

MINERAL RESOURCE AND ORE RESERVE STATEMENT

HIGHLIGHTS

- Updated Thunderbird Ore Reserve increased by 68 million tonnes or 10% to 748 million tonnes @ 11.2% heavy mineral (HM)
- Thunderbird Ore Reserve contains high in-situ zircon grades of 1.02% in the Proved Category
- Dampier Mineral Resource increased to 3.36 billion tonnes @ 6.8% HM with the addition of the maiden Night Train Inferred Mineral Resource
- Eneabba Project Mineral Resources unchanged at 193 million tonnes @ 3.0% HM
- McCalls Project Mineral Resources unchanged at 5.8 billion tonnes @ 1.4% HM

Sheffield Resources Limited (“Sheffield”, “the Company”) (ASX: SFX) has updated its Mineral Resource and Ore Reserve Statement for the period ending 24 September 2019. This includes the previously announced increase to the Thunderbird Ore Reserve (refer to ASX announcement 31 July 2019) and the addition of the maiden Inferred Mineral Resource at the Night Train deposit (refer to ASX announcement 31 January 2019), both located within Sheffield’s 100% owned Dampier Project near Derby in northern Western Australia.

This updated Mineral Resource and Ore Reserve Statement is reported in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition⁵ and ASX Listing Rules (“JORC Code (2012)”). Accordingly, this statement should be read in conjunction with the respective explanatory Mineral Resources and Ore Reserve information included in the ASX announcements listed in Table 2.

The Mineral Resources and Ore Reserves for the period ending 24 September 2019 are summarised in the table below:

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

Summary of Mineral Resource			Valuable HM Assemblage (in-situ) ³						
Project	Material (Million Tonnes)	In-situ Total HM (Million Tonnes)	Total HM Grade (%)	Zircon (%)	HiTi Leuc/Rutile ² (%)	Leuco-xene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Ore Reserve (Proved and Probable)¹									
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 ⁴	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

¹Ore Reserve is a sub-set of Mineral Resource

² 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).

³ 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

⁴ 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 and Mineral Resource totals listed in this ASX announcement. Details for the individual Mineral Resource categories are also tabulated in this announcement.

⁵Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition, sets out minimum standards, recommendations and guidelines for public reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves authored by the Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and the Minerals Council of Australia.

Commenting on the update, Sheffield’s Managing Director, Bruce McFadzean, said:

“We have made excellent progress with our brownfields exploration at our Dampier Project with an increase in the Dampier Mineral Resource by the addition of the maiden Night Train Inferred Mineral Resource and a material increase to the world class Thunderbird Ore Reserve. It is tremendous to be growing our Mineral Resource and Ore Reserve Inventory at a time when mature deposits globally are in depletion and showing evidence of declining grade and product quality.”

“We have a number of exciting exploration targets and programs planned for 2020 over our extensive and highly prospective exploration portfolio. We expect our ongoing exploration efforts to continue to deliver resource growth for Sheffield in the future.”

Mineral Resources and Ore Reserves within this statement should be read in conjunction with the previously published explanatory notes and JORC tables listed in the table beneath.

Table 2: Ore Reserves and Mineral Reserves prepared and disclosed under JORC 2012

Category	Project	Deposit	Announcement Title	Release Date
Ore Reserve	Dampier	Thunderbird	Thunderbird 10% Ore Reserve Increase	31 July 2019
		Thunderbird	Sheffield Doubles Measured Mineral Resource at Thunderbird	05 July 2016
Mineral Resource	Dampier	Night Train	High Grade Maiden Mineral Resource at Night Train	31 January 2019
		Drummond Crossing, Durack, Ellengail, West Mine North, Yandanooka	Mineral Resource and Ore Reserve Statement (2018)	03 October 2018
	Eneabba	Robbs Cross, Thomson	Quarterly Activities Report for the Period Ended 31 December 2017	30 January 2018
		McCalls, Mindarra Springs	Mineral Resource and Ore Reserve Statement (2018)	03 October 2018

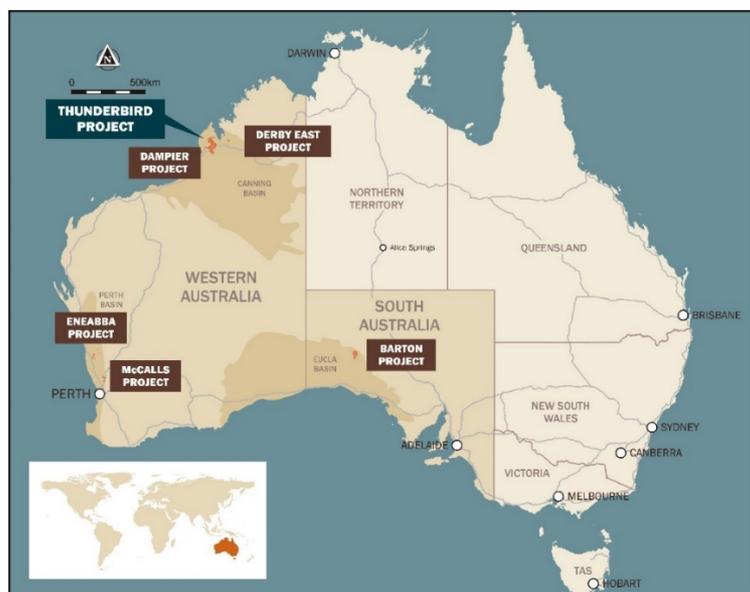


Figure 1: Location of Sheffield’s Mineral Sands Projects

DAMPIER PROJECT ORE RESERVE AND MINERAL RESOURCE

Sheffield’s Dampier Project has a Mineral Resource and Ore Reserve inventory comprising:

- **Thunderbird Ore Reserve** of 748 million tonnes @ 11.2% HM (Proved and Probable) (refer to ASX announcement 31 July 2019)
- **Dampier Project Mineral Resource** of 3,360 million tonnes @ 6.8% HM above various HM cut-offs (Measured, Indicated and Inferred) (refer to this announcement), comprising:
 - **Thunderbird Mineral Resource** of 3,230 million tonnes @ 6.9% HM above a 3.0% HM cut-off (Measured, Indicated and Inferred) (refer to ASX announcement 5 July 2016)
 - **Night Train Mineral Resource** of 130 million tonnes @ 3.3% HM above a 1.2% HM cut-off (Inferred) (refer to ASX announcement 31 January 2019)

Sheffield’s Dampier Project contains the world-class Thunderbird deposit, the Night Train deposit and twelve other HM prospects located along the target stratigraphic horizon defined over a strike length of approximately 160km (refer to announcement 13 November 2018 and Figure 9).

Dampier Ore Reserve

The Thunderbird Ore Reserve (Proved and Probable), as at 31 July 2019, is estimated to be 748 million tonnes @ 11.2% HM (refer to ASX announcement 31 July 2019). The updated Ore Reserve is an increase of 68 million tonnes or approximately 10% (based on ore tonnes) and approximately 9% (based on HM tonnes) compared to the previous Ore Reserve of 680.5 million tonnes at 11.3% HM (refer to ASX announcement 16 March 2017). This increase reflects changes in market product pricing, reduced operating costs and the increased revenue certainty for Thunderbird. The majority of the cost estimates applied to determine the Ore Reserve were informed by negotiated or executed agreements. In addition, binding offtake agreements account for 100% of projected Stage 1 revenues.

The updated Ore Reserve was accompanied by a corresponding Bankable Feasibility Study Update (BFSU) which supports a 37-year mine life and increases annual zircon production by 39% and total project revenue by more than 11%, substantially enhancing the Thunderbird Project financial metrics (refer to ASX announcement 31 July 2019).

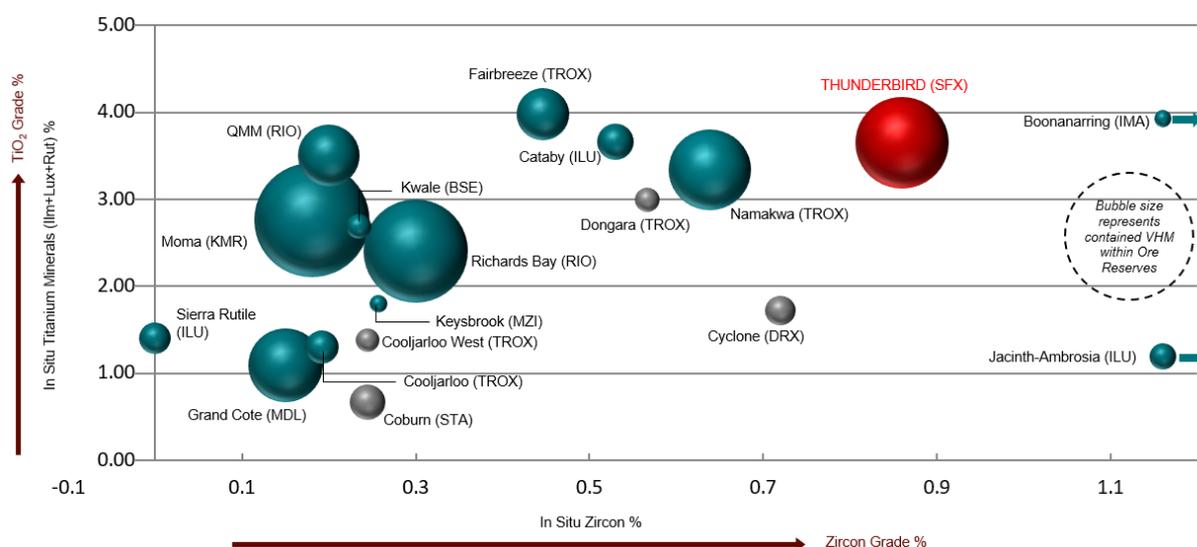


Figure 2: Comparison of Ore Reserves and grade between key global mineral sands deposits¹

¹Thunderbird 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.

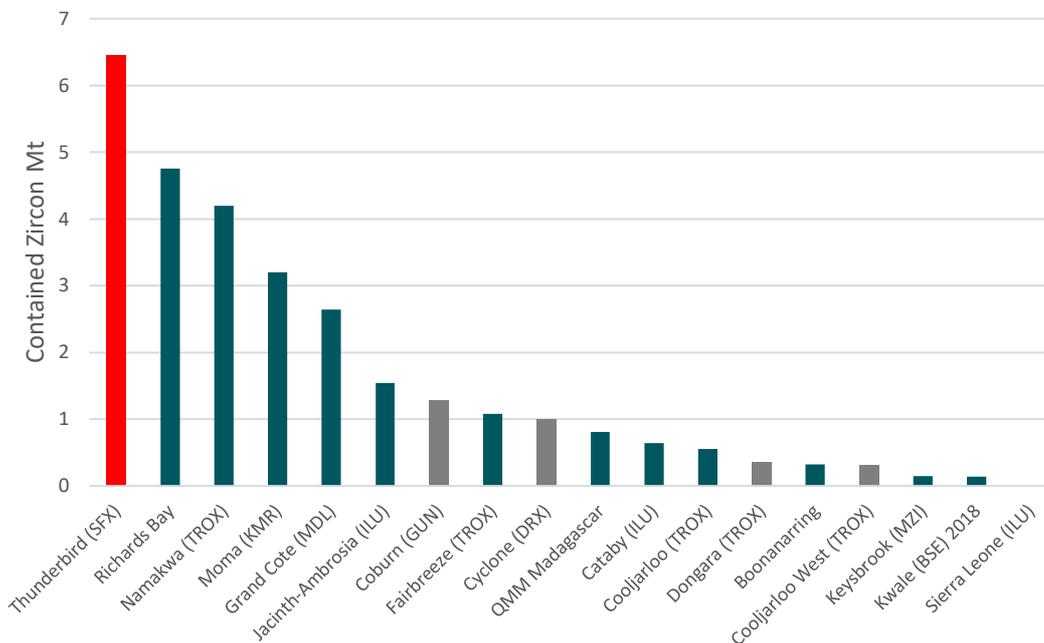


Figure 3: Comparison of contained zircon within Ore Reserves of key global mineral sands deposits¹

The Proved category of the Ore Reserve contains exceptionally high in-situ zircon grades of 1.02% and the Proved and Probable categories contain high in-situ zircon grades of 0.86%. The updated Ore Reserve includes a substantial increase in contained zircon of 500,000 tonnes to 6.4 million tonnes and underlines the significant scale of the Thunderbird deposit (Figure 3). The updated Ore Reserve increases the period of mining the higher grade ore (T2) from seven years to ten years and removes lower grade ore (T1) from the process plant feed during this period (Figure 4). This increases the in-situ zircon grade in the Proved Category to 1.02% zircon and reduces the tonnage of Proved Category from 236Mt to 219Mt (refer to ASX announcement 31 July 2019).

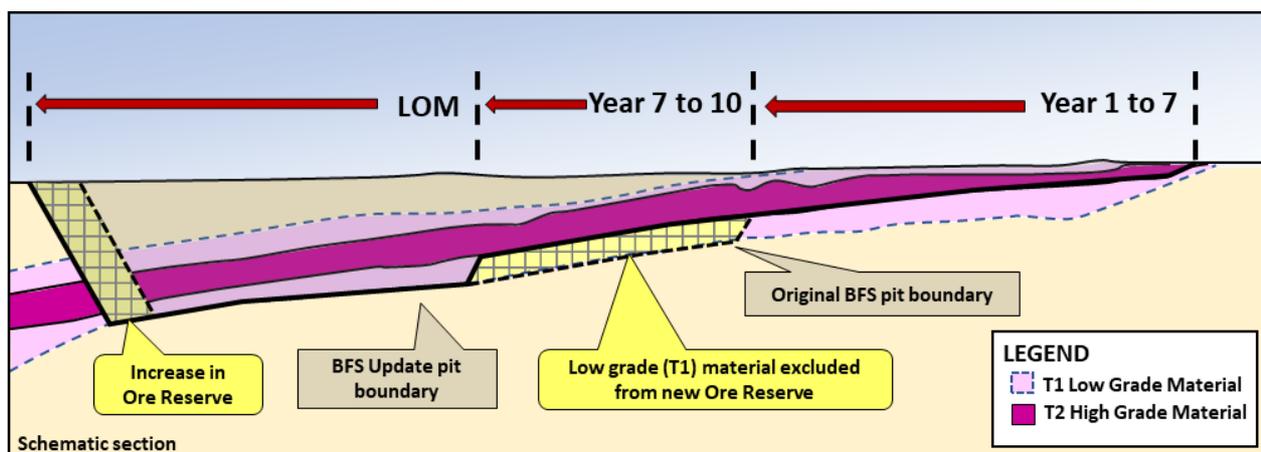


Figure 4: Schematic of Thunderbird BFS Update pit boundary and increased period of mining higher grade ore (T2)

¹Thunderbird 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.

DAMPIER PROJECT ORE RESERVES

SHEFFIELD ORE RESERVE FOR DAMPIER PROJECT AT 24 SEPTEMBER 2019 (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 24 SEPTEMBER 2019 (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.

Dampier Mineral Resources

The Dampier Mineral Resources, as at 24 September 2019, are estimated to be 3,360 million tonnes at an average heavy mineral grade of 6.8% HM (Measured, Indicated and Inferred) at various cut-offs¹, containing 96 million tonnes of valuable heavy mineral (VHM), across two deposits. The 2019 Dampier Mineral Resources estimate has increased by 4% for material tonnes and by 2% for contained in-situ HM tonnes when compared with the 2018 Dampier Mineral Resources estimate due to the addition of the maiden Inferred Night Train Mineral Resource.

Mineralisation at Night Train is zircon and leucoxene rich, clean and free of coatings, has a high VHM component and contains low levels of trash minerals, oversize and slimes. The maiden Mineral Resource at Night Train underscores Sheffield’s strategy of growing the Dampier Project Mineral Resource inventory by targeting additional large, zircon rich deposits containing premium ceramic grade zircon with the potential to be processed at the proposed Thunderbird Mineral Separation Plant.

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).

During the period Sheffield released 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). The 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 5). 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.

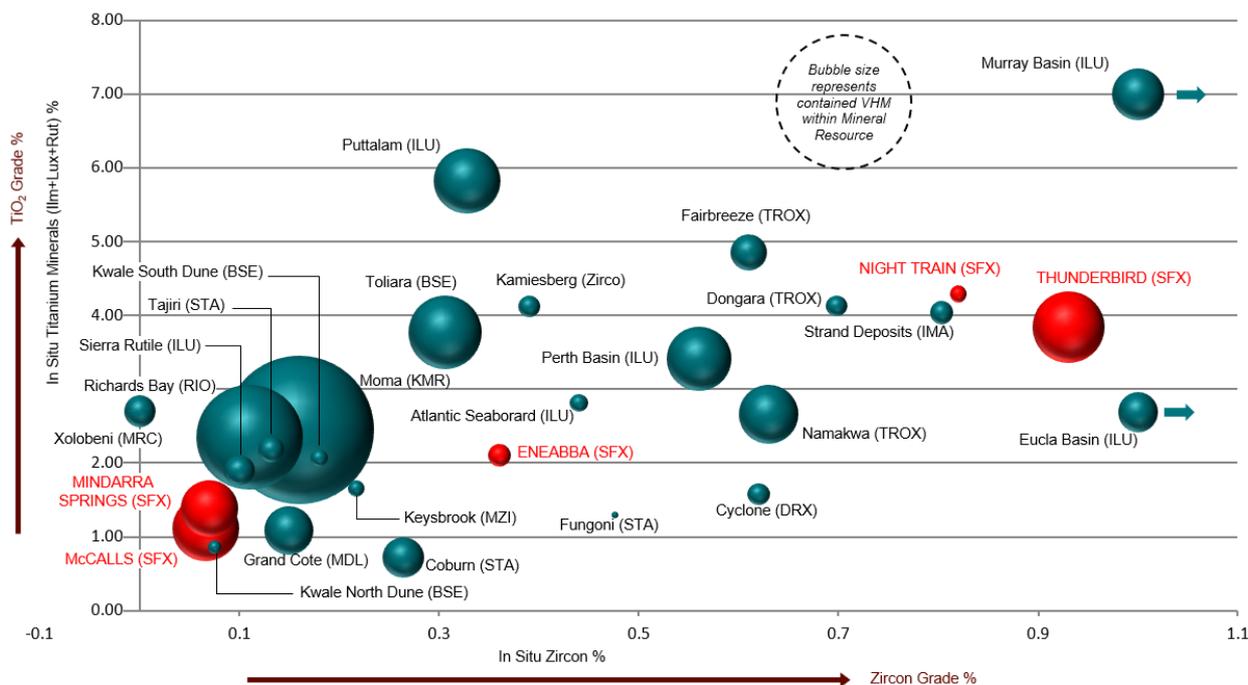


Figure 5: Comparison of Mineral Resources and grade within Sheffield’s Mineral Resources (red) and Mineral Resources of key global HM deposits^{2,3}

¹ Applying the low-grade HM Mineral Resource cut-off for both Thunderbird (3.0% HM cut-off) and Night Train (1.2% HM cut-off)

² 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.

³ Data compiled by Sheffield from public sources. This analysis does not illustrate the variance in product value between rutile, leucoxene and ilmenite

At a 1.2% HM cut-off, Night Train is defined over an area approximately 4.0km long by 0.8km to 1.6km wide and remains open to the north, south and down dip to the west. The mineralisation occurs as a thick, broad sheet-like body striking northwest. The average depth to the top of main body of mineralisation is 26m, and ranges from 1.5m to 53m. Mineralised thickness ranges from 1.5m to 34m and averages 11m. The deposit is very flat-lying with a gentle dip of between 2° to 5° to the southwest.

At a 2.0% HM cut-off the Inferred Mineral Resource covers an area approximately 4.0km long by 0.4km to 1.6km wide and remains open to the north, south and down dip to the west. This higher grade mineralisation is enclosed within the 1.2% cut-off Inferred Mineral Resource envelope and has a north-northwest trending long axis orientation which is sub-parallel to the regional strike. The higher grade mineralisation ranges in thickness from 1.5m to 22.5m, with an average thickness of 6m. The depth to the top of the high-grade mineralisation ranges from 1.5m to 55m with an average depth of 28.5m.

The Night Train deposit is favourably located just 20km to the south of Thunderbird and only 2.5km east of the proposed Thunderbird mine haul road. The Mineral Resource estimate was completed by external geological consultants Optiro Pty Ltd.

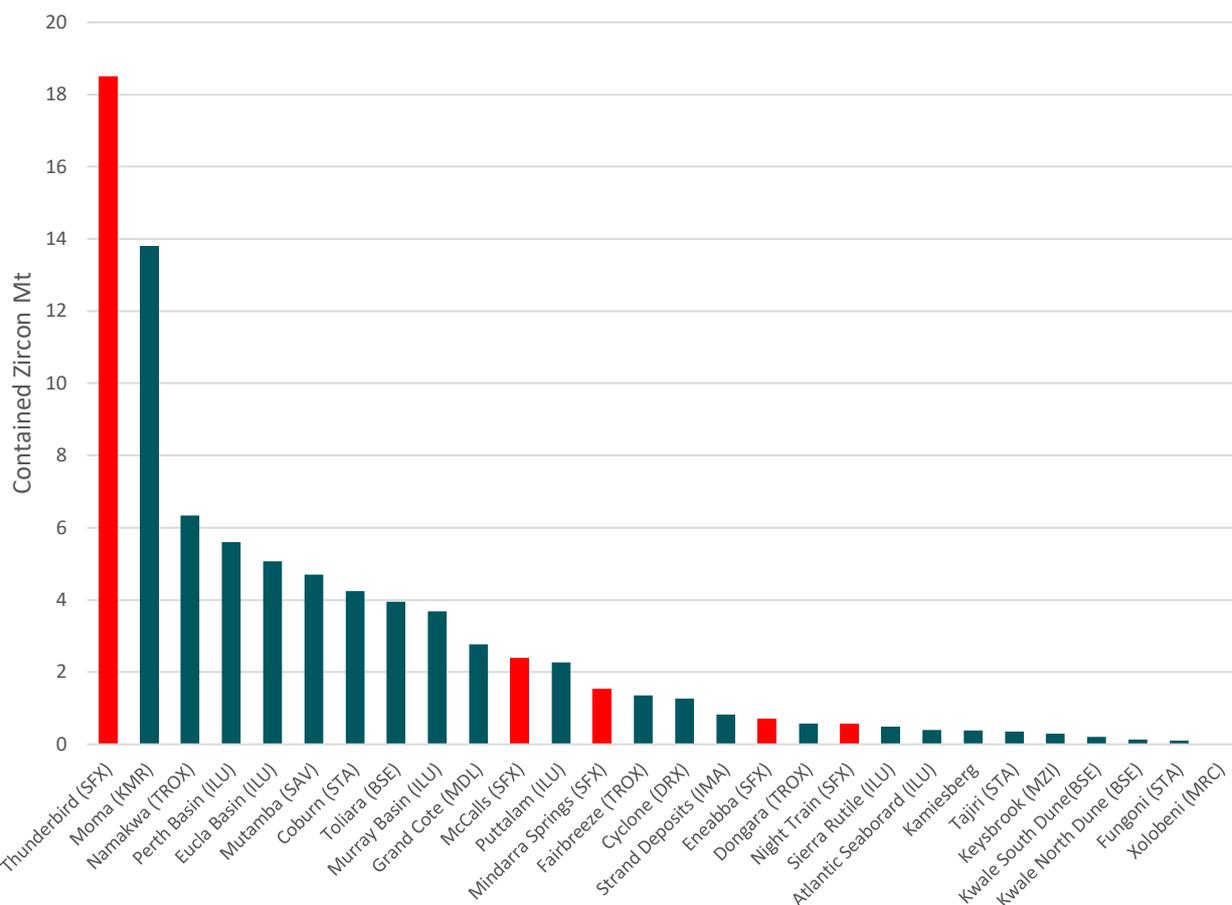


Figure 6: Comparison of contained zircon within Sheffield's Mineral Resources (red) and Mineral Resources of key global HM deposits^{1,2}

¹ Sheffield Mineral Resources (red) as published on the ASX on 5 July 2016 (applying lower Thunderbird Mineral Resource cut-off of 3.0% HM), 30 January 2018, 3 October 2018 and 31 January 2019 (applying lower Night Train Mineral Resource cut-off of 1.2% HM). Contained zircon within Sheffield Mineral Resources ranked against contained zircon within 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. Wimmera style and hard rock deposits have been excluded.

² Data compiled by Sheffield from public sources.

The Night Train Mineral Resource has similar high in-situ zircon and titanium mineral grades to those of the nearby world class Thunderbird deposit. When ranked against published Mineral Resources of current mineral sands operations and projects under investigation globally (Figure 5 & 6), the Night Train Inferred Mineral Resource (above a 2.0% HM cut-off) stands out because of the high HM grade and high value, zircon-rich mineral assemblage. Further key attributes of the Night Train deposit include the high VHM content, low trash levels of the mineral assemblage and the high proportion of premium quality zircon (Table 3 and Figure 8).

Initial scoping metallurgical test work completed in 2016 on a 100kg drill sample composite from the mineralised zone at Night Train showed that high quality zircon, which meets ceramic grade specifications, can be produced (Table 3 and refer to ASX announcement of 14 April 2016 for further details). The primary zircon product is premium ceramic grade zircon and comprised a very high 78% of the total zircon produced.

Table 3: Night Train Metallurgical test work¹ Zircon Products – Summary Assay Results

Product	ZrO ₂ +HfO ₂	SiO ₂	TiO ₂	Fe ₂ O ₃	Al ₂ O 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

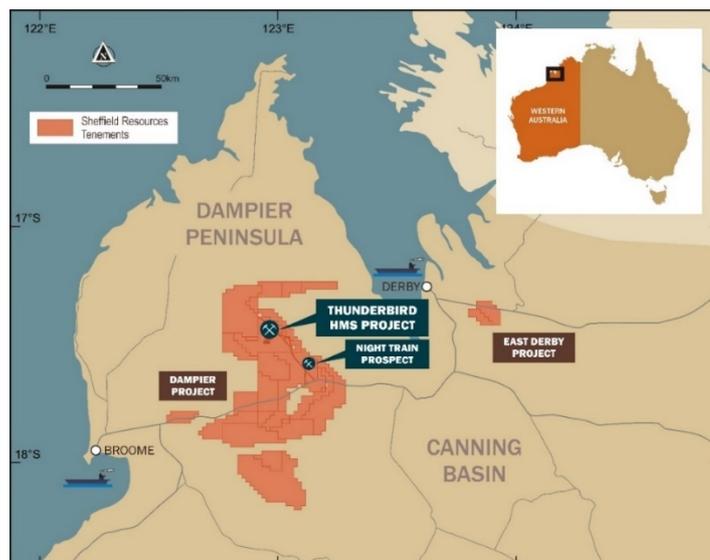


Figure 7: Location of the Dampier Mineral Sands Project and the East Derby Project

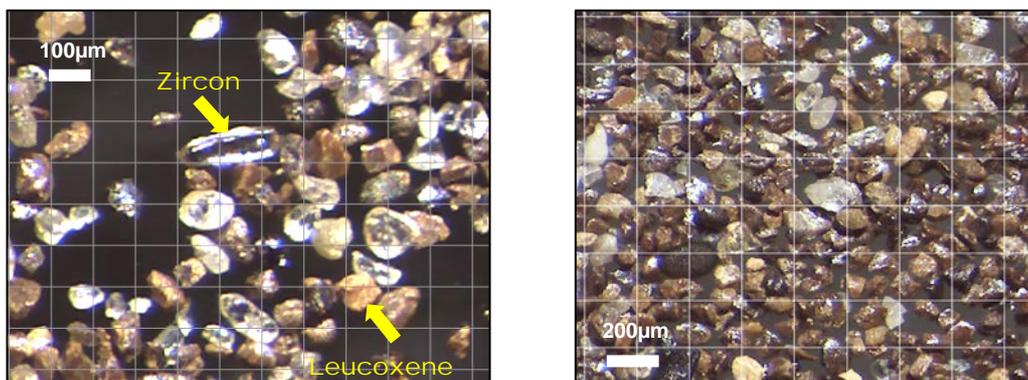


Figure 8: Photomicrographs of HM concentrate from Night Train drill hole DAAC093 (40.5-42m)



DAMPIER PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCE FOR DAMPIER PROJECT AT 24 SEPTEMBER 2019 (in-situ assemblage)

Summary of Mineral Resource ^{1,2,3}						In-situ Assemblage 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; leucosene: 70-90% TiO₂ >90% Liberation; High titanium leucosene (HITi leucosene) 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 leucosene: 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, leucosene 70% to 90% TiO₂, HITi leucosene 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; leucosene: 70-94% TiO₂ >90% Liberation; HITi leucosene: >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 leucosene: 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.

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



SHEFFIELD MINERAL RESOURCES FOR DAMPIER PROJECT AT 24 SEPTEMBER 2019 (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

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; leucocoxene: 70-90% TiO₂ >90% Liberation; High titanium leucocoxene (HiTi leucocoxene) 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 leucocoxene: 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, Leucocoxene 70% to 90% TiO₂, HiTi leucocoxene 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; leucocoxene: 70-94% TiO₂ >90% Liberation; HiTi leucocoxene: >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 leucocoxene: TiO₂/0.94.

⁵ HiTi leucocoxene and rutile (%) combined for Night Train at a >90% TiO₂ (as one assemblage sample utilised=> 90% rutile and HiTi leucocoxene), HiTi leucocoxene 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 24 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	1,000	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% 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’s 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 9). This includes the world class Thunderbird deposit which has a Mineral Resource of **3.23 billion tonnes @ 6.9% HM** above a 3.0% HM cut-off (Measured, Indicated and Inferred), including a high-grade component of **1.05 billion tonnes @ 12.2% HM** above 7.5% HM cut-off (Measured, Indicated and Inferred) (see ASX release 05 July 2016) and 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), including a high grade component of 50 million tonnes @ 5.9% HM, above a 2.0% HM cut-off.

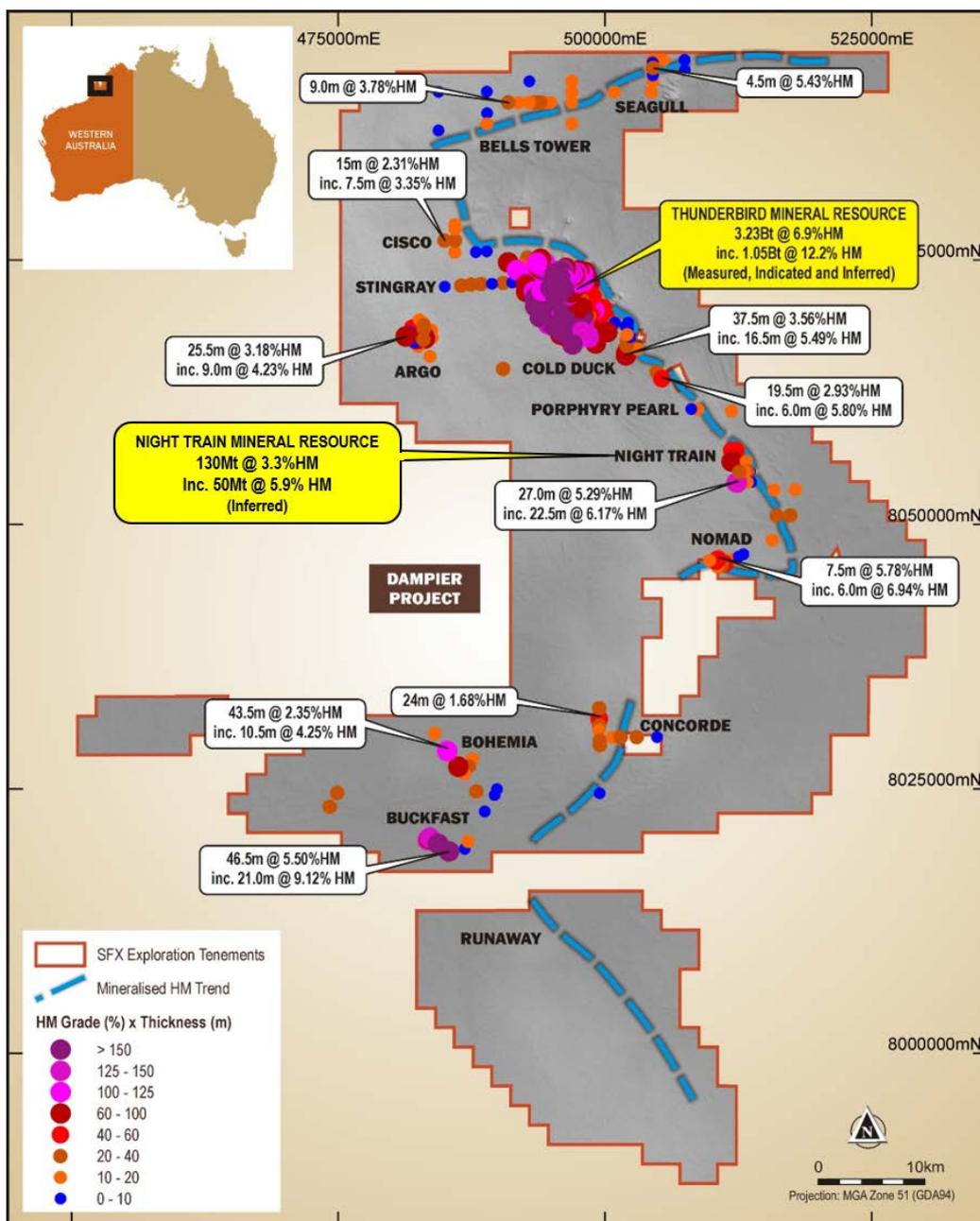


Figure 9: Location of Dampier Project Mineral Resources and regional prospects with summary drill intersections¹

¹HM grade times thickness for intervals. All intervals calculated using 1% HM lower cut, 3m minimum width, maximum 3m internal waste, if multiple intersections per hole the maximum interval is used. Includes Sheffield drill holes, Rio Tinto historic drill holes (Muggeridge 2007 (DMIRS WAMEX a75902), Muggeridge 2008 (DMIRS WAMEX a79432)), and Iluka historic drill holes (Northcott 2017 (DMIRS WAMEX a114453)) excluding Runaway. Refer to ASX announcement 13 November 2018 for further details. Background HM grade in holes at Thunderbird and Cold Duck has been halved to account for dilution by iron oxides.

ENEABBA PROJECT MINERAL RESOURCE

Sheffield's Eneabba Project has a Mineral Resource inventory as at 24 September 2019 totalling 193.3 million tonnes @ 3.0% HM containing 4.8 million tonnes of VHM above various HM cut-offs (Measured, Indicated and Inferred) (refer to ASX release 03 October 2018) comprising;

- **Dunal Style Mineral Resources**
 - **Yandanooka Mineral Resource** of 60.8 million tonnes @ 3.0% HM above a 1.4% HM cut-off (Measured, Indicated and Inferred) (refer to ASX announcement 03 October 2018)
 - **Durack Mineral Resource** of 26.3 million tonnes @ 2.8% HM above a 1.4% HM cut-off (Indicated and Inferred) (refer to ASX announcement 03 October 2018)
 - **Drummond Crossing Mineral Resource** of 38.8 million tonnes @ 2.4% HM above a 1.4% HM cut-off (Indicated and Inferred) (refer to ASX announcement 03 October 2018)
 - **Robbs Cross Mineral Resource** of 17.8 million tonnes @ 1.9% HM above a 1.4% HM cut-off (Indicated and Inferred) (refer to ASX Quarterly Activities Report 30 January 2018)
 - **Thomson¹ Mineral Resource** of 26 million tonnes @ 2.0% HM above a 1.4% HM cut-off (Inferred) (refer to ASX Quarterly Activities Report 30 January 2018)

- **Dunal and Strand Style Mineral Resources**
 - **West Mine North Mineral Resource** of 12.0 million tonnes @ 6.6% HM above a 2.0% HM cut-off (Indicated and Inferred) (refer to ASX announcement 03 October 2018)
 - **Ellengail Mineral Resource** of 11.8 million tonnes @ 4.8% HM above a 2.0% HM cut-off (Indicated and Inferred) (refer to ASX announcement 03 October 2018)

The Company's Eneabba Project is located on freehold and vacant crown land near Eneabba, proximal to Geraldton in the Mid-West region of Western Australia. The project contains seven spatially separate HM Mineral Resources. Both dunal and strand styles of HM mineralisation are present, with a minor fluviatile component at Thomson.

No Ore Reserves have yet been completed for the Eneabba Project. The 2019 Eneabba Mineral Resources estimate remains unchanged when compared with the 2018 Eneabba Mineral Resources estimate.

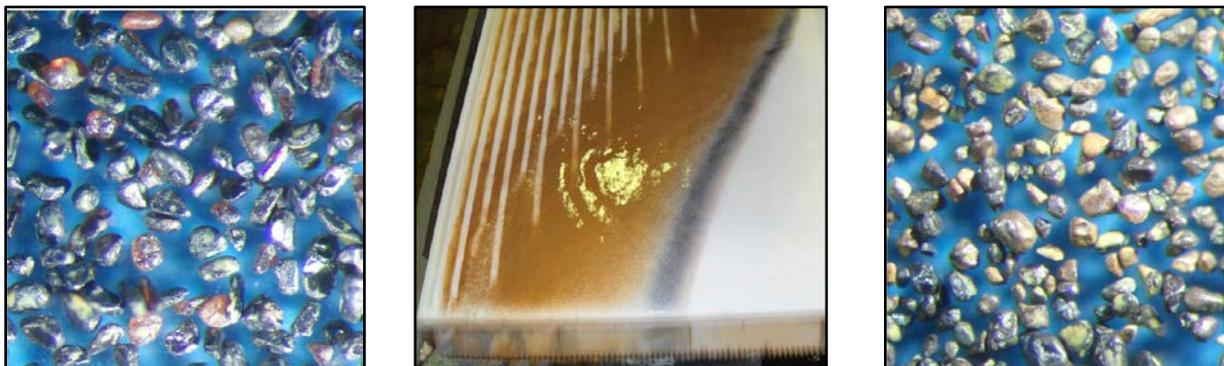


Figure 10: Coarse grained rutile (left), wet shaking table (centre) and chloride ilmenite (right) from the dunal Durack deposit, part of Sheffield's Eneabba Project

¹ Thomson contains a dunal and fluviatile heavy mineral style component

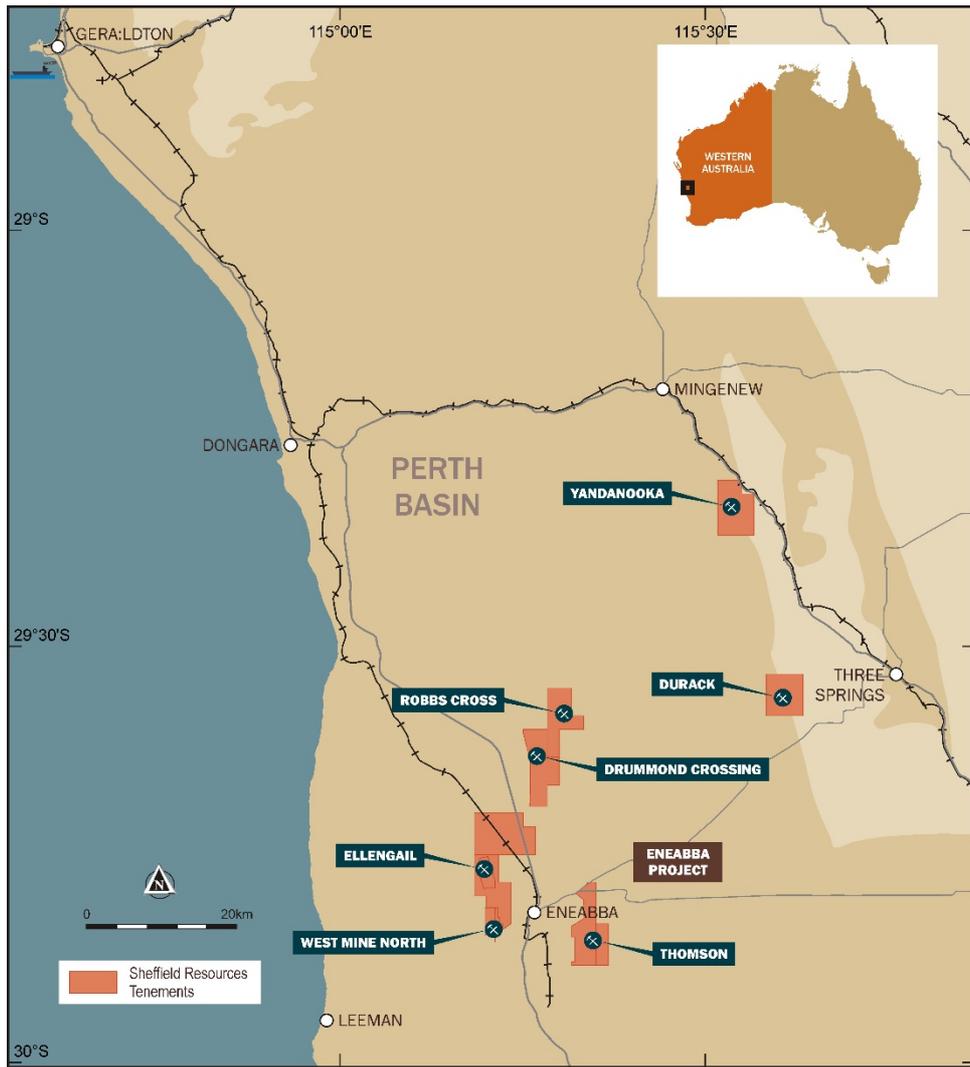


Figure 11: Location of the Eneabba Project



Figure 12: Aircore drilling at the Yandanooka Deposit

ENEABBA PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCES FOR THE ENEABBA PROJECT AT 24 SEPTEMBER 2019 (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), leucoxene (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 data

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 24 SEPTEMBER 2019 (HM assemblage)

Summary of Mineral Resource ^{1,2}						HM Assemblage ^{8,9,10}					
Deposit	Mineral Resource	Cut off	Material	In-situ Total HM ¹¹	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	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 -45µm+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), 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

SHEFFIELD MINERAL RESOURCE FOR ENEABBA PROJECT AT 24 SEPTEMBER 2019 (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), 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

McCALLS PROJECT MINERAL RESOURCE

Sheffield’s McCalls Project has a Mineral Resource inventory totalling;

- **McCalls Project Mineral Resource** of 5,800 million tonnes @ 1.4% HM above a 1.1% HM cut-off (Indicated and Inferred) (refer to ASX release 03 October 2018), comprising:
 - **McCalls Mineral Resource** of 3,600 million tonnes @ 1.3% HM above a 1.1% HM cut-off (Indicated and Inferred) (refer to ASX announcement 03 October 2018)
 - **Mindarra Mineral Resource** of 2,200 million tonnes @ 1.6% HM above a 1.1% HM cut-off (Inferred) (refer to ASX announcement 03 October 2018)

The Company’s McCalls Project is located on freehold and crown land near Gingin, approximately 110km north of Perth in Western Australia. The McCalls Mineral Resources, as at 24 September 2019, are estimated to be 5.8 billion tonnes with an average grade of 1.4% HM (Indicated and Inferred) containing 75 million tonnes of VHM, across the two deposits. The McCalls Project contains 67 million tonnes of chloride ilmenite grading 59-66% TiO₂ and is considered a longer-term strategic asset. No Ore Reserves have yet been completed for the McCalls Project. The 2019 McCalls Mineral Resources estimate remains unchanged when compared with the 2018 McCalls Mineral Resources estimate.

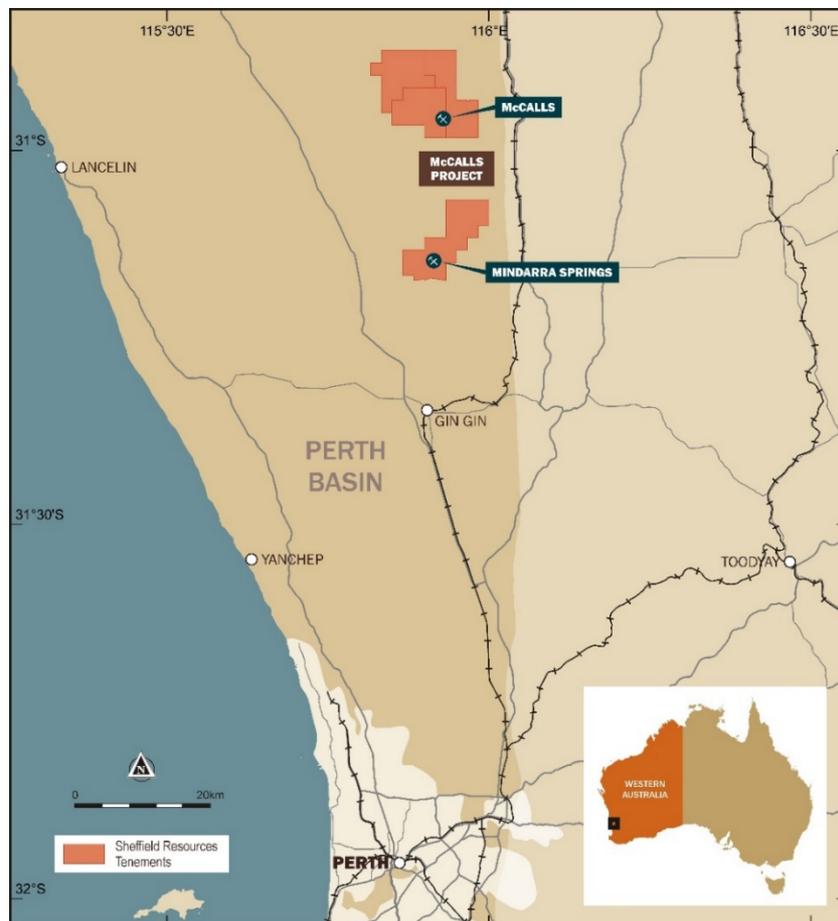


Figure 13: Location of the McCalls Project

McCALS PROJECT MINERAL RESOURCES

SHEFFIELD MINERAL RESOURCES FOR McCALS PROJECT AT 24 SEPTEMBER 2019 (in-situ assemblage)

Summary of Mineral Resources ^{1,2,3,4}						In-situ Assemblage 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 McCALS PROJECT AT 24 SEPTEMBER 2019 (HM assemblage)

Summary of Mineral Resources ^{1,2,3,4,7}						HM Assemblage ⁵					
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), leucosene (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 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 24 SEPTEMBER 2019 (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), leucosene (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

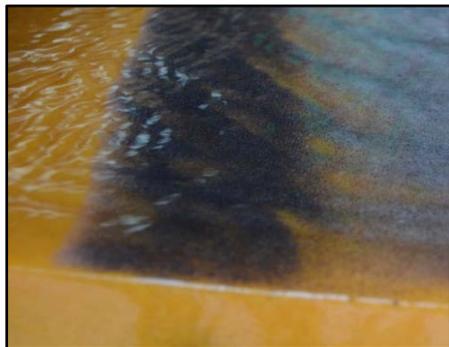


Figure 14: McCalls HM deposit – photo of wet shaking table (left) and photomicrography of HM (centre), aircore drilling at Mindarra Springs (right)

ENDS

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COMPLIANCE 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 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	5 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

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:

- Thunderbird Ore Reserve: "THUNDERBIRD ORE RESERVE UPDATE" 31 July 2019
- Thunderbird BFS Update: "BFS UPDATE MATERIALLY REDUCES CAPITAL", 31 July 2019
- Night Train Inferred Mineral Resource and Mineral Assemblage results "HIGH GRADE MAIDEN MINERAL RESOURCE AT NIGHT TRAIN" 31 January 2019
- Buckfast, Bohemia and Concorde results "NEW LARGE HIGH GRADE DISCOVERY SOUTH OF THUNDERBIRD" 13 November 2018
- Mineral Resource and Ore Statement, Drummond Crossing, Durack, Ellengail, West Mine North, Yandanooka, McCalls and Mindarra Springs Mineral Resources "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 Ore Reserve: "THUNDERBIRD ORE RESERVE UPDATE" 16 March, 2017
- Thunderbird Bankable Feasibility Study: "THUNDERBIRD BFS DELIVERS OUTSTANDING RESULTS" 24 March, 2017
- 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 Person's 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.

ABOUT SHEFFIELD RESOURCES

Sheffield Resources Limited is focused on developing its 100% owned, world class Thunderbird Mineral Sands Project, located in north-west Western Australia. Sheffield continues to also assess other regional exploration opportunities.

THUNDERBIRD MINERAL SANDS

Thunderbird is one of the largest and highest grade mineral sands discoveries in the last 30 years.

Sheffield's Bankable Feasibility Study shows Thunderbird is a technically low risk, modest capex project that generates strong cash margins from globally significant levels of production over an exceptionally long mine life of 37 years.

Thunderbird will generate a high-quality suite of mineral sands products with specifications suited to market requirements. These products include Premium Zircon suitable for the ceramic sector and primary ilmenite.

Thunderbird is located in one of the world's most attractive mining investment jurisdictions and is well placed to deliver long term, secure supply of high quality products to a range of potential customers.

The Company is targeting initial production in 2021. The initial planned production profile is aligned with consensus emerging supply deficit in global zircon markets.

ASX Code:	SFX	Market Capitalisation:	A\$113
Issued shares:	289.4m	Cash (audited, 30 June 2019):	A\$2.7m