



QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 SEPTEMBER 2020

13 October 2020

ASX Code:

SFX

Directors:

Mr John Richards
Non-Executive Chairman

Mr Bruce McFadzean
Managing Director

Mr Bruce Griffin
Commercial Director

Mr David Archer
Non-Executive Director

Mr Will Burbury
Non-Executive Director

Mr Ian MacIver
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: 346.1M
Unlisted Options: 4.5M
Unlisted Rights: 8.2M

Market Capitalisation:

A\$109 million

Cash Reserves:

A\$15.8 million
(as at 30 Sep 2020)

Investor Relations:

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HIGHLIGHTS

Thunderbird Mineral Sands Project

- Sheffield Resources and Yansteel execute a non-binding term sheet to form a 50:50 Joint Venture on the Thunderbird Mineral Sands Project and associated tenements ("Project").
- Yansteel to invest A\$130.1 million to earn a 50% interest in the Project
- Offtake agreement for 100% of the Stage 1 ilmenite executed with Yansteel
- Work program and detailed studies commenced, targeting a Final Investment Decision ("FID") ahead of the 2021 Kimberley dry season.

Corporate Activities

- Sheffield completes a 9.9% placement to Yansteel for approximately A\$12.9 million at A\$0.376 per share, a 131% premium to the Sheffield 10-day VWAP up to 6 Aug 2020
- \$15.8m in cash at quarter end (unaudited) with forecast expenditure of \$2.8m in the forthcoming quarter.
- COVID-19 protocols remain in place to secure the safety and well-being of all personnel and stakeholders.

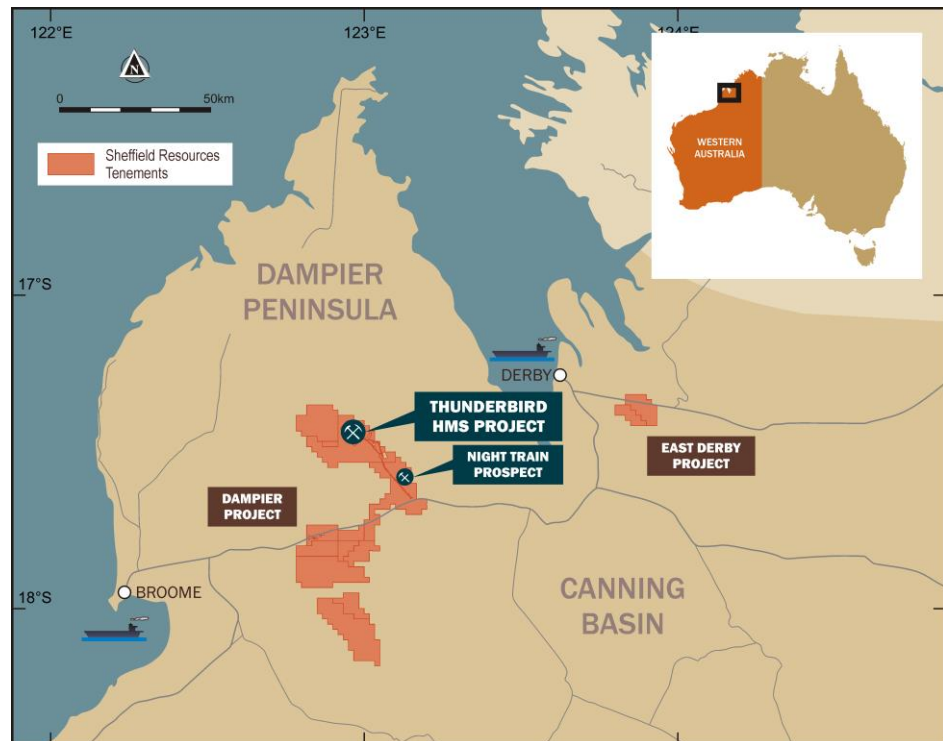


Figure 1: Location of Sheffield's Dampier Mineral Sands Projects

THUNDERBIRD MINERAL SANDS PROJECT

Sheffield Resources Limited (“Sheffield” or “the Company”) continued to advance development options of its world-class Thunderbird Mineral Sands Project (“Thunderbird” or “Project”) throughout the quarter.

During the quarter, the Company announced that it has entered into a Non-Binding Term Sheet with Yangang (Hong Kong) Co., Ltd’s wholly owned subsidiary YGH Australia Investment Pty Ltd (“Yansteel”) to form a Joint Venture to develop the Thunderbird Mineral Sands Project. Yansteel will invest A\$130.1m in equity to earn a 50% interest in the Project. Formation of the Yansteel and Sheffield Joint Venture (“Joint Venture”) is subject to agreement and execution of formal documentation and Foreign Investment Review Board (“FIRB”) process completion.

Yansteel and Sheffield have executed a take or pay offtake agreement for 100% of the ilmenite forecast to be produced from Stage 1 of the Project and a first right of refusal for any expanded ilmenite production.

Sheffield and Yansteel have agreed the development concept for Stage 1 of the Project will be based upon production of a zircon rich non-magnetic concentrate and LTR ilmenite product. The Board of the Joint Venture will agree the final Project scope, complete the Bankable Feasibility Study and secure project finance.

In addition to the underlying Joint Venture and offtake agreement transactions, Sheffield welcomed Yansteel as a significant shareholder following the issue of 34,259,421 fully paid ordinary shares (comprising 9.9% of the post-issue share capital) in Sheffield to Yansteel via a share placement for a total consideration of approximately A\$12.9m.

Thunderbird is a Tier 1 mineral sands project in a Tier 1 jurisdiction. Thunderbird is fully permitted and able to be brought into production at a time when a supply gap between consumption and production of both zircon and titanium minerals is expected to emerge.

Project Development

To maximise the probability of achieving Financial Investment Decision (FID) and enabling construction to proceed during the 2021 dry season, Sheffield has commenced a work program to enable completion of a Bankable Feasibility Study (“BFS”) on the revised project scope. The BFS is aimed, in turn, at enabling completion of project financing as scheduled following Joint Venture formation.

Funds from the Share Placement will be utilised to advance the BFS and includes metallurgical test work and other activities necessary to finalise the project flowsheet in addition to updating capital and operating costs. The study work will benefit from detailed engineering work completed during the 2017 BFS and the 2019 BFSU.

Engineering Studies

The flowsheet agreed in the Joint Venture term sheet reintroduces the Low Temperature Roast (“LTR”) , and simplifies the ilmenite circuit from the 2017 BFS as well as removing the zircon-related Mineral Separation Plant (“MSP”) components included in both the 2017 BFS and 2019 BFS Update. The detailed engineering work completed during these prior studies will be updated to account for the above changes. Procurement and construction schedules will be updated in addition to capital and operating cost estimates.

Trial Mining and Variability Sample Collection

A full-scale trial mining program commenced in October 2020 to confirm mining plant design and mining contract costs in addition to collecting a bulk ore sample. Variability samples will be collected across the initial mining area by air-core drilling.

Flowsheet Confirmation and Non-Magnetic Concentrate Product Samples

The bulk and variability samples will be processed through the revised flowsheet to confirm the non-magnetic concentrate related flowsheet design parameters. The non-magnetic concentrate produced in this programme will be used to supply product samples to existing and new offtake partners.

Enabling Early Works

Site investigation, design and tendering work is scheduled during Q4 2020 and will be completed to enable early works ahead of the 20/21 Kimberley wet season.

Aboriginal and Community Engagement

The Company has continued with COVID-19 appropriate engagement with key Project stakeholders regarding the Company's strategy and particularly the proposed Joint Venture formation between Yansteel and Sheffield.

Markets

As the global pandemic continues to impact the global economy, the mineral sands and associated industries have performed relatively well. China, as a major consumer of mineral sands feedstocks, continued to bounce back strongly in Q3 and demand has been robust. Mineral sand feedstock demand in the Americas bounced back in Q3 however demand in India and Europe is not as sound.

Forecasts 3-4 months ago suggested titanium feedstock demand may slow due to COVID-19 uncertainty, however, while this has been largely the case within Europe, demand in the US and particularly China has been stronger than forecast. The titanium feedstock market has continued to tighten, especially in China where pricing for feedstocks, especially sulfate ilmenite, has increased.

Although zircon demand has not held up as well as titanium feedstock, supply has adjusted to balance weaker demand. China is the best performing market and zircon consuming industries, although not at full capacity, are operating at higher levels than earlier in 2020. India remains heavily impacted by COVID-19 and zircon consumers in Europe and the Americas are operating at closer to normal levels although not yet at full capacity. Zircon pricing remains in the range of US\$1350 - US\$1500 per tonne depending on the quality of the material.

Mid to long-range forecasts for both zircon and ilmenite markets remain unchanged and it is still expected that there will be significant supply constraints in the market in the coming years. Sheffield is well placed to supply products into what is expected to be a tightening market.

Offtake Partners

During the quarter fresh samples of a zircon rich concentrate were dispatched to existing offtake groups for independent review and assessment. Following assessment, feedback from offtake groups was very positive and consultation with a view to revising offtake agreements have progressed well.

As part of diversifying product offtake, discussions have commenced with several potential additional offtake groups. Samples are currently being prepared to supply to these groups for independent review and assessment.

EXPLORATION ACTIVITIES

A review of project data and commencement of a supporting technical report was carried out on the Eneabba, and McCalls Mineral Sands Projects, as well as the Derby East construction sand project.

Dampier Project (Thunderbird)

Analysis of the Thunderbird Mineral Heavy Mineral Resource was carried out to optimise the location of the forecast full-scale trial mining program and provide a bulk sample for multiple customer end-user

confirmative study requirements. This program is to be accompanied by an aircore drill program designed to provide confirmatory samples across the initial mine life period.

A program to provide geotechnical samples to support early construction works is scheduled to commence in Q4 2020.

Eneabba & McCalls Projects

Sheffield's 100% owned Eneabba Project is located approximately 230km north of Perth in Western Australia's Midwest region. The Eneabba Project has a Mineral Resource inventory totalling 193.3 million tonnes @ 3.0% HM containing 4.8 million tonnes of Valuable Heavy Mineral above various HM cut-offs (Measured, Indicated and Inferred) (refer to ASX announcement 3 October 2018 and 24 September 2019). The mineralisation is across seven Mineral Resources including Yandanooka, Durack, Drummond Crossing, Robbs Cross, Thomson, West Mine North and Ellengail.

The McCalls Mineral Sands Project (McCalls) is located 110km to the north of Perth near the town of Gingin. Across two deposits (McCalls and Mindarra Springs) the Project has a Mineral Resource of 5,800 million tonnes @ 1.4% HM above a 1.1% HM cut-off (Indicated and Inferred). The McCalls Project contains 67 million tonnes of chloride ilmenite grading 59-66% TiO₂ and is considered a longer-term strategic asset (refer to ASX announcement 03 October 2018 and 24 September 2019).

Both HM deposits in the McCalls Project have retention status. A review of all project data and Mineral Resource data for Eneabba & McCalls Projects continued during the Quarter, along with commencement of technical reports.

Derby East Project

The Derby East Project comprises of a large occurrence of construction quality sand, located 24km east of the Port of Derby. A review of all project data and a technical report for the Derby East Project commenced in the quarter.

CORPORATE ACTIVITIES

Annual General Meeting

The Company wishes to advise shareholders that it has determined to delay holding its Annual General Meeting (AGM) by up to two months as a result of ongoing disruption and travel restrictions caused by COVID-19.

The Company is relying on the Australian Securities and Investments Commission's public "no action" position which permits companies listed on the Australian Securities Exchange to delay holding an AGM (which, under normal circumstances, is required to be held by 30 November 2020) by up to two months to 31 January 2021.

A further update will be provided to shareholders in conjunction with the Notice of Meeting in due course.

As at 30 September 2020, Sheffield held cash reserves of approximately A\$15.8 million (unaudited).

This announcement is authorised by the Board of Sheffield Resources Limited.



Mr Bruce McFadzean

Managing Director

13 October 2020

THUNDERBIRD JOINT VENTURE

In August 2020, Sheffield and Yansteel executed a Non-Binding Term Sheet for the formation of a 50:50 Joint Venture to own and develop the Thunderbird Mineral Sands Project and adjacent tenements on the Dampier Peninsula. The parties have agreed that the development concept for Stage 1 of the Project will be a 10.4mt per annum mine and process plant producing a zircon rich non-magnetic concentrate and LTR ilmenite.

Yansteel will subscribe for a 50% interest in the Joint Venture and provide A\$130.1m in project equity funding. Sheffield will fund any project equity shortfall between A\$130.1m and A\$143m, less Project costs incurred prior to a Final Investment Decision (“FID”). The Joint Venture will secure project finance and, if required, project equity in excess of A\$143m will be funded 50:50 by Yansteel and Sheffield.

The Yansteel A\$130.1m project equity investment via the Joint Venture transaction, together with the A\$12.9m funding under the Yansteel Share Placement completed on 12 August 2020 and combined with existing project financing is expected to deliver a fully funded project.

The Joint Venture will be governed by a four person Board of Directors with Sheffield and Yansteel each nominating two directors. Key Joint Venture decisions will require unanimous approval of both shareholders. The Joint Venture will be operated as a standalone entity with its own management and employees, with Sheffield personnel to be appointed as the key management persons upon the formation of the Joint Venture.

The Joint Venture agreements will include customary dispute resolution, default, dilution and pre-emption terms and these have been defined in-principle within a Non-Binding Term Sheet.

The formation of the Joint Venture is subject to final negotiation, agreement and execution of formal agreements, FIRB process completion and where required, any other applicable regulatory approval.

YANSTEEL OFFTAKE AGREEMENT

Yansteel and Sheffield have entered into a binding life of mine take or pay offtake agreement for 100% of the LTR ilmenite from Stage 1 at market price. Yansteel has a first right of refusal to purchase ilmenite from later stages.

In the unlikely event that the Joint Venture cannot be formed for any reason, the offtake will convert automatically to a minimum 7 + 3 year take or pay offtake agreement for 100% of the ilmenite produced from Stage 1 of the Project.

ABOUT YANSTEEL

Yansteel is a wholly-owned subsidiary of Tangshan Yanshan Iron & Steel Co., Ltd (“Tangshan”) a privately owned steel manufacturer headquartered in Hebei, China. Tangshan produces approximately 10mt per annum of steel products and has annual revenues of ~A\$6bn.

Tangshan has commenced the construction of a 500ktpa integrated titanium dioxide processing facility including a titanium slag smelter. This complex will consume the Low Temperature Roast (“LTR”) ilmenite offtake from Stage 1 of the Thunderbird Mineral Sands Project.

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	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	E04/2171 ²	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2349 ²	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2390 ²	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2494 ²	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2509 ²	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
Mineral Sands	E04/2540 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	E04/2597 ²	Thunderbird Operations Pty Ltd	100%	Canning Basin	Granted
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	E04/2456	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

Notes:

¹Iluka Resources Ltd (ASX: ILU) retains a gross sales royalty of 1.5% in respect to tenements R70/35, M70/872, M70/965 & M70/1153.

²Thunderbird Operations Pty Ltd and ³Moora Talc Pty Ltd are wholly owned subsidiaries of Sheffield Resources Ltd.

Appendix 1

ORE RESERVES AND MINERAL RESOURCES

SHEFFIELD ORE RESERVE AS OF 30 SEPTEMBER 2020

DAMPIER PROJECT ORE RESERVES

SHEFFIELD ORE RESERVE FOR DAMPIER PROJECT AT 30 SEPTEMBER 2020 (in-situ assemblage)

Summary of Ore Reserve ^{1,2,3,4}					Valuable HM Assemblage (in-situ) ⁵					
Deposit	Ore Reserve	Material	In-situ Total HM ⁷	Total HM Grade	Zircon	HiTi Leuc	Leuco-xene	Ilmenite	Oversize	Slimes
	Category	(Million Tonnes)	(Million Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
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 2020 (HM assemblage)

Summary of Ore Reserve ^{1,2,3,4}					Valuable HM Assemblage ⁶					
Deposit	Ore Reserve	Material	In-situ Total HM ⁷	Total HM Grade	Zircon	HiTi Leuc	Leuco-xene	Ilmenite	Oversize	Slimes
	Category	(Million Tonnes)	(Million Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
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

¹The 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

²Ore Reserve is a sub-set of Mineral Resource

³Total 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.

⁴Tonnes and grades have been rounded to reflect the relative accuracy and confidence level of the estimate, thus the sum of columns may not equal.

⁵The 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.

⁶Mineral 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 MINERAL RESOURCE

1) DAMPIER PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCE FOR DAMPIER PROJECT AT 30 SEPTEMBER 2020 (in-situ assemblage)

Summary of Mineral Resource ^{1,2,3}						In-situ Assemblage ^{4, 5}					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM ⁶	Total HM Grade	Zircon	HiTi Leuc	Leuco-xene	Ilmenite	Over size	Slimes
	Category	(Total HM%)	(Million Tonnes)	(Million Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
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.

²Total 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.

³Tonnes 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% TiO₂ >90% Liberation; leucoxene: 70-90% TiO₂ >90% Liberation; High titanium leucoxene (HiTi leucoxene) and rutile 90% TiO₂ >90% Liberation, and zircon: 66.7% ZrO₂+HfO₂ >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO₂+HfO₂/0.667 and HiTi leucoxene: TiO₂/0.94. 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 TiO₂ minerals the following breakpoints were used to distinguish between Ilmenite 40% to 70% TiO₂, leucoxene 70% to 90% TiO₂, 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% TiO₂ >90% Liberation; leucoxene: 70-94% TiO₂ >90% Liberation; HiTi leucoxene: >94% TiO₂ >90% Liberation; and zircon: 66.7% ZrO₂+HfO₂ >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO₂+HfO₂/0.667 and HiTi leucoxene: TiO₂/0.94.

⁵In-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 2020 (HM assemblage)

Summary of Mineral Resource ^{1,2,3}						HM Assemblage ⁴					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM ⁶	Total HM Grade	Zircon	HiTi Leuc ⁵	Leuco-xene	Ilmenite	Over size	Slimes
	Category	(Total HM%)	(Million Tonnes)	(Million Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
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 (low-grade)	Inferred	1.2	130	4.2	3.3	14	5.4	46	22	2.2	8.7
	Total	1.2	130	4.2	3.3	14	5.4	46	22	2.2	8.7
All Dampier Project (low grade cut-off)	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	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 (high-grade)	Inferred	2.0	50	3.0	5.9	14	5.6	49	18	2.2	10.2
	Total	2.0	50	3.0	5.9	14	5.6	49	18	2.2	10.2
All Dampier Project (high grade cut-off)	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	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% TiO₂ >90% Liberation; leucoxene: 70-90% TiO₂ >90% Liberation; High titanium leucoxene (HiTi leucoxene) and rutile 90% TiO₂ >90% Liberation, and zircon: 66.7% ZrO₂+HfO₂ >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO₂+HfO₂/0.667 and HiTi leucoxene: TiO₂/0.94. 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 TiO₂ minerals the following breakpoints were used to distinguish between Ilmenite 40% to 70% TiO₂, Leucoxene 70% to 90% TiO₂, 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% TiO₂ >90% Liberation; leucoxene: 70-94% TiO₂ >90% Liberation; HiTi leucoxene: >94% TiO₂ >90% Liberation; and zircon: 66.7% ZrO₂+HfO₂ >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: zircon: ZrO₂+HfO₂/0.667 and HiTi leucoxene: TiO₂/0.94.

⁵ HiTi leucoxene and rutile (%) combined for Night Train at a >90% TiO₂ (as one assemblage sample utilised=> 90% rutile and HiTi leucoxene), HiTi leucoxene for Thunderbird > 94% TiO₂

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 2020 (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	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
	(low-grade) 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	Inferred	1.2	130	4.2	560	220	1,900	900	3,590
	(low-grade) Total	1.2	130	4.2	560	220	1,900	900	3,590
All Dampier Project	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
	(low grade cut-off) 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	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
	(high-grade) 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	Inferred	2.0	50	3.0	420	170	1,500	540	2,600
	(high-grade) Total	2.0	50	3.0	420	170	1,500	540	2,600
All Dampier Project	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
	(high grade cut-off) 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% TiO₂ (as one assemblage sample utilised=> 90% Rutile and HiTi leucoxene), HiTi leucoxene for Thunderbird > 94% TiO₂

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 2020 (in-situ assemblage)

Summary of Mineral Resource ^{1,2}					In-situ Assemblage ¹¹						
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM ¹²	Total HM Grade	Zircon	Rutile	Leuco-xene	Ilmenite	Over size	Slimes
	Category	(Total HM%)	(Million Tonnes)	(Thousand Tonnes)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
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

¹The 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

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

³Total 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.

⁴Total 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.

⁵Total 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.

⁶Total 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.

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

⁸Estimates of mineral assemblage are presented as percentages of the total HM component of the deposit, as determined by QEMSCAN™ analysis. For the TiO₂ minerals specific breakpoints are used to distinguish between rutile (>95% TiO₂), leucocoxene (85-95% TiO₂) and ilmenite (<55-85% TiO₂).

⁹At 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

¹⁰At 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

¹¹The 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.

¹²The 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 2020 (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 TiO₂ minerals specific breakpoints are used to distinguish between rutile (>95% TiO₂), leucoxene (85-95% TiO₂) and ilmenite (<55-85% TiO₂).

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 2020 (in-situ tonnes)

Summary of Mineral Resource ^{1,2,3}				In-situ Tonnes					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM ¹¹	Zircon	Rutile	Leuco-xene	Ilmenite	Total VHM
	Category	(Total HM%)	(Million Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(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 TiO₂ minerals specific breakpoints are used to distinguish between rutile (>95% TiO₂), leucocene (85-95% TiO₂) and ilmenite (<55-85% TiO₂).

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 2020 (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 2020 (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

¹The 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

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

³Total 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

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

⁵Estimates of mineral assemblage (Sheffield) are presented as percentages of the total HM) component of the deposit, as determined by QEMSCAN™ analysis. For the TiO₂ minerals specific breakpoints are used to distinguish between rutile (>95% TiO₂), leucocene (85-95% TiO₂) and ilmenite (<55-85% TiO₂). 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

⁷Excludes Mineral Resources within the Mogumber Nature Reserve

SHEFFIELD MINERAL RESOURCES FOR McCALLS PROJECT AT 30 SEPTEMBER 2020 (in-situ tonnes)

Summary of Mineral Resources ^{1,2,3,4}				In-situ Tonnes					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM ⁷	Zircon	Rutile	Leuco-xene	Ilmenite	Total VHM
	Category	(Total HM%)	(Million Tonnes)	(Million Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(Thousand Tonnes)	(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

¹The 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

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

³Total 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

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

⁵Estimates of mineral assemblage (Sheffield) are presented as percentages of the total HM component of the deposit, as determined by QEMSCAN™ analysis. For the TiO₂ minerals specific breakpoints are used to distinguish between rutile (>95% TiO₂), leucocene (85-95% TiO₂) and ilmenite (<55-85% TiO₂). Estimates of mineral assemblage (BHP) HM assemblage determination was by magnetic separation and observation (grain-counting)

⁶The 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

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

⁸Excludes mineralisation within the Mogumber Nature Reserve



Figure 2: Location of Sheffield's Mineral Sands Projects

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.

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 an 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.

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
- 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

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 Update, 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.