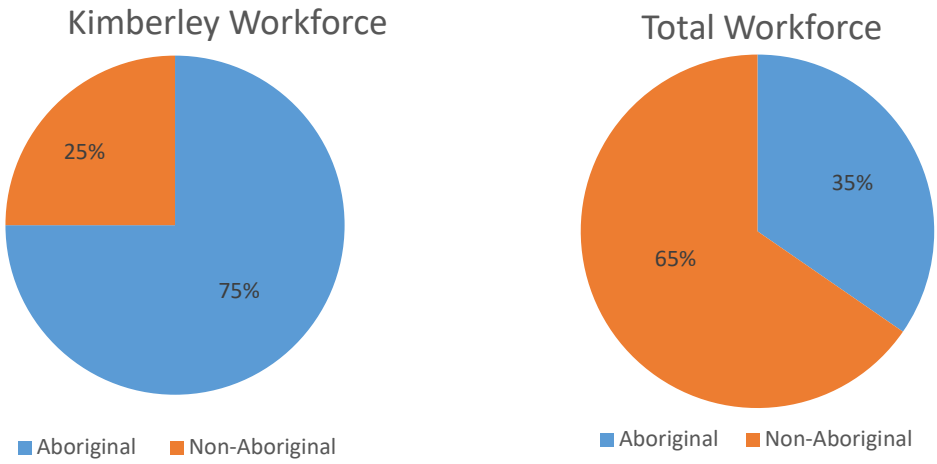

Figure 7: Company employment metrics: Aboriginal and non-Aboriginal employees

Sustainability

During September, the Company received approval from the Department of Mines Industry Regulation and Safety (DMIRS) for the Thunderbird Mining Proposal and Mine Closure Plan.

The approvals allow the Company to undertake mining, processing, maintenance and haulage activities during Stage 1 of the Project whilst ensuring safety, environmental and mine closure outcomes are achieved.

Sheffield continued its engagement activities with community and government stakeholders to ensure they are informed and consulted about their interests in Thunderbird.

Team members engaged with industry, business, government and community across the broader Kimberley region and the metropolitan area.

As a member of the CMEWA, Sheffield participated in their Northern Regional Council meeting held in Broome to discuss and optimise shared interest.

Consultation was undertaken with members of the Broome Chamber of Commerce and Industry, and the Kimberley Ports Authority consultative committee.

Sheffield partook in the three-day Kimberley Economic Forum in Derby, engaging with hundreds of stakeholders through a Project presentation, sponsorship and business expo. Likewise, participation in a Broome-based procurement forum enabled local business owners to engage with the Project on local content matters.

Ensuring government remains well informed on Project status and regional development outcomes, the Company continued regular briefings and a welcome site visit by key government stakeholders.

Figure 8: Engaging with primary government stakeholders on site and at the Kimberley Economic Forum

Marketing and Offtake

As highlighted in the BFSU, the Thunderbird Mineral Sands Project will be producing additional Premium Zircon, Zircon Concentrate and Primary Ilmenite. Sheffield successfully secured binding offtake agreements, with existing offtake partners, for the additional volumes of all products.

The zircon sand market has seen some softening in demand during 2019. This was expected earlier in the year, however pricing remained resilient with some minor softening evident during the third quarter. Major suppliers have maintained their existing pricing during the third quarter and that pricing is expected to remain unchanged into the fourth quarter. It is observed that some smaller producers have trimmed prices slightly to maintain cashflow and their market share. The expectation in the short term is that some of the prominent producers will adjust their operations and discounts to maintain a balanced market.

As consistently reported by Sheffield and other industry participants, the mid to long term forecast for zircon sand is for a robust market driven by consensus projected significant supply shortages. The global supply of premium zircon is decreasing markedly as the many mature mines deplete Ore Reserves in parallel with declining grades, lower recovery and lower quality products. The most dominant global zircon producing mine (over 20% of global supply) is estimated to be fully depleted around the middle of the next decade further exacerbating supply dynamics and placing additional pressure on pricing. The medium-term supply outlook contributed to the speed and ease at which Sheffield was able to offtake additional scheduled production form the BFSU. Thunderbird is a zircon rich, long life project which is well positioned in the market to take advantage of the predicted supply shortages in the coming years.

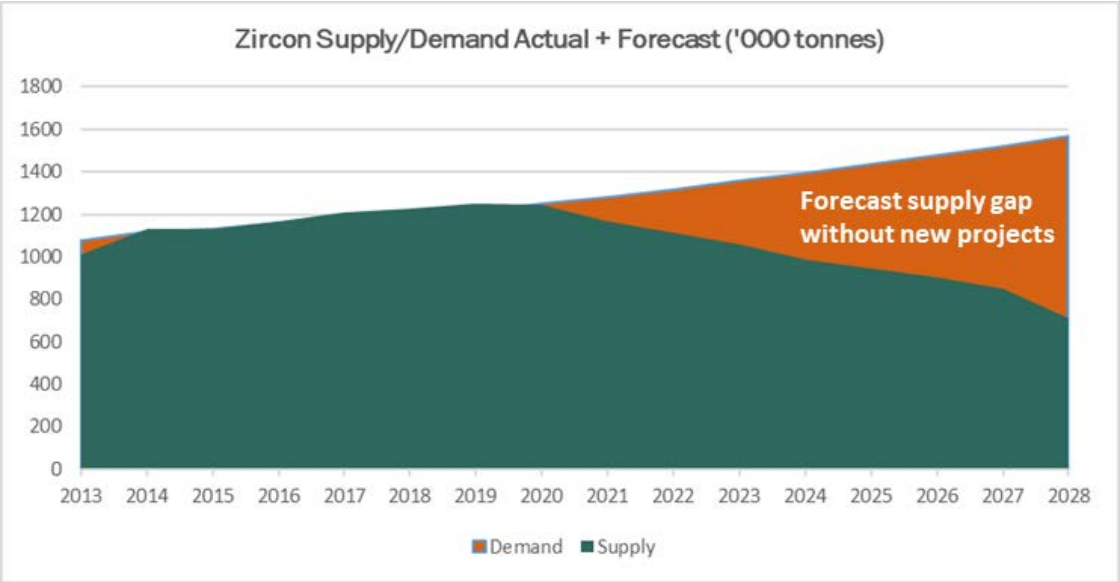

Figure 9: Projected zircon supply deficit (Source: TZMI)

Demand in titanium pigment drives the TiO_2 feedstock market and during the calendar year to date, pigment demand has been very stable. Some of the established western pigment producers have recently implemented what is termed 'margin stability initiatives' and according to reports this has helped maintain balance in the market, resulting in price increases during the third quarter. The consequence to a strong pigment market is the TiO_2 feedstock market is seeing equally positive results with most suppliers achieving reasonable price increases.

Historically, heading into the northern hemisphere winter, the pigment and pigment feedstock markets slow and usually rebound after Chinese New Year in either late January or early February. With geopolitical uncertainties creating market volatility, high grade feedstocks for pigment production are in rapid decline and alternatives will need to be sourced. Chloride slag is reported as the most suitable replacement for high grade TiO_2 products like rutile and should see strong demand in the foreseeable future. The full volume of Stage 1 production of Thunderbird Primary Ilmenite is under a 7 year binding offtake with an emerging chloride slag and pigment producer.

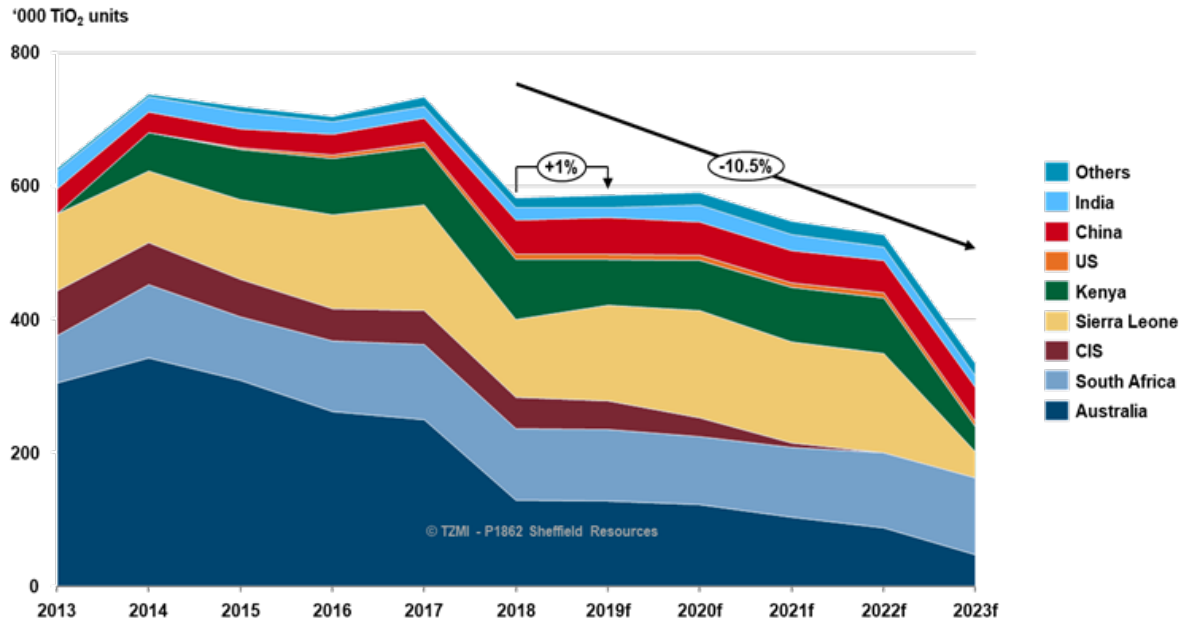

Figure 10: TZMI projected high grade TiO_2 supply decline over short term

MINERAL RESOURCES AND ORE RESERVES

Sheffield's 2019 Mineral Resource and Ore Reserve Statement was released and included the updated Thunderbird Ore Reserve (Proven and Probable) and the Night Train maiden Inferred Mineral Resource (refer to ASX announcement 24 September 2019). The updated Thunderbird Ore Reserve (refer to ASX announcement 31 July 2019) delivered an increase of 68 million tonnes or 10% (ore tonnes) and approximately 9% (HM tonnes) to 748 million tonnes @ 11.2% heavy mineral (HM) (Table 2) compared to the previous Ore Reserve of 680.5 million tonnes at 11.3% HM (refer to ASX announcement 16 March 2017).

The Thunderbird Ore Reserve contains exceptionally high in-situ zircon grades of 1.02% In the Proved Category and high in-situ zircon grades of 0.86% in the Proved and Probable Categories. The updated Ore Reserve includes a substantial increase in contained zircon of 500,000 tonnes to 6.4 million tonnes which further underlines the significant scale of the Thunderbird deposit (Figure 8).

Sheffield's Dampier Project contains a total Mineral Resource of 3.36 billion tonnes at an average grade of 6.8% HM (Measured, Indicated and Inferred), containing 96 million tonnes of valuable heavy mineral (VHM), across both the Thunderbird (3.0% HM cut-off) and Night Train (1.2% HM cut-off) deposits (Figure 10 & Table 2). The updated Dampier Mineral Resources estimate has increased by 4% for material tonnes and by 2% for contained in-situ HM tonnes when compared with the Dampier Mineral Resources estimate for 2018 due to the addition of the maiden Inferred Night Train Mineral Resource (see ASX announcement 31 January 2019).

The Thunderbird Mineral Resource remains unchanged at 3.23 billion tonnes @ 6.9% HM above a 3.0% HM cut-off (Measured, Indicated and Inferred) containing 93 million tonnes of VHM. The Mineral Resource includes a high-grade component of 1.05 billion tonnes @ 12.2% HM above 7.5% HM cut-off (Measured, Indicated and Inferred) containing 50 million tonnes of VHM (refer to ASX announcement 5 July 2016).

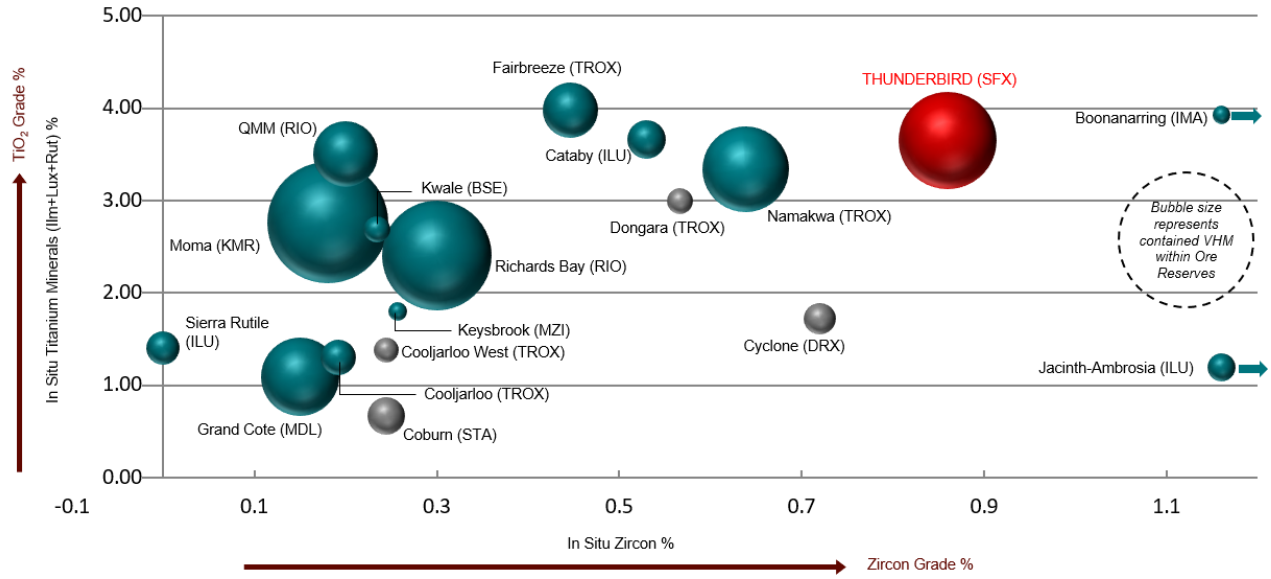

Figure 11: Comparison of Ore Reserves and grade between key global mineral sands deposits[1]

[1]Thunderbird Ore Reserve (red) as published on the ASX on 31 July 2019. Thunderbird Ore Reserve ranked against published JORC 2012 compliant Ore Reserves of large current mineral sands operations and projects under investigation globally. Blue bubbles are operating mines, grey bubbles are Ore Reserves reported, but projects are not operating. Bubble size proportional to tonnes of contained VHM. Only Ore Reserves > 1.2Mt contained VHM shown. Data compiled by Sheffield from public sources. This analysis does not illustrate the variance in value between rutile, leucoxene and ilmenite.

EXPLORATION ACTIVITIES

Dampier Project

The maiden Night Train Inferred Mineral Resource containing 130 million tonnes @ 3.3% HM (above a 1.2% cut-off, refer to ASX announcement 31 January 2019). This Inferred Mineral Resource includes a high grade component of 50 million tonnes @ 5.9% HM, above a 2.0% HM cut-off with 2.6 million tonnes of VHM (Figure 9). Within this high grade component are in-situ grades of 0.82% zircon, 0.33% HiTi leucoxene and rutile, 2.9% leucoxene and 1.06% ilmenite totalling 87% VHM.

Initial scoping metallurgical test work completed in 2016 on a 100kg drill sample composite from the mineralised zone at Night Train and showed that high quality zircon, which meets ceramic grade specifications, can be produced (refer to Table 1 and ASX announcement of 14 April 2016). The primary zircon would produce a premium ceramic grade zircon and comprised a very high 78% of the total zircon produced.

Table 1: Night Train metallurgical test work[1] – summary assay results, zircon products

Product	ZrO_2+HfO_2	SiO_2	TiO_2	Fe_2O_3	Al_2O_3	U+Th
Primary zircon	**65.9%**	32.9%	0.15%	0.05%	0.37%	481ppm
Secondary zircon	**65.5%**	33.3%	0.36%	0.05%	0.20%	542ppm

[1] Refer to ASX announcement "Premium Zircon at Night Train" 14 April 2016 for further details

Both the Eneabba Project and McCalls Project Mineral Resources remain unchanged in the Mineral Resource and Ore Reserve statement (Table 2).

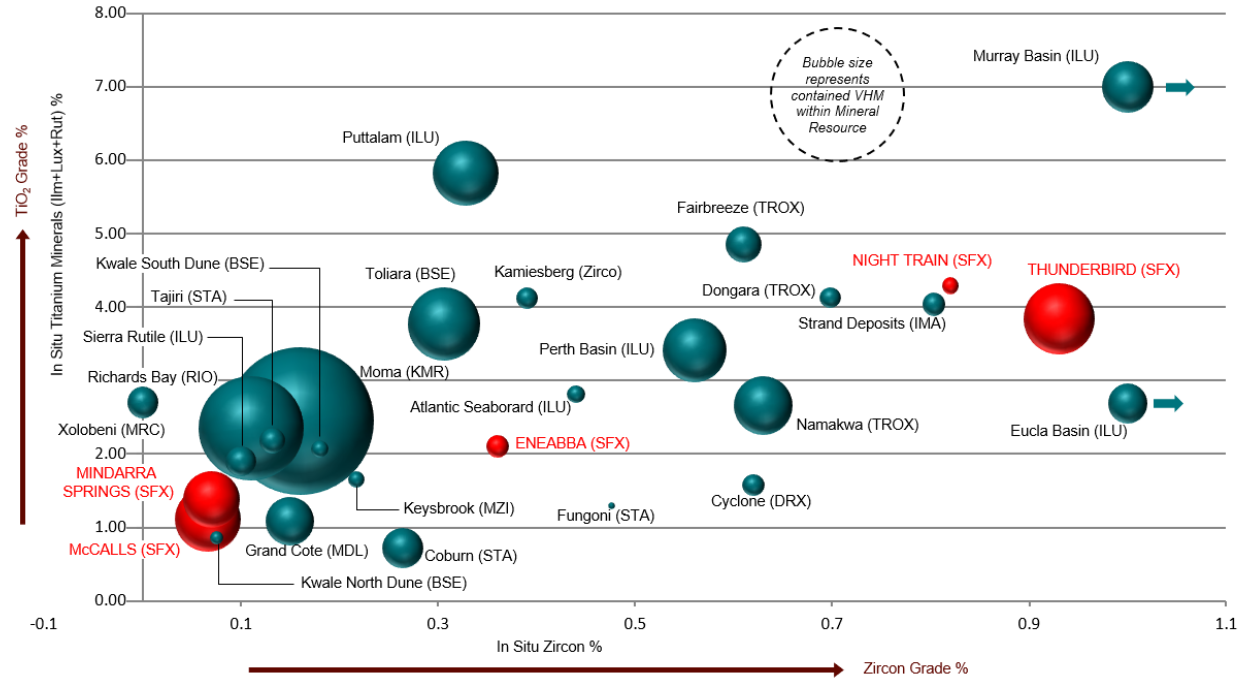

Figure 12: Comparison of Mineral Resources and grade within Sheffield's Mineral Resources (red) and Mineral Resources of key global HM deposits[1, 2]

[1] Sheffield Mineral Resources (red) as published on the ASX on 5 July 2016 (applying higher Thunderbird Mineral Resource cut-off of 7.5% HM), 30 January 2018, 3 October 2018 and 31 January 2019 (applying higher Night Train Mineral Resource cut-off of 2.0% HM). Sheffield Mineral Resources ranked against the latest published Mineral Resources of JORC 2012 compliant, similar 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] Data compiled by Sheffield from public sources. This analysis does not illustrate the variance in product value between rutile, leucoxene and ilmenite

Table 2: Ore Reserve and Mineral Resource summary table (in-situ assemblage)[1]

Summary of Mineral Resource				Valuable HM Assemblage (in-situ)[4]					
Project	Material (Million Tonnes)	In-situ Total HM (Million Tonnes)	Total HM Grade (%)	Zircon (%)	HiTi Leuc/ Rutile[3] (%)	Leuco-xene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Ore Reserve (Proved and Probable)[2]									
Dampier	748	83.8	11.2	0.86	0.27	0.27	3.11	11.6	15.0
Mineral Resource (Measured, Indicated and Inferred)									
Dampier[5]	3,360	227	6.8	0.57	0.18	0.25	1.90	8.7	15
Eneabba	193	5.7	3.0	0.36	0.20	0.13	1.77	9.0	14
McCalls	5,800	84.0	1.4	0.07	0.03	0.04	1.15	2.6	22

[1]Refer to ASX announcement "Mineral Resource and Ore Reserve Statement" 24 September 2019
[2]Ore Reserve is a sub-set of Mineral Resource
[3] Dampier Project in-situ assemblage of high titanium leucoxene (HiTi leucoxene) and rutile: >94% TiO2 >90% Liberation at Thunderbird and >90% TiO2 >90% Liberation at Night Train. Eneabba and McCalls Projects in-situ assemblage of rutile (>95% TiO2),
[4] The in-situ assemblage grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale
[5] Applying the low-grade HM cut-off for both Thunderbird (3.0% HM cut-off) and Night Train (1.2% HM cut-off)
This summary should be read in conjunction with the respective explanatory Mineral Resources and Ore Reserve information included in the ASX announcements listed in Table 2 of ASX Release 24 September 2019 "Mineral Resource and Ore Reserve Statement" as well as Mineral Resource totals listed and details for the individual Mineral Resource categories tabulated in ASX Release 24 September 2019 "Mineral Resource and Ore Reserve Statement".

Sheffield's regional exploration drilling has identified fourteen zones of significant mineralisation along a 160km long highly mineralised trend which extends from Seagull in the north to Runaway in the south (Figure 13 & 14).

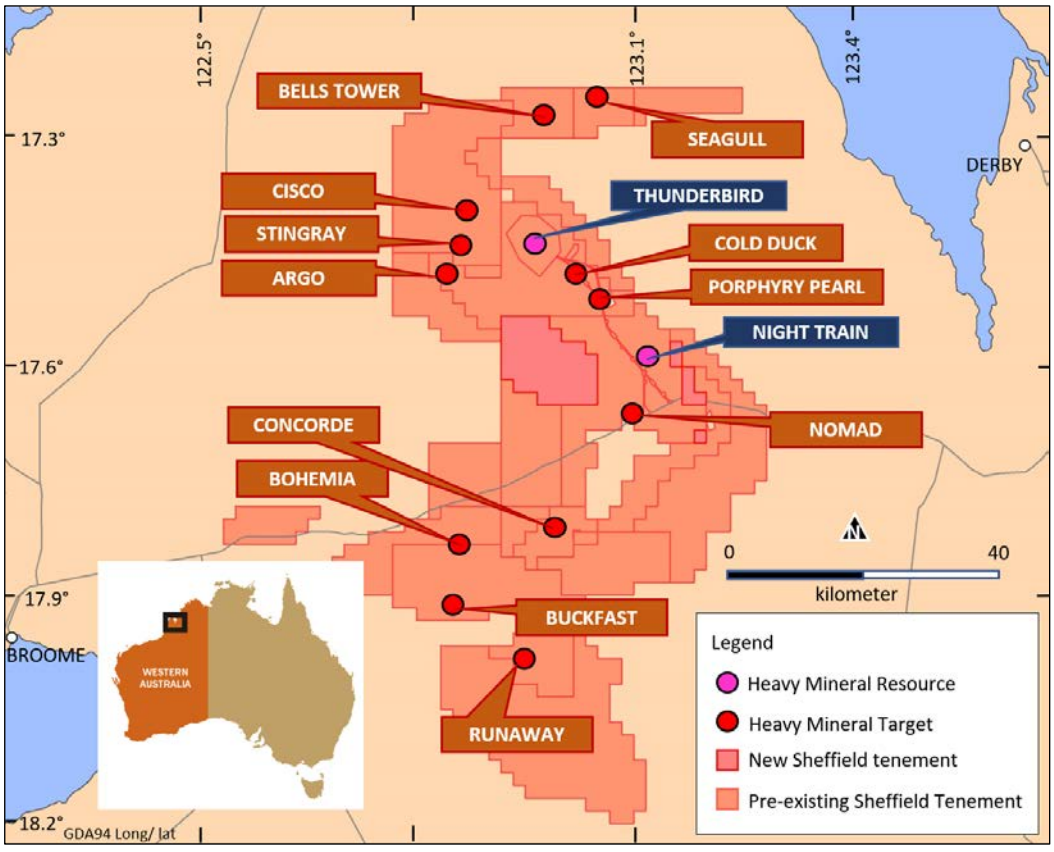

Figure 13: Dampier Project status plan

During the quarter, analysis of regional drilling has been undertaken to assist in the planning of future drill programs. Heritage survey meetings have been planned and scheduled for the fourth quarter. Sheffield's regional exploration strategy is focused on delineating shallow, large, high-grade, zircon-rich deposits, containing high quality zircon.

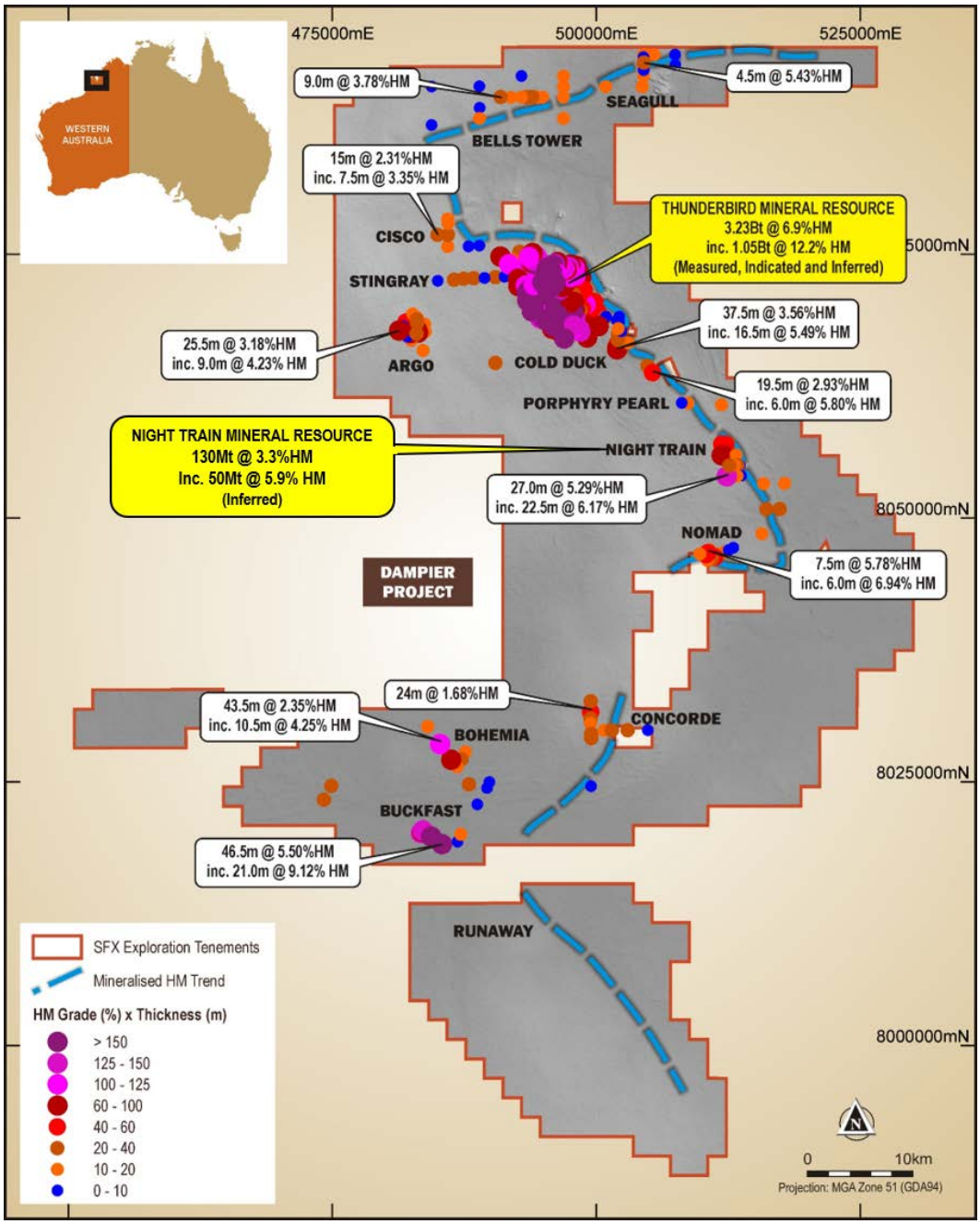

Figure 14: Location of Dampier Project Mineral Resources and regional prospects with summary drill intersections

Eneabba Project

The Eneabba Project comprises seven deposits with a combined Mineral Resource totalling 193 million tonnes @ 3.0% HM (Measured, Indicated and Inferred) containing 4.8 million tonnes of VHM, across seven deposits. These include Yandanooka, Durack, Drummond Crossing, Robbs Cross, Thomson, West Mine North, and Ellengail (refer to ASX 3 October 2018).

During the quarter retention status was achieved for the Drummond Crossing and Robbs Cross Mineral Resources. All of the Eneabba Project Mineral Resources (Figure 15) are now under retention status or are located on granted Mining Leases.

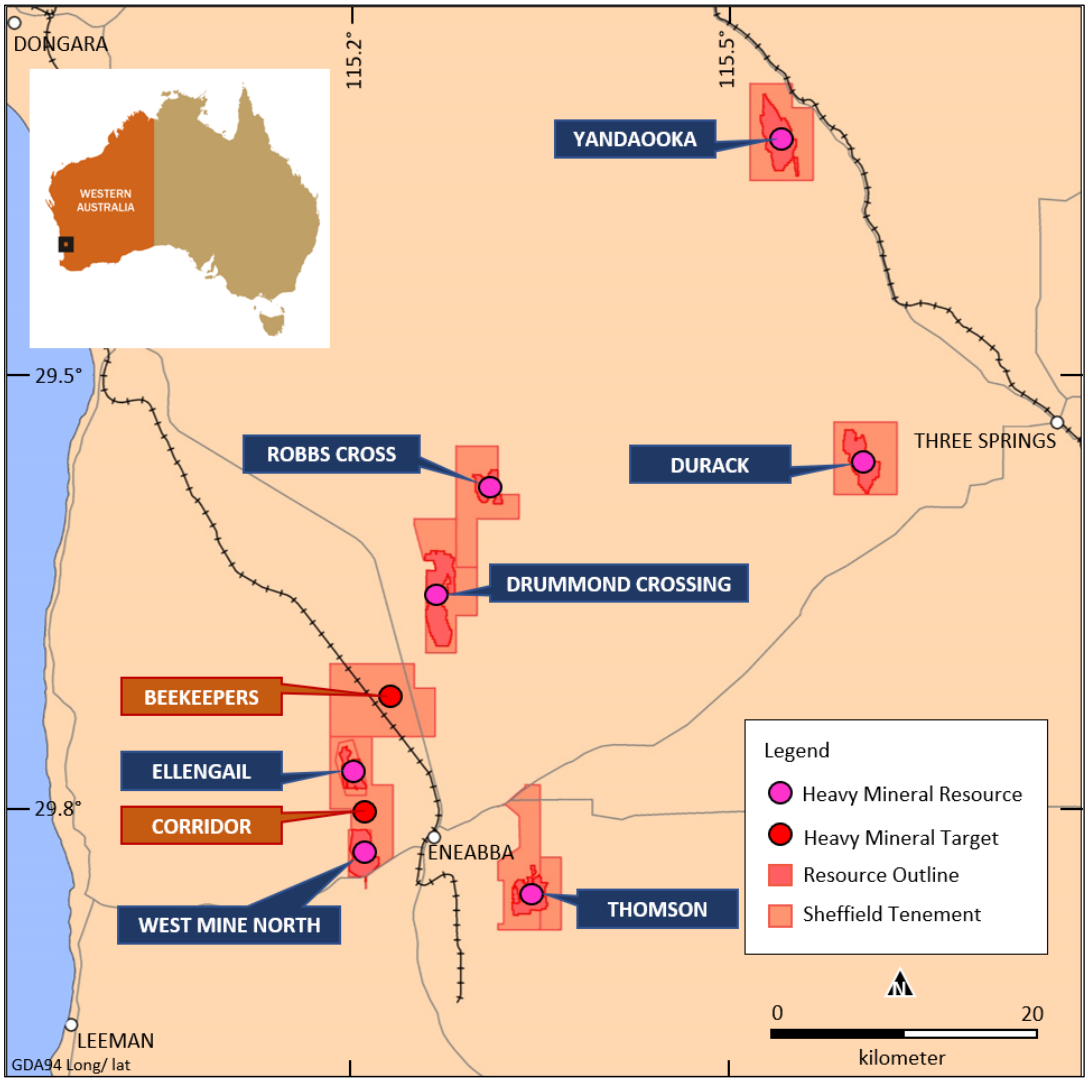

Figure 15: Eneabba Project location plan

McCalls Project

The McCalls Mineral Sand Project, located 110km to the north of Perth near the town of Gingin, has a combined Mineral Resource totalling 5.8 billion tonnes @ 1.4% HM (Indicated and Inferred) containing 75 million tonnes of VHM across two deposits, McCalls and Mindarra Springs (refer to ASX dated 3 October 2018). These deposits are large chloride ilmenite resources.

During the quarter retention status was achieved for the McCalls Mineral Resource. All of the McCalls Project Mineral Resources are now under retention status (Figure 16).

Derby East Project

The Derby East Project comprises a large deposit of construction quality sand, located 24km east of the Port of Derby. A technical report was completed for the Derby East project.

Barton Project

The Barton Project, located in the Eucla Basin region of South Australia, comprises exploration licence application ELA 2018-00046. A technical report was completed for the Barton Project.

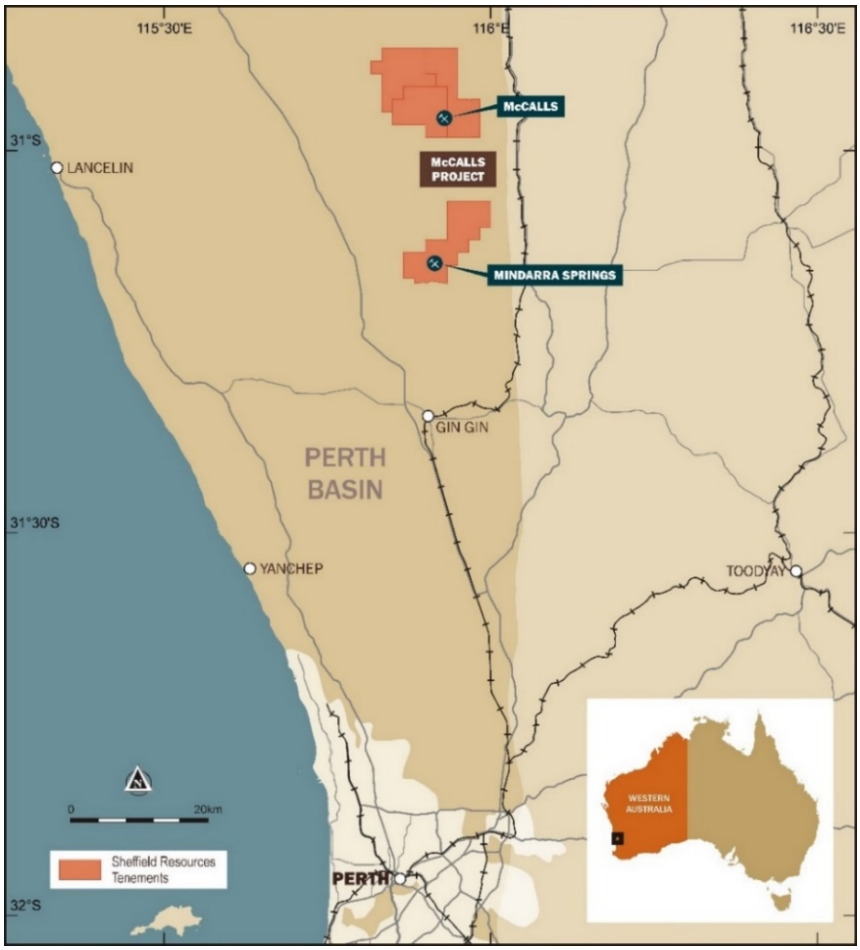

Figure 16: McCalls Project location plan

CORPORATE ACTIVITIES

The Company announced that it had received commitments to raise up to a total of $18.0 million (before costs) through the issue of 46.2 million fully paid ordinary shares at an issue price of 39 cents per shares (the Placement).

The Placement will be completed in two tranches, with the first tranche completed within the Company's existing placement capacity under ASX Listing Rules 7.1 and 7.1A, raising approximately $10.4 million. The second tranche of the Placement was complete following shareholder approval at a general meeting held on 22 October 2019. Settlement of Tranche 2, expected on 30 October 2019, will result in the issue of approximately 19.6 million shares to raise approximately $7.6 million.

The Company commenced a Board renewal process with the appointment of Mr John Richards and Mr Ian Macliver as Non-Executive Directors. The renewal process will continue as the Company moves the Thunderbird Project towards development and production.

As at 30 September 2019, Sheffield held cash reserves of approximately A$10.6 million (unaudited).

Mr Bruce McFadzean
Managing Director
28 October 2019

Schedule 1: Interests in Mining Tenements at the end of the quarter as required under ASX Listing Rule 5.3.3

Project	Tenement	Holder	Interest	Location[3]	Status
Mineral Sands	E04/2081[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2083[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2084[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2159[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2171[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2192[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2193[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2194[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2348[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2349[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2350[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2390[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2399[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2400[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2494[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2554[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2571[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2509[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2510[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2540[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2554[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2596[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2597[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2642[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2643[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2644[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	E04/2645[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Pending
Mineral Sands	L04/82[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	L04/83[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	L04/84[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	L04/85[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	L04/86[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	L04/92[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	L04/93[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	M04/459[2]	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2455	Sheffield Resources Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2456	Sheffield Resources Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2478	Sheffield Resources Ltd	100%	Canning Basin	Granted
Mineral Sands	E70/3762	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/3813	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/3814	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/3859	Sheffield Resources Ltd	100%	Perth Basin	Pending
Mineral Sands	E70/3929	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/3967	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/4190	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/4292	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/4584	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/4719	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/4747	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	E70/4922	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	M70/872[1]	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	M70/965[1]	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	M70/1153[1]	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	R70/35[1]	Sheffield Resources Ltd	100%	Perth Basin	Granted
Mineral Sands	ELA 2018-00046[2]	Moora Talc Pty Ltd	100%	Eucla Basin (SA)	Pending

Notes:
[1]Iluka Resources Ltd (ASX: ILU) retains a gross sales royalty of 1.5% in respect to tenements R70/35, M70/872, M70/965 & M70/1153.
[2]Thunderbird Operations Pty Ltd and [3]Moora Talc Pty Ltd are wholly owned subsidiaries of Sheffield Resources Ltd.

Details of tenements and/or beneficial interests acquired/disposed of during the quarter are provided in Section 10 of the Company's accompanying Appendix 5B notice.

Appendix 1

ORE RESERVES AND MINERAL RESOURCES

SHEFFIELD HM ORE RESERVE AS OF 30 SEPTEMBER 2019

DAMPIER PROJECT ORE RESERVES

SHEFFIELD ORE RESERVE FOR DAMPIER PROJECT AT 30 SEPTEMBER 2019 (in-situ assemblage)

Summary of Ore Reserve[1,2,3,4]					Valuable HM Assemblage (in-situ)[5]					
Deposit	Ore Reserve Category	Material (Million Tonnes)	In-situ Total HM[7] (Million Tonnes)	Total HM Grade (%)	Zircon (%)	HiTi Leuc (%)	Leuco -xene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Thunderbird	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	0.26	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**

SHEFFIELD ORE RESERVE FOR DAMPIER PROJECT AT 30 SEPTEMBER 2019 (HM assemblage)

Summary of Ore Reserve[1,2,3,4]					Valuable HM Assemblage[6]					
Deposit	Ore Reserve Category	Material (Million Tonnes)	In-situ Total HM[7] (Million Tonnes)	Total HM Grade (%)	Zircon (%)	HiTi Leuc (%)	Leuco -xene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Thunderbird	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**	**83.8**	**11.2**	**7.7**	**2.4**	**2.4**	**27.8**	**11.6**	**15.0**

[1]The Ore Reserves are presented with in-situ HM grade, and 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. This Ore Reserve reported for the Dampier Project was prepared and first disclosed under the JORC Code (2012) in the announcement 31 July 2019 Titled "Thunderbird 10% Ore Reserve Increase". The Ore Reserve is reported to a design overburden surface with appropriate consideration for modifying factors, costs, mineral assemblage, process recoveries and product pricing
[2].Ore Reserve is a sub-set of Mineral Resource
[3]Total HM is within the 38µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -38µm fraction and oversize is the +1mm fraction.
[4]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.
[5]The in-situ assemblage grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale.
[6]Mineral Assemblage is reported as a percentage of HM Grade, it is derived by dividing the in-situ grade by the HM grade.
[7] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

The Ore Reserve estimate was prepared by Entech Pty Ltd, an experienced and prominent mining engineering consultancy with appropriate mineral sands experience in accordance with the JORC Code (2012 Edition). The Ore Reserve was estimated using all available geological and relevant drill hole and assay data, including mineralogical sampling and test work on mineral recoveries and final product qualities. The Company is not aware of any new information or data that materially affects the information included in the Ore Reserve estimate and confirms that all material assumptions and technical parameters underpinning the estimate continue to apply and have not materially changed. The Ore Reserve estimate is based on the current, July 2016 Thunderbird Mineral Resource estimate, announced to the ASX on 5 July 2016. Measured and Indicated Mineral Resources were converted too Proved and Probable Ore Reserves respectively, subject to mine design, modifying factors and economic evaluation.

SHEFFIELD HM MINERAL RESOURCE

1) DAMPIER PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCE FOR DAMPIER PROJECT AT 30 SEPTEMBER 2019 (in-situ assemblage)

Summary of Mineral Resource[1,2,3]						In-situ Assemblage[4, 5]					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[6] (Million Tonnes)	Total HM Grade (%)	Zircon (%)	HiTi Leuc (%)	Leuco-xene (%)	Ilmenite (%)	Over size (%)	Slimes (%)
Thunderbird (low-grade)	Measured	3.0	510	45	8.9	0.71	0.20	0.19	2.4	12	18
	Indicated	3.0	2,120	140	6.6	0.55	0.18	0.20	1.8	9	16
	Inferred	3.0	600	38	6.3	0.53	0.17	0.20	1.7	8	15
	Total	3.0	3,230	223	6.9	0.57	0.18	0.20	1.9	9	16
Night Train (low-grade)	Inferred	1.2	130	4.2	3.3	0.45	0.18	1.5	0.71	2.2	8.7
	Total	1.2	130	4.2	3.3	0.45	0.18	1.5	0.71	2.2	8.7
All Dampier Project (low grade cut-off)	Measured	3.0	510	45	8.9	0.71	0.20	0.19	2.4	12	18
	Indicated	3.0	2,120	140	6.6	0.55	0.18	0.20	1.8	9	16
	Inferred	Various	730	42	5.8	0.51	0.17	0.43	1.6	7.2	13
	Total	**Various**	**3,360**	**227**	**6.8**	**0.57**	**0.18**	**0.25**	**1.9**	**8.7**	**15**
Thunderbird (high-grade)	Measured	7.5	220	32	14.5	1.07	0.31	0.27	3.9	15	16
	Indicated	7.5	640	76	11.8	0.90	0.28	0.25	3.3	11	14
	Inferred	7.5	180	20	10.8	0.87	0.27	0.26	3.0	9	13
	Total	7.5	1,050	127	12.2	0.93	0.28	0.26	3.3	11	15
Night Train (high-grade)	Inferred	2.0	50	3.0	5.9	0.82	0.33	2.9	1.06	2.2	10.2
	Total	2.0	50	3.0	5.9	0.82	0.33	2.9	1.06	2.2	10.2
All Dampier Project (high grade cut-off)	Measured	7.5	220	32	14.5	1.07	0.31	0.27	3.9	15	16
	Indicated	7.5	640	76	11.8	0.90	0.28	0.25	3.3	11	14
	Inferred	Various	230	23	9.7	0.85	0.28	0.83	2.6	7.2	12
	Total	**Various**	**1,090**	**130**	**11.9**	**0.92**	**0.29**	**0.38**	**3.2**	**11**	**14**

[1] Night Train: The Mineral Resource estimate was prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 31 January 2019 for further details including Table 1. The Mineral Resource reported above 1.2% heavy mineral (HM) cut-off is inclusive of (not additional to) the Mineral Resource reported above 2.0% HM cut-off. Thunderbird: The Mineral Resource estimate was prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 5 July 2016 for further details including Table 1. The Dampier Project Mineral Resources are reported inclusive of (not additional to) Ore Reserves. The Mineral Resource reported above 3.0% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off.

[2]Total HM is within the 38µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -38µm fraction and oversize is the +1mm fraction.

[3]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.

[4] Night Train: Estimates of Mineral Assemblage are presented as percentages of the Heavy Mineral (HM) component of the deposit, as determined by magnetic separation, QEMSCAN™ and XRF for one of 12 composite samples. Magnetic fractions were analysed by QEMSCAN™ for mineral determination as follows: Ilmenite: 40-70% TiO_2 >90% Liberation; leucoxene: 70-90% TiO_2 >90% Liberation; High titanium leucoxene (HiTi leucoxene) and rutile 90% TiO_2 >90% Liberation, and zircon: 66.7% ZrO_2+HfO_2 >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO2+Hf02/0.667 and HiTi leucoxene: TiO_2/0.94. HM assemblage determination was by the QEMSCAN™ process for 11 of 12 composite samples which uses observed mass and chemistry to classify particles according to their average chemistry, and then report mineral abundance by dominant % mass in particle. For the TiO_2 minerals the following breakpoints were used to distinguish between Ilmenite 40% to 70% TiO_2, leucoxene 70% to 90% TiO_2, HiTi leucoxene and rutile > 90%, Screening of the heavy mineral was not required. Thunderbird: estimates of Mineral Assemblage are presented as percentages of the HM component of the deposit, as determined by magnetic separation, QEMSCAN™ and XRF. Magnetic fractions were analysed by QEMSCAN™ for mineral determination as follows: Ilmenite: 40-70% TiO_2 >90% Liberation; leucoxene: 70-94% TiO_2 >90% Liberation; HiTi leucoxene: >94% TiO_2 >90% Liberation; and zircon: 66.7% ZrO_2+HfO_2 >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO_2+HfO_2/0.667 and HiTi leucoxene: TiO_2/0.94.

[5]In-situ assemblage grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale.

[6] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables.

SHEFFIELD MINERAL RESOURCES FOR DAMPIER PROJECT AT 30 SEPTEMBER 2019 (HM assemblage)

Summary of Mineral Resource[1,2,3]						HM Assemblage[4]					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[6] (Million Tonnes)	Total HM Grade (%)	Zircon (%)	HiTi Leuc[5] (%)	Leuco-xene (%)	Ilmenite (%)	Over size (%)	Slimes (%)
Thunderbird (low-grade)	Measured	3.0	510	45	8.9	8.0	2.3	2.2	27	12	18
	Indicated	3.0	2,120	140	6.6	8.4	2.7	3.1	28	9	16
	Inferred	3.0	600	38	6.3	8.4	2.6	3.2	28	8	15
	Total	3.0	3,230	223	6.9	8.3	2.6	2.9	28	9	16
Night Train	Inferred	1.2	130	4.2	3.3	14	5.4	46	22	2.2	8.7
(low-grade)	**Total**	1.2	130	4.2	3.3	14	5.4	46	22	2.2	8.7
All Dampier Project	Measured	3.0	510	45	8.9	8.0	2.3	2.2	27	12	18
	Indicated	3.0	2,120	140	6.6	8.4	2.7	3.1	28	9	16
(low grade cut-off)	Inferred	Various	730	42	5.8	8.9	2.9	7.5	27	7.2	13
	Total	**Various**	**3,360**	**227**	**6.8**	**8.4**	**2.7**	**3.7**	**28**	**8.7**	**15**
Thunderbird (high-grade)	Measured	7.5	220	32	14.5	7.4	2.1	1.9	27	15	16
	Indicated	7.5	640	76	11.8	7.6	2.4	2.1	28	11	14
	Inferred	7.5	180	20	10.8	8.0	2.5	2.4	28	9	13
	Total	7.5	1,050	127	12.2	7.6	2.3	2.1	27	11	15
Night Train	Inferred	2.0	50	3.0	5.9	14	5.6	49	18	2.2	10.2
(high-grade)	**Total**	2.0	50	3.0	5.9	14	5.6	49	18	2.2	10.2
All Dampier Project	Measured	7.5	220	32	14.5	7.4	2.1	1.9	27	15	16
	Indicated	7.5	640	76	11.8	7.6	2.4	2.1	28	11	14
(high grade cut-off)	Inferred	Various	230	23	9.7	8.8	2.9	8.6	27	7.2	12
	Total	**Various**	**1,090**	**130**	**11.9**	**7.8**	**2.4**	**3.2**	**27**	**11**	**14**

[1] Night Train: The Mineral Resource estimate was prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 31 January 2019 for further details including Table 1. The Night Train Mineral Resource reported above 1.2% heavy mineral (HM) cut-off is inclusive of (not additional to) the Mineral Resource reported above 2.0% HM cut-off. Thunderbird: The Mineral Resource estimate was prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 5 July 2016 for further details including Table 1. The Dampier Project Mineral Resources are reported inclusive of (not additional to) Ore Reserves. Thunderbird: The Mineral Resource reported above 3.0% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off.

[2] Total HM is within the 38µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -38µm fraction and oversize is the +1mm fraction.

[3] 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.

[4] Night Train: Estimates of Mineral Assemblage are presented as percentages of the HM component of the deposit, as determined by magnetic separation, QEMSCAN™ and XRF for one of 12 composite samples. Magnetic fractions were analysed by QEMSCAN™ for mineral determination as follows: Ilmenite: 40-70% TiO_2 >90% Liberation; leucoxene: 70-90% TiO_2 >90% Liberation; High titanium leucoxene (HiTi leucoxene) and rutile 90% TiO_2 >90% Liberation, and zircon: 66.7% ZrO_2+HfO_2 >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO2+HfO2/0.667 and HiTi leucoxene: TiO_2/0.94. HM assemblage determination- was by the QEMSCAN™ process for 11 of 12 composite samples which uses observed mass and chemistry to classify particles according to their average chemistry, and then report mineral abundance by dominant % mass in particle. For the TiO_2 minerals the following breakpoints were used to distinguish between Ilmenite 40% to 70% TiO_2, Leucoxene 70% to 90% TiO_2, HiTi leucoxene and rutile > 90%, Screening of the heavy mineral was not required. Thunderbird: estimates of Mineral Assemblage are presented as percentages of the HM component of the deposit, as determined by magnetic separation, QEMSCAN™ and XRF. Magnetic fractions were analysed by QEMSCAN™ for mineral determination as follows: Ilmenite: 40-70% TiO_2 >90% Liberation; leucoxene: 70-94% TiO_2 >90% Liberation; HiTi leucoxene: >94% TiO_2 >90% Liberation; and zircon: 66.7% ZrO_2+HfO_2 >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO_2+HfO_2/0.667 and HiTi leucoxene: TiO_2/0.94.

[5] HiTi leucoxene and rutile (%) combined for Night Train at a >90% TiO_2 (as one assemblage sample utilised=> 90% rutile and HiTi leucoxene), HiTi leucoxene for Thunderbird > 94% TiO_2

[6] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables.

SHEFFIELD MINERAL RESOURCE FOR DAMPIER PROJECT AT 30 SEPTEMBER 2019 (in-situ tonnes)

Summary of Mineral Resource[1,2,3]				In-situ Tonnes[4]					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[6] (Million Tonnes)	Zircon (Thousand Tonnes)	HiTi Leuc[5] (Thousand Tonnes)	Leucoxene (Thousand Tonnes)	Ilmenite (Thousand Tonnes)	Total VHM (Thousand Tonnes)
Thunderbird (low-grade)	Measured	3.0	510	45	3,600	1,000	1,000	12,000	17,700
	Indicated	3.0	2,120	140	11,800	3,800	4,300	39,100	59,000
	Inferred	3.0	600	38	3,200	1,000	1,200	10,500	15,900
	Total	3.0	3,230	223	18,600	5,900	6,500	61,700	92,600
Night Train (low-grade)	Inferred	1.2	130	4.2	560	220	1,900	900	3,590
	Total	1.2	130	4.2	560	220	1,900	900	3,590
All Dampier Project (low grade cut-off)	Measured	3.0	510	45	3,600	1,000	1000	12,000	17,700
	Indicated	3.0	2,120	140	11,800	3,800	4,300	39,100	59,000
	Inferred	Various	730	42	3,760	1,220	3,100	11,400	19,490
	Total	**Various**	**3,360**	**227**	**19,160**	**6,020**	**8,400**	**62,600**	**96,190**
Thunderbird (high-grade)	Measured	7.5	220	32	2,300	700	600	8,400	12,000
	Indicated	7.5	640	76	5,800	1,800	1,600	21,000	30,200
	Inferred	7.5	180	20	1,600	500	500	5,600	8,200
	Total	7.5	1,050	127	9,700	3,000	2,700	35,000	50,400
Night Train (high-grade)	Inferred	2.0	50	3.0	420	170	1,500	540	2,600
	Total	2.0	50	3.0	420	170	1,500	540	2,600
All Dampier Project (high grade cut-off)	Measured	7.5	220	32	2,300	700	600	8,400	12,000
	Indicated	7.5	640	76	5,800	1,800	1,600	21,000	30,200
	Inferred	Various	230	23	2,020	670	2,000	6,140	10,800
	Total	**Various**	**1,090**	**130**	**10,120**	**3,170**	**4,200**	**35,540**	**53,000**

[1] Night Train: The Mineral Resource estimate was prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 31 January 2019 for further details including Table 1. The Night Train Mineral Resource reported above 1.2% heavy mineral (HM) cut-off is inclusive of (not additional to) the Mineral Resource reported above 2.0% HM cut-off. Thunderbird: The Mineral Resource estimate was prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 5 July 2016 for further details including Table 1. The Dampier Project Mineral Resources are reported inclusive of (not additional to) Ore Reserves. Thunderbird: The Mineral Resource reported above 3.0% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off.

[2] Total HM is within the 38µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -38µm fraction and oversize is the +1mm fraction.

[3] 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.

[4] The contained in-situ tonnes for the valuable heavy minerals were derived from information from the Mineral Resource tables. The in-situ assemblage grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale.

[5] HiTi leucoxene and rutile (%) combined for Night Train at a >90% TiO_2 (as one assemblage sample utilised=> 90% Rutile and HiTi leucoxene), HiTi leucoxene for Thunderbird > 94% TiO_2

[6] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

2) ENEABBA PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCES FOR THE ENEABBA PROJECT AT 30 SEPTEMBER 2019 (in-situ assemblage)

Summary of Mineral Resource[1,2]						In-situ Assemblage[11]					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[12] (Thousand Tonnes)	Total HM Grade (%)	Zircon (%)	Rutile (%)	Leuco-xene (%)	Ilmenite (%)	Over size (%)	Slimes (%)
Yandanooka[4,6,8]	Measured	1.4	2.6	112	4.3	0.44	0.09	0.10	3.08	11.3	15
	Indicated	1.4	57.7	1,726	3.0	0.37	0.11	0.11	2.08	11.4	15
	Inferred	1.4	0.4	7	1.5	0.16	0.05	0.07	1.01	21.9	20
	Total	1.4	60.8	1,845	3.0	0.37	0.11	0.11	2.11	11.5	15
Durack[4,6,7,8]	Indicated	1.4	20.7	600	2.9	0.40	0.09	0.11	2.07	14.7	14
	Inferred	1.4	5.6	148	2.6	0.37	0.07	0.19	1.68	18.3	16
	Total	1.4	26.3	748	2.8	0.39	0.08	0.13	1.99	15.5	14
Drummond Crossing[3,4,6,8]	Indicated	1.4	35.5	838	2.4	0.33	0.24	0.08	1.26	7.7	14
	Inferred	1.4	3.3	77	2.3	0.26	0.21	0.06	1.31	7.2	12
	Total	1.4	38.8	915	2.4	0.33	0.24	0.08	1.26	7.7	14
Robbs Cross[5,6,8]	Indicated	1.4	14.0	261	1.9	0.27	0.24	0.09	0.88	6.2	6
	Inferred	1.4	3.8	77	2.0	0.29	0.22	0.08	1.02	8.1	6
	Total	1.4	17.8	338	1.9	0.28	0.23	0.09	0.91	6.6	6
Thomson[5,8,]	Inferred	1.4	26	516	2.0	0.38	0.28	0.11	0.85	6.9	18
	Total	1.4	26	516	2.0	0.38	0.28	0.11	0.85	6.9	18
West Mine North[3,4,6,9]	Indicated	2.0	10.2	748	7.3	0.43	0.48	0.13	3.51	2.3	11
	Inferred	2.0	1.8	48	2.7	0.25	0.23	0.06	1.31	3.0	17
	Total	2.0	12.0	796	6.6	0.40	0.44	0.12	3.18	2.4	12
Ellengail[3,4,9,10]	Indicated	2.0	6.5	346	5.3	0.53	0.43	0.55	3.49	3.2	15
	Inferred	2.0	5.3	218	4.1	0.41	0.34	0.35	2.55	2.5	15
	Total	2.0	11.8	565	4.8	0.47	0.39	0.46	3.07	2.9	15
Total	Measured	1.4	2.6	112	4.3	0.44	0.09	0.10	3.08	11	15
	Indicated	Various	144.6	4,519	3.1	0.37	0.19	0.12	1.92	9	14
	Inferred	Various	46.0	1,091	2.4	0.36	0.24	0.14	1.21	8	16
	Total	**Various**	**193.3**	**5,723**	**3.0**	**0.36**	**0.20**	**0.13**	**1.77**	**9**	**14**

[1]The Mineral Resource estimates were prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer 03 October 2018 ASX announcement for Yandanooka, Durack, Drummond Crossing, West Mine North and Ellengail. Refer to December 2017 Quarterly Activities Report for Robbs Cross and Thomson deposits for further details
[2]All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sums of columns may not equal.
[3]Total heavy mineral (HM) %: Samples from 1989 and 1996 (Drummond Crossing, Ellengail and West Mine North) were analysed using a -75 µm slimes / +2 mm oversize screen. Separation of HM% was by heavy liquid TBE (density 2.84 g/ml) from the -710µm+75µm fraction.
[4]Total HM %: RGC samples from 1998 and Iluka samples (Drummond Crossing, Durack, Ellengail, West Mine North and Yandanooka) were analysed using a -53 µm slimes / +2 mm oversize screen. Separation of total HM% was by heavy liquid TBE (density 2.90 g/ml) from the -710µm+53µm fraction.
[5]Total HM %: Samples from Robbs Cross and Thomson analysed by Diamantina Laboratories in Perth using a -45 µm slimes / +1 mm oversize screen (method DIA_HLS_45µm_1mm). Separation of total HM% was by heavy liquid TBE (density 2.96g/ml) from the -45 µm+1mm fraction.
[6]Total HM %: Samples from Drummond Crossing, Durack, West Mine North and Yandanooka were analysed by Western Geolabs in Perth using a -53 µm slimes / +1 mm oversize screen. Separation of total HM% was by heavy liquid TBE (density 2.96 g/ml) from the +53µm-1mm fraction.
[7]Reported below an upper cut-off grade of 35% slimes.
[8]Estimates of mineral assemblage are presented as percentages of the total HM component of the deposit, as determined by QEMSCAN™ analysis. For the TiO_2 minerals specific breakpoints are used to distinguish between rutile (>95% TiO_2), leucoxene (85-95% TiO_2) and ilmenite (<55-85% TiO_2).
[9]At West Mine North and Ellengail mineral assemblage data determined by Iluka using Method 4 (HM concentrate is separated into magnetics and non-magnetics) was used with the Sheffield QEMSCAN™ data
[10]At Ellengail mineral assemblage data determined by Iluka using Method 3 (magnetic separation and XRF) was used with the Sheffield QEMSCAN™ data and Iluka Method 4
[11]The in-situ assemblage grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale.
[12] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

SHEFFIELD MINERAL RESOURCE FOR ENEABBA PROJECT AT 30 SEPTEMBER 2019 (HM assemblage)

Summary of Mineral Resource[1,2]						HM Assemblage[8,9,10]					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[11] (Thousand Tonnes)	Total HM Grade (%)	Zircon (%)	Rutile (%)	Leuco-xene (%)	Ilmenite (%)	Over size (%)	Slimes (%)
Yandanooka[4,6,8]	Measured	1.4	2.6	112	4.3	10	2.1	2.3	72	11.3	15
	Indicated	1.4	57.7	1,726	3.0	12	3.6	3.7	69	11.4	15
	Inferred	1.4	0.4	7	1.5	11	3.0	4.4	68	21.9	20
	Total	1.4	60.8	1,845	3.0	12	3.5	3.6	70	11.5	15
Durack[4,6,7,8]	Indicated	1.4	20.7	600	2.9	14	2.9	3.7	71	14.7	14
	Inferred	1.4	5.6	148	2.6	14	2.6	7.4	64	18.3	16
	Total	1.4	26.3	748	2.8	14	2.9	4.4	70	15.5	14
Drummond Crossing[3,4,6,8]	Indicated	1.4	35.5	838	2.4	14	10.3	3.4	53	7.7	14
	Inferred	1.4	3.3	77	2.3	11	9.0	2.7	56	7.2	12
	Total	1.4	38.8	915	2.4	14	10.2	3.4	54	7.7	14
Robbs Cross[5,6,8]	Indicated	1.4	14.0	261	1.9	15	12.7	5.0	47	6.2	6
	Inferred	1.4	3.8	77	2.0	14	10.9	4.1	50	8.1	6
	Total	1.4	17.8	338	1.9	15	12.3	4.8	48	6.6	6
Thomson[5,8,]	Inferred	1.4	26	516	2.0	19	13.8	5.4	42	6.9	18
	Total	1.4	26	516	2.0	19	13.8	5.4	42	6.9	18
West Mine North[3,4,6,9,]	Indicated	2.0	10.2	748	7.3	6	6.5	1.8	48	2.3	11
	Inferred	2.0	1.8	48	2.7	9	8.6	2.1	50	3.0	17
	Total	2.0	12.0	796	6.6	6	6.6	1.8	48	2.4	12
Ellengail[3,4,9,10]	Indicated	2.0	6.5	346	5.3	10	8.0	10.4	66	3.2	15
	Inferred	2.0	5.3	218	4.1	10	8.2	8.4	62	2.5	15
	Total	2.0	11.8	565	4.8	10	8.1	9.6	64	2.9	15
Total	Measured	1.4	2.6	112	4.3	10	2.1	2.3	72	11	15
	Indicated	Various	144.6	4,519	3.1	12	6.1	3.9	62	9	14
	Inferred	Various	46.0	1,091	2.4	15	10.3	5.8	51	8	16
	Total	**Various**	**193.3**	**5,723**	**3.0**	**12**	**6.8**	**4.2**	**60**	**9**	**14**

[1] The Mineral Resource estimates were prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer 03 October 2018 ASX announcement for Yandanooka, Durack, Drummond Crossing, West Mine North and Ellengail. Refer to December 2017 Quarterly Activities Report for Robbs Cross and Thomson deposits for further details
[2]All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sums of columns may not equal.
[3]Total heavy mineral (HM) %: Samples from 1989 and 1996 (Drummond Crossing, Ellengail and West Mine North) were analysed using a -75µm slimes / +2 mm oversize screen. Separation of HM% was by heavy liquid TBE (density 2.84 g/ml) from the -710µm+75µm fraction.
[4]Total HM %: RGC samples from 1998 and Iluka samples (Drummond Crossing, Durack, Ellengail, West Mine North and Yandanooka) were analysed using a -53 µm slimes / +2 mm oversize screen. Separation of total HM% was by heavy liquid TBE (density 2.90 g/ml) from the -710µm+53µm fraction.
[5]Total HM %: Samples from Robbs Cross and Thomson analysed by Diamantina Laboratories in Perth using a -45µm slimes / +1mm oversize screen (method DIA_HLS_45µm_1mm). Separation of total HM% was by heavy liquid TBE (density 2.96g/ml) from the -45 µm+1mm fraction.
[6]Total HM %: Samples from Drummond Crossing, Durack, West Mine North and Yandanooka were analysed by Western Geolabs in Perth using a -53 µm slimes / +1 mm oversize screen. Separation of total HM% was by heavy liquid TBE (density 2.96g/ml) from the +53µm-1mm fraction.
[7]Reported below an upper cut-off grade of 35% slimes.
[8]Estimates of mineral assemblage are presented as percentages of the total HM component of the deposit, as determined by QEMSCAN™ analysis. For the TiO_2 minerals specific breakpoints are used to distinguish between rutile (>95% TiO_2), leucoxene (85-95% TiO_2) and ilmenite (<55-85% TiO_2).
[9]At West Mine North and Ellengail mineral assemblage data determined by Iluka using Method 4 (HM concentrate is separated into magnetics and non-magnetics) was used with the Sheffield QEMSCAN™ data
[10]At Ellengail mineral assemblage data determined by Iluka using Method 3 (magnetic separation and XRF analysis) was used with the Sheffield QEMSCAN™ data and Iluka Method 4 data
[11] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

SHEFFIELD MINERAL RESOURCE FOR ENEABBA PROJECT AT 30 SEPTEMBER 2019 (in-situ tonnes)

Summary of Mineral Resource[1,2,3]				In-situ Tonnes					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[11] (Thousand Tonnes)	Zircon (Thousand Tonnes)	Rutile (Thousand Tonnes)	Leuco-xene (Thousand Tonnes)	Ilmenite (Thousand Tonnes)	Total VHM (Thousand Tonnes)
Yandanooka[4,6,8]	Measured	1.4	2.6	112	12	2	3	81	98
	Indicated	1.4	57.7	1,726	212	63	63	1,197	1,535
	Inferred	1.4	0.4	7	1	0.2	0.3	4	6
	Total	1.4	60.8	1,845	224	65	66	1,283	1,639
Durack[4,6,7,8]	Indicated	1.4	20.7	600	82	18	22	429	551
	Inferred	1.4	5.6	148	21	4	11	95	130
	Total	1.4	26.3	748	104	21	33	523	681
Drummond Crossing[3,4, 6,8]	Indicated	1.4	35.5	838	118	86	29	447	680
	Inferred	1.4	3.3	77	9	7	2	43	61
	Total	1.4	38.8	915	127	93	31	490	741
Robbs Cross[5,6,8]	Indicated	1.4	14.0	261	38	33	13	123	208
	Inferred	1.4	3.8	77	11	8	3	39	61
	Total	1.4	17.8	338	50	41	16	162	269
Thomson[5,8,]	Inferred	1.4	26	516	97	71	28	219	415
	Total	1.4	26	516	97	71	28	219	415
West Mine North[3,4,6,9,]	Indicated	2.0	10.2	748	44	49	13	359	465
	Inferred	2.0	1.8	48	5	4	1	24	34
	Total	2.0	12.0	796	48	53	14	383	498
Ellengail[3,4,9,10]	Indicated	2.0	6.5	346	34	28	36	227	325
	Inferred	2.0	5.3	218	22	18	18	136	193
	Total	2.0	11.8	565	56	46	54	363	519
Total	Measured	1.4	2.6	112	12	2	3	81	98
	Indicated	Various	144.6	4,519	529	276	176	2,782	3,764
	Inferred	Various	46.0	1,091	165	113	64	559	900
	Total	**Various**	**193.3**	**5,723**	**705**	**392**	**242**	**3,423**	**4,762**

[1] The Mineral Resource estimates were prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer 03 October 2018 ASX announcement for Yandanooka, Durack, Drummond Crossing, West Mine North and Ellengail. Refer to December 2017 Quarterly Activities Report for Robbs Cross and Thomson deposits for further details

[2]All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sums of columns may not equal.

[3]Total heavy mineral (HM) %: Samples from 1989 and 1996 (Drummond Crossing, Ellengail and West Mine North) were analysed using a -75µm slimes / +2mm oversize screen. Separation of HM% was by heavy liquid TBE (density 2.84 g/ml) from the -710µm+75µm fraction.

[4]Total HM %: RGC samples from 1998 and Iluka samples (Drummond Crossing, Durack, Ellengail, West Mine North and Yandanooka) were analysed using a -53 µm slimes / +2 mm oversize screen. Separation of total HM% was by heavy liquid TBE (density 2.90 g/ml) from the -710µm+53µm fraction.

[5]Total HM %: Samples from Robbs Cross and Thomson analysed by Diamantina Laboratories in Perth using a -45 µm slimes / +1 mm oversize screen (method DIA_HLS_45µm_1mm). Separation of total HM% was by heavy liquid TBE (density 2.96g/ml) from the -45 µm+1mm fraction.

[6]Total HM %: Samples from Drummond Crossing, Durack, West Mine North and Yandanooka were analysed by Western Geolabs in Perth using a -53µm slimes / +1mm oversize screen. Separation of total HM% was by heavy liquid TBE (density 2.96 g/ml) from the +53µm-1mm fraction.

[7]Reported below an upper cut-off grade of 35% slimes.

[8]Estimates of mineral assemblage are presented as percentages of the total HM) component of the deposit, as determined by QEMSCAN™ analysis. For the TiO_2 minerals specific breakpoints are used to distinguish between rutile (>95% TiO_2), leucoxene (85-95% TiO_2) and ilmenite (<55-85% TiO_2).

[9]At West Mine North and Ellengail mineral assemblage data determined by Iluka using Method 4 (HM concentrate is separated into magnetics and non-magnetics) was used with the Sheffield QEMSCAN™ data

[10]At Ellengail mineral assemblage data determined by Iluka using Method 3 (magnetic separation and XRF analysis) was used with the Sheffield QEMSCAN™ data and Iluka Method 4 data

[11] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

3) McCALLS PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCES FOR McCALLS PROJECT AT 30 SEPTEMBER 2019 (in-situ assemblage)

Summary of Mineral Resources[1,2,3,4]						In-situ Assemblage[5, 6]					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM[6]	Total HM Grade	Zircon	Rutile	Leuco-xene	Ilmenite	Over size	Slimes
	Category	(Total HM%)	(Million Tonnes)	(Million Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
McCalls	Indicated	1.1	1,630	23.3	1.4	0.07	0.05	0.04	1.10	1.1	21
	Inferred	1.1	1,980	24.4	1.2	0.06	0.05	0.04	1.00	1.1	26
	Total	1.1	3,600	47.7	1.3	0.07	0.05	0.04	1.05	1.1	24
Mindarra Springs[7]	Inferred	1.1	2,200	36.3	1.6	0.07	0.01	0.05	1.32	5.1	20
	Total	1.1	2,200	36.3	1.6	0.07	0.01	0.05	1.32	5.1	20
Total	Indicated	1.1	1,630	23.3	1.4	0.07	0.05	0.04	1.10	1.1	21
	Inferred	1.1	4,180	60.7	1.5	0.07	0.03	0.05	1.17	3.2	23
	Total	**1.1**	**5,800**	**84.0**	**1.4**	**0.07**	**0.03**	**0.04**	**1.15**	**2.6**	**22**

SHEFFIELD MINERAL RESOURCES FOR McCALLS PROJECT AT 30 SEPTEMBER 2019 (HM assemblage)

Summary of Mineral Resources[1,2,3,4,7]						HM Assemblage[5, 6]					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM[6]	Total HM Grade	Zircon	Rutile	Leuco-xene	Ilmenite	Over size	Slimes
	Category	(Total HM%)	(Million Tonnes)	(Million Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
McCalls	Indicated	1.1	1,630	23.3	1.4	5.2	3.3	2.8	77	1.1	21
	Inferred	1.1	1,980	24.4	1.2	5.0	3.8	3.2	81	1.1	26
	Total	1.1	3,600	47.7	1.3	5.1	3.6	3.0	79	1.1	24
Mindarra Springs[7]	Inferred	1.1	2,200	36.3	1.6	4.2	0.9	3.1	80	5.1	20
	Total	1.1	2,200	36.3	1.6	4.2	0.9	3.1	80	5.1	20
Total	Indicated	1.1	1,630	23.3	1.4	5.2	3.3	2.8	77	1.1	21
	Inferred	1.1	4,180	60.7	1.5	4.5	2.1	3.2	81	3.2	23
	Total	**1.1**	**5,800**	**84.0**	**1.4**	**4.7**	**2.4**	**3.1**	**79**	**2.6**	**22**

[1]The Mineral Resource estimates for McCalls and Mindarra Springs were prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 03 October 2018

[2]All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sums of columns may not equal

[3]Total heavy mineral (HM) is within the 45µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -45µm fraction and oversize is the +1mm fraction

[4]Reported below an upper cut-off grade of 35% slimes

[5]Estimates of mineral assemblage (Sheffield) are presented as percentages of the total HM) component of the deposit, as determined by QEMSCAN™ analysis. For the TiO_2 minerals specific breakpoints are used to distinguish between rutile (>95% TiO_2), leucoxene (85-95% TiO_2) and ilmenite (<55-85% TiO_2). Estimates of mineral assemblage (BHP) HM assemblage determination was by magnetic separation and observation (grain-counting)

[6] The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

[7]Excludes Mineral Resources within the Mogumber Nature Reserve

SHEFFIELD MINERAL RESOURCES FOR McCALLS PROJECT AT 30 SEPTEMBER 2019 (in-situ tonnes)

Summary of Mineral Resources[1,2,3,4]				In-situ Tonnes					
Deposit	Mineral Resource Category	Cut off (Total HM%)	Material (Million Tonnes)	In-situ Total HM[7] (Million Tonnes)	Zircon (Thousand Tonnes)	Rutile (Thousand Tonnes)	Leuco-xene (Thousand Tonnes)	Ilmenite (Thousand Tonnes)	Total VHM (Thousand Tonnes)
McCalls	Indicated	1.1	1,630	23.3	1,210	770	650	17,940	20,570
	Inferred	1.1	1,980	24.4	1,210	930	790	19,790	22,720
	Total	1.1	3,600	47.7	2,430	1,700	1,430	37,730	43,290
Mindarra Springs[8]	Inferred	1.1	2,200	36.3	1,520	320	1,130	29,080	32,050
	Total	1.1	2,200	36.3	1,520	320	1,130	29,080	32,050
Total	Indicated	1.1	1,630	23.3	1,210	770	650	17,940	20,570
	Inferred	1.1	4,180	60.7	2,740	1,250	1,920	48,860	54,770
	Total	**1.1**	**5,800**	**84.0**	**3,950**	**2,020**	**2,570**	**66,810**	**75,340**

[1]The Mineral Resource estimates for McCalls and Mindarra Springs were prepared by Optiro Pty Ltd and first disclosed under the JORC Code (2012) refer to ASX announcement 03 October 2018

[2]All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sums of columns may not equal

[3]Total heavy mineral (HM) is within the 45µm to 1mm size fraction and reported as a percentage of the total material, slimes is the -45µm fraction and oversize is the +1mm fraction

[4]Reported below an upper cut-off grade of 35% slimes

[5]Estimates of mineral assemblage (Sheffield) are presented as percentages of the total HM component of the deposit, as determined by QEMSCAN™ analysis. For the TiO_2 minerals specific breakpoints are used to distinguish between rutile (>95% TiO_2), leucoxene (85-95% TiO_2) and ilmenite (<55-85% TiO_2). Estimates of mineral assemblage (BHP) HM assemblage determination was by magnetic separation and observation (grain-counting)

[6]The in-situ assemblage grade is determined by multiplying the percentage of HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale

[7]The contained in-situ tonnes derived from HM and material tonnes from information in the Mineral Resource tables

[8]Excludes mineralisation within the Mogumber Nature Reserve

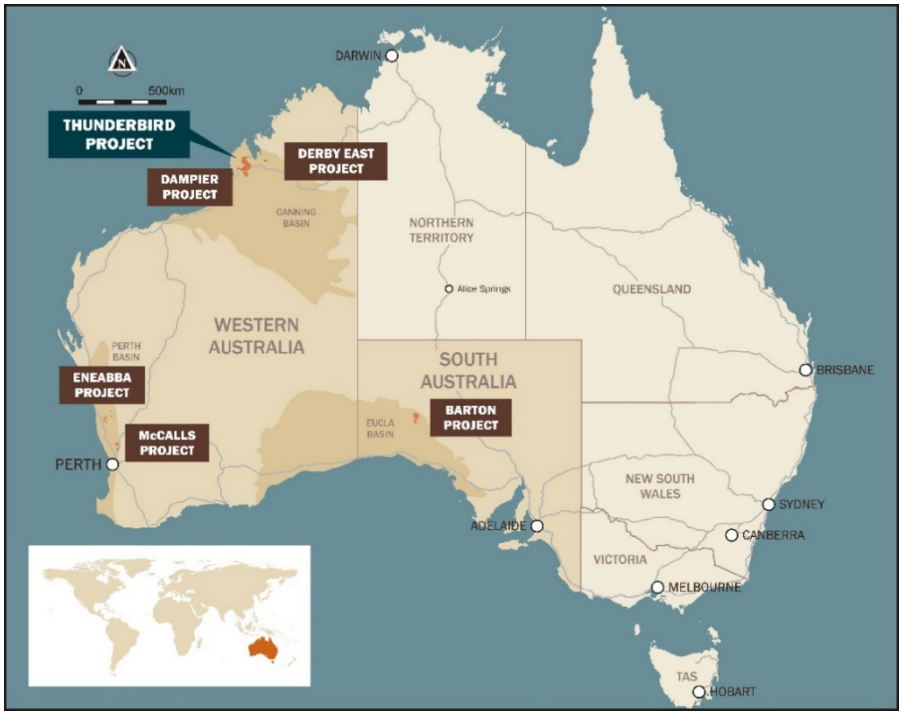

Figure 17: Location of Sheffield's Mineral Sands Projects

GOVERNANCE AND INTERNAL CONTROLS

Mineral Resource and Ore Reserve are compiled by qualified Sheffield personnel and/or independent consultants following industry standard methodology and techniques. The underlying data, methodology, techniques and assumptions on which estimates are prepared are subject to internal peer review by senior Company personnel, as is JORC compliance. Where deemed necessary or appropriate, estimates are reviewed by independent consultants. Competent Persons named by the Company are members of the Australasian Institute of Mining and Metallurgy and/or the Australian Institute of Geoscientists and qualify as Competent Persons as defined in the JORC Code 2012.

COMPETENT PERSONS AND COMPLIANCE STATEMENTS

The information in this report that relates to Exploration Results is based on information compiled by Mr Seb Gray, a Competent Person who is a Member of Australian Institute of Geoscientists (AIG). Mr Gray is a full-time employee of Sheffield Resources Ltd and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Gray consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The Company's Ore Reserves and Mineral Resources Statement is based on information first reported in previous ASX announcements by the Company. These announcements are listed below and are available to view on Sheffield's website www.sheffieldresources.com.au. Mineral Resources and Ore Reserves reported for the Dampier Project and Mineral Resources reported for the Eneabba and McCalls Projects, are prepared and disclosed under the JORC Code 2012. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant original market announcement continue to apply and have not materially changed.

The information in this report that relates to the estimation of the Ore Reserve is based on information compiled by Mr Per Scrimshaw, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Scrimshaw is employed by Entech Pty Ltd and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Scrimshaw consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the estimation of the Mineral Resources is based on information compiled by Mrs Christine Standing, a Competent Person who is a Member of the Australian Institute of Geoscientists (AIG) and the Australasian Institute of Mining and Metallurgy (AusIMM). Mrs Standing is a full-time employee of Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mrs Standing consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.

The information in this report that relates to the Thunderbird Mineral Resource is based on information compiled under the guidance of Mr Mark Teakle, a Competent Person who is a Member of the Australian Institute of Geoscientists (AIG) and the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Teakle is a full-time employee of Sheffield Resources Ltd and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Teakle consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The Competent Persons for reporting of Mineral Resources and Ore Reserves in the relevant original market announcements are listed below. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the relevant original market announcement.

Ore Reserves and Mineral Resources prepared and first disclosed under the JORC Code 2012):

Item	Report title	Report Date	Competent Person(s)
Thunderbird Ore Reserve	Thunderbird 10% Ore Reserve Increase	31 July 2019	P. Scrimshaw
Thunderbird Mineral Resource	Sheffield Doubles Measured Mineral Resource at Thunderbird	05 July 2016	M. Teakle, C. Standing
Night Train Mineral Resource	High Grade Maiden Mineral Resource at Night Train	31 January 2019	C. Standing
Robbs Cross Mineral Resource	Quarterly Activities Report for The Period Ended 31 December 2017	30 January 2018	C. Standing
Thomson Mineral Resource	Quarterly Activities Report for The Period Ended 31 December 2017	30 January 2018	C. Standing
Yandanooka Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing
Durack Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing
Drummond Crossing Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing
West Mine North Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing
Ellengail Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing
McCalls Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing
Mindarra Springs Mineral Resource	Mineral Resource and Ore Reserve Statement	03 October 2018	C. Standing

Item	Name	Company	Professional Affiliation
Exploration Results	Mr Seb Gray	Sheffield Resources	MAIG
Mineral Resource Reporting	Mr Mark Teakle	Sheffield Resources	MAIG, MAusIMM
Mineral Resource Estimation	Mrs Christine Standing	Optiro	MAIG, MAusIMM
Ore Reserve	Mr Per Scrimshaw	Entech	MAusIMM

SUPPORTING INFORMATION REQUIRED UNDER ASX LISTING RULES, CHAPTER 5

The supporting information below is required, under Chapter 5 of the ASX Listing Rules, to be included in market announcements reporting estimates of Mineral Resources and Ore Reserves.

Section 1, Section 2, of JORC Table 1 can be found in Appendices 1.

PREVIOUSLY REPORTED INFORMATION

This report includes information that relates to Exploration Results, Mineral Resources and Ore Reserves prepared and first disclosed under the JORC Code 2012 and a Bankable Feasibility Study. The information was extracted from the Company's previous ASX announcements as follows:

- Mineral Resource and Ore Reserve Statement: "MINERAL RESOURCE AND ORE RESERVE STATEMENT" 24 September 2019
- Quarterly Activities Report June 30 2019 "QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 JUNE 2019" 31 July 2019
- Thunderbird Ore Reserve Update: "THUNDERBIRD ORE RESERVE UPDATE" 31 July 2019
- Thunderbird BFS Update: "BFS UPDATE MATERIALLY REDUCES CAPITAL", 31 July 2019
- Night Train Inferred Resource and Mineral Assemblage results "*HIGH GRADE MAIDEN MINERAL RESOURCE AT NIGHT TRAIN*" 31 January 2019
- Yandanooka, Durack, Drummond Crossing, West Mine North, Ellengail, McCalls and Mindarra Springs Resource Estimates and including Mineral Resource and Ore Statement "*MINERAL RESOURCE AND RESERVE STATEMENT*" 03 October, 2018
- Thomson and Robbs Cross Mineral Resources: "QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 31 DECEMBER 2017" 30 January, 2018
- Thunderbird Mineral Resource: *"SHEFFIELD DOUBLES MEASURED MINERAL RESOURCE AT THUNDERBIRD"* 5 July, 2016
- Night Train metallurgical test work: "*PREMIUM ZIRCON AT NIGHT TRAIN"* 14 April, 2016

These announcements are available to view on Sheffield's website www.sheffieldresources.com.au.

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, Ore Reserves and the Bankable Feasibility Study, 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 Persons' findings are presented have not been materially modified from the relevant original market announcements.

FORWARD LOOKING AND CAUTIONARY STATEMENTS

The contents of this report reflect various technical and economic conditions at the time of writing. Given the nature of the resources industry, these conditions can change significantly over relatively short periods of time. Consequently, actual results may vary from those contained in this report.

Some statements in this report regarding estimates or future events are forward-looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Forward-looking statements include, but are not limited to, statements preceded by words such as "planned", "expected", "projected", "estimated", "may", "scheduled", "intends", "anticipates", "believes", "potential", "predict", "foresee", "proposed", "aim", "target", "opportunity", "could", "nominal", "conceptual" and similar expressions. Forward-looking statements, opinions and estimates included in this report are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward-looking statements may be affected by a range of variables that could cause actual results to differ from estimated results and may cause the Company's actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward-looking statements. So there can be no assurance that actual outcomes will not materially differ from these forward-looking statements.