THUNDERBIRD ORE RESERVE UPDATE

HIGHLIGHTS

- Ore Reserve updated to 680.5 million tonnes @ 11.3% heavy mineral (HM)
- 100% increase in Proved Category to 235.8 million tonnes @ 13.3% HM
- Exceptionally high in-situ zircon grades of 1.00% in Proved Category
- Confirms Thunderbird as one of the largest undeveloped zircon-rich mineral sands deposits in the world

Sheffield Resources Limited ("Sheffield" "the Company") (ASX:SFX) is pleased to announce an updated Ore Reserve for its world-class Thunderbird Mineral Sands Project, near Derby in northern Western Australia. The Ore Reserve forms the basis for the Bankable Feasibility Study (BFS) due for release by the end of this month.

The Ore Reserve estimate was prepared by Entech Pty Ltd, an experienced and prominent mining engineering consultancy with appropriate mineral sands experience and is based on the current, July 2016 Thunderbird Mineral Resource estimate, announced to the ASX on 5 July 2016 (Appendix B). Measured and Indicated Mineral Resources were converted to Proved and Probable Ore Reserves respectively, subject to mine designs, modifying factors and economic evaluation. The Ore Reserve estimate for the Thunderbird Project, as at March 2017, is outlined in Table 1 below:

Table 1: Thunderbird Ore Reserve March 2017.

Ore Reserve			Valuable HM Grade (In-Situ)					
Reserve Category	Material (Mt)	HM (%)	Zircon (%)	HiTi Leuc (%)	Leucoxene (%)	Ilmenite (%)	Oversize (%)	Slimes (%)
Proved	235.8	13.3	1.00	0.29	0.26	3.55	13.7	16.5
Probable	444.8	10.2	0.80	0.26	0.26	2.85	11.0	15.2
Total	**680.5**	**11.3**	**0.87**	**0.27**	**0.26**	**3.10**	**12.0**	**15.7**

The in-situ 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. 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. See Appendix A for additional details.

Sheffield's Managing Director Bruce McFadzean said the large, high grade Ore Reserve demonstrates the global significance of the Thunderbird Project.

"In terms of confidence, grade and tonnage, this Ore Reserve ranks amongst the top tier of mineral sands ore reserves in the world, including those associated with operating mines."

"The fact the Project is located in one of the world's best mining jurisdictions, with proximity to quality infrastructure, further enhances Thunderbird as a world class asset."

"In the early stages of any mine development you need certainty and confidence. With 97% of the first 10 years of production, and more than one-third of the new Ore Reserve in the highest Proved category, this Ore Reserve delivers that confidence."

"Final touches are being made to the BFS which will be released on schedule by the end of this month," Mr McFadzean concluded.

"This updated Ore Reserve supersedes the previous, maiden Ore Reserve for Thunderbird of 682.7 Mt at 11.3% HM (Proved and Probable) with in-situ Valuable HM grades of 0.88% zircon, 0.27% HiTi leucoxene, 0.29% leucoxene and 3.14% ilmenite (see ASX announcement dated 22 January, 2016)."

"Significantly the amount of material in the highest confidence Proved category, in this updated Ore Reserve has doubled from 115.1 Mt to 235.8 Mt, with only minor changes to HM and in-situ Valuable HM grades."

The study supporting the Ore Reserves has been completed to Bankable Feasibility Study (BFS) level, with modifying factors accurate to the study level applied. The resulting mine plan is technically achievable, economically viable and robust to variations in long term product pricing.

Detailed mine design and schedules, supported by pit optimisation and strategic scheduling studies were generated for the Ore Reserve estimate. A 98% mining recovery factor was applied to ore material, no additional dilution factor has been applied given the bulk nature of the proposed mining operations and the removal of overburden and mineralised waste well in advance of ore mining. Minimum mining width considerations are not applicable given the dimensions of the mining blocks guiding pit design.

Enterprise optimisation studies by Whittle Consulting (which models the entire process chain and applies cost, recovery, and revenue multipliers at appropriate stages) were used by Entech to guide ore and waste discrimination in the mine design process. The studies have identified an initial high value area, representing approximately 10 years of production with detailed design and scheduling completed in this area. The 10 year pit contains 144.5 Mt of Proved Ore Reserve and 4.4Mt of Probable Ore Reserve confirming the high confidence in the mining schedule. Beyond this area, a life of mine design has been completed and scheduled using coarser scheduling blocks.

Minimal pre-strip is required to access the orebody with topsoil and overburden being excavated, hauled and stockpiled using conventional earthmoving equipment. Bulk mining techniques have been chosen for ore mining, incorporating dozer traps and in-pit feed preparation units (Mining Units Plant or "MUP"). The selected mining method is considered appropriate to the large, relatively thick, and sheet-like characteristics of the orebody. Following mining and classification the ore will be slurried and pumped to a nearby wet concentration plant. Each MUP will target feed rates to the rougher stage of the Wet Concentrator of 788 dry tonnes per hour, with provision for a suitable ramp up. Initially one MUP is scheduled, with an additional MUP scheduled after year 4. A 90% process utilisation factor is used in determining annual operating hours and process capacity.

Geotechnical analyses form the basis of pit design criteria including excavatability, trafficability and pit slope wall angles with a life-of-mine average strip ratio (waste: ore) being 0.78: 1.00.

Processing plant and associated infrastructure have been included in the capital and operating cost estimates to support the Ore Reserve estimate, including the MUP, Wet Concentration Plant, Mineral Separation Plant, Low Temperature Roast Plant, site buildings, bore field, power station and distribution infrastructure, new and upgraded roads, accommodation camp and upgraded materials handling facilities at Derby Port.

Mineral processing is based on well understood conventional unit processes, and has been developed using the best in class full scale or scale-able equipment and extensive test work. The process flowsheet is effective in achieving high recoveries from the Ore Reserve for a suite of products comprising LTR

ilmenite, HiTi88, premium zircon, zircon concentrate and titanomagnetite. Sheffield has previously announced information relating to the recovery, quality and marketability of these products (see ASX announcements dated 13 March 2017 and 12 October 2016).

Project capital costs were estimated from the process design and used PFDs, mechanical equipment lists and plant and an overall mine site layout which were sufficient to define process plant and equipment scope and sizing. This data was considered by suitably experienced EPC contractors to derive proposals for the capital costs for the processing plant and associated infrastructure and works. Non-processing plant infrastructure and owners costs were estimated by Sheffield using industry sources or in-house estimation and expertise to determine the non–process plant infrastructure direct costs.

Project operating costs were estimated using equipment lists, pump and motor calculations (to assess power demand), manning schedules (to assess operating labour), mobile equipment and duty schedules (to assess fuel demand) and supporting calculations for all other consumables. The major operating cost of power and LNG were obtained from various independent sources, including an expression of interest process issued and evaluated by Sheffield and third party consultants.

Mining operating costs were estimated by Entech based on a first principle owner mining model with information and assumptions generated in consultation with industry experts, equipment suppliers and mining contractors. Equipment ownership costs were built into the hourly machinery costs.

General and administration operating costs were built up on a first principles basis from manning schedules, labour work rosters, operation of on-site camp facilities, light vehicle and mobile equipment costs and other administration related fixed costs such as communications, IT, consultants, recruitment, and annual tenement costs.

Prices for products are based on a combination of industry sources, and market evaluations of quality by external consultants TZMI and Ruidow Information Technology Pty Ltd. Sheffield has applied TZMI's long term pricing assumptions for Thunderbird premium zircon, zircon concentrate, LTR ilmenite and HiTi88 products. TZMI state that their long term price for zircon is not anticipated reaching this level before CY2020, consequently Sheffield has applied a ramp-up to that pricing level for premium zircon from CY2019 to CY2022 and for zircon concentrate from CY2019 to CY2020. Sheffield has applied Ruidow's long term pricing assumption for the Thunderbird titanomagnetite product.

Financial modelling has been prepared and tested by varying revenue, cost and macro-economic factors. These factors include commodity price, operating and capital costs, production volume and ratios, along with economic discount factors. Material positive outcomes for NPV, IRR and cash flow were generated in all cases from the financial modelling. An A$/US$ exchange rate of US$0.75 was assumed for the life of mine, based on Consensus forecasts.

This Ore Reserve is based on information compiled by Mr. Per Scrimshaw, an employee of Entech Pty Ltd. Other experts, being Optiro Pty Ltd, IHC Robbins, MBS Environmental, Azure Capital and Sheffield have been relied on for information regarding Mineral Resources, engineering, geotechnical, metallurgy and process design, environmental, operating and capital costs and financial modelling.

Further details regarding the Ore Reserve estimate are included as Appendix A.

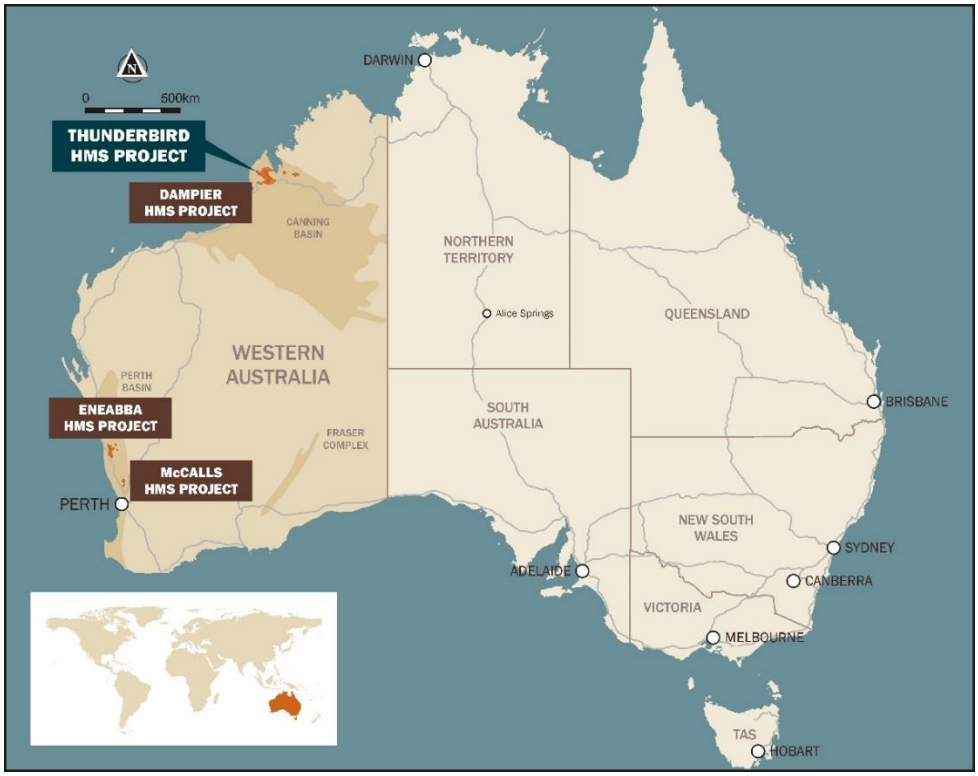

Figure 1: Location of Thunderbird Project

ENDS

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COMPLIANCE STATEMENTS

The information in this report that relates to Ore Reserves 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.

PREVIOUSLY REPORTED INFORMATION

This report includes information that relates to Mineral Resources, Ore Reserves, Pre-feasibility Study and Technical Study results which were prepared and first disclosed under the JORC Code (2012). The information was extracted from the Company's previous ASX announcements as follows

- Premium ilmenite specifications: *"THUNDERBIRD ILMENITE EXCEEDS PREMIUM SPECIFICATION"* 13 March, 2017.
- Thunderbird BFS Update: *"OUTSTANDING IMPROVEMENTS IN RECOVERIES AND PRODUCT SPECIFICATIONS FROM THUNDERBIRD BFS"* 12 October, 2016
- Current Thunderbird Mineral Resource: *"SHEFFIELD DOUBLES MEASURED MINERAL RESOURCE AT THUNDERBIRD"* 5 July, 2016
- (Superceded) Thunderbird Ore Reserve: *"MAIDEN ORE RESERVE – THUNDERBIRD PROJECT"*, 22 January, 2016
- Thunderbird Pre-feasibility Study Update: *"PRE-FEASIBILITY STUDY UPDATE CONFIRMS THUNDERBIRD AS THE WORLD'S BEST UNDEVELOPED MINERAL SANDS PROJECT,"* 14 October 2015

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, Ore Reserves, Pre-feasibility Study and Technical Study results, 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 original market announcement.

FORWARD LOOKING AND CAUTIONARY STATEMENTS

Some statements in this report regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward-looking statements include, but are not limited to, statements concerning the Company's exploration programme, outlook, target sizes and mineralised material estimates. They include statements preceded by words such as "anticipated", "expected", "targeting", "likely", "scheduled", "intends", "potential", "prospective" and similar expressions.

Appendix A - JORC 2012 Checklist of Assessment and Reporting Criteria

Thunderbird Ore Reserve March 2017

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
		• This ore reserve is based entirely on previously released Mineral Resources (previously released details are available at www.sheffieldresources.com.au). No new Mineral Resources or exploration results are being released.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
		• This ore reserve is based entirely on previously released Mineral Resources (previously released details are available at www. sheffieldresources.com.au). No new exploration results are being released.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
		• This ore reserve is based entirely on previously released Mineral Resources (previously released details are available at www. sheffieldresources.com.au). No new Mineral Resources are being released.

Section 4 Estimation and Reporting of Ore Reserves

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• This ore reserve is based entirely on the Measured and Indicated portion of the current reported Mineral Resources at Thunderbird (previously released details are available at www.sheffieldresources.com.au). • Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The competent person has not visited the site. • The competent person is comfortable relying on reports from other independent consultants who have visited site and other operations in the area respectively.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• The study supporting the Ore Reserves has been completed to a bankable feasibility level. • Modifying factors accurate to the study level have been applied. The resulting mine plan is technically achievable and economically viable.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• A cost/value model was formulated by Whittle Consulting for Enterprise optimisation studies on the Thunderbird project. • This value modelling procedure follows the entire process chain and applies cost, recovery, and revenue multipliers at appropriate stages throughout the process to derive block values. • This model was used, together with the Whittle Consulting recommended mine sequence and discard strategy as a basis for guiding ore and waste discrimination in the design process. In general, lower grade T1 material is discarded to waste early in the project and increasing amounts are incorporated as process feed as mining progresses into regions of higher strip ratio.

Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	• Open pit optimisation studies were conducted using CAE NPV Scheduler software to generate Lerch-Grossman shells. An initial high margin area was selected that provided an approximate 10 year production inventory. Detailed design and scheduling was undertaken in this area including individual mining block definition and sequencing. Beyond this area, a life of mine design has been completed. Scheduling beyond the initial pit area is undertaken on coarser 600 m dimension zones, consistent with the strategic schedule zones as defined by Whittle Consulting. • Bulk mining techniques have been chosen for ore mining, incorporating dozer traps and in-pit feed preparation units. Topsoil and overburden will be excavated, hauled and stockpiled using conventional earthmoving equipment. Following excavation and classification ore will be slurried and pumped to a nearby wet concentration plant. Oversize reject from feed preparation units will be rehandled using front end loader within the mine void. • The selected mining method is considered appropriate to the large, relatively thick, and sheet-like characteristics of the host sand unit. Minimal pre-strip is required to access the orebody. The Life-of-Mine average strip ratio (waste: ore) is 0.78: 1.00. • Independent consultants prepared the geotechnical analysis that forms the basis of pit design criteria including excavatability, trafficability and pit slope wall angles. • A series large diameter Bauer holes and test pits were excavated to further assess geotechnical aspects. • 40 degree overall slope angles have been used in pit design. • A mining recovery factor of 98% was applied. No mining dilution factor is applied due to the bulk, non-selective nature of the deposit and proposed mining method. Overburden mining takes place prior to

		exposing the underlying ore and is therefore a spatially discrete mining activity. Minimum mining width considerations are not applicable given the dimensions of the mining blocks guiding pit design. A 0.2 m topsoil depth has been allowed for and recovered material excludes material designated as topsoil. • Only minor amounts of Inferred Mineral Resource occur within the mine design (0.2Mt) at the periphery of the final life-of-mine pit design. Inferred material is excluded from Ore Reserve reporting and the reporting of this material in the mine plan has no material impact on the economics supporting the Ore Reserve. • The following infrastructure will be required to support the mining method and is included in the capital and operating cost estimate: Mining Units Plant "MUP", Wet Concentration Plant "WCP", Concentrate Upgrade Plant "CUP", Mineral Separation Plant "MSP", Low Temperature Roast Plant "LTR", site buildings, bore field, Power Station and power distribution infrastructure, new and upgraded roads, accommodation camp, upgraded materials handling at Derby Port.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• The metallurgical process was developed to a bankable feasibility study level including the development of a flowsheet and capital and operating costs. The flowsheet consists of the following: * Feed Preparation Process "FPP" * Wet Concentration Process "WCP" * Concentrate Upgrade Process "CUP" * Mineral Separation Process "MSP" The developed process flow sheet is deemed appropriate for the style of mineralisation. • The process stages are based on well understood conventional unit processes and has been developed using best in class full scale or scale-able equipment.

	There are no un-tested novel processes or equipment used within the flowsheet. Extensive test work has confirmed the process flowsheet is effective in achieving high recoveries from the ore. • Extensive metallurgical processing test work has been completed on four bulk samples (comprising samples of 6.0 t, 5.0 t 12.5 t and 40 t). • Process mineral recoveries have been increased in three phases to reflect a commissioning ramp up to target operating recoveries. Discounted recoveries have been applied in production years 1 and 2. Overall recovery factors derived from the metallurgical test work are: * Zircon 89.1% * LTR Ilmenite 71% * Titanomagnetite 85% (Iron oxide recoveries not tracked separately through the processing circuit; Based on a recovery of 85% to calculated trash reporting to the Ilmenite Circuit, and a titanomagnetite purity of 90%) * HiTi88 35.3% • Products produced from metallurgical test work, all meet typical market requirements and no assumptions regarding product quality or deleterious elements have been made. • Characterisation of head samples, intermediate samples and final products to determine mineralogy has been based on the same process as applied for the drill sample analyses. This method includes oversize determination, slimes determination, heavy mineral determination, magnetic fractionation of heavy mineral and XRF/QEMSCAN analyses on resultant fractions. • Mineral characterization data derived from bulk sample data is aligned with mineral characterization data derived from drill sample data. As such bulk samples

		tested are aligned with domain data associated with bulk sample origin and are representative of the orebody. • Final product analyses are based on XRF analyses and detailed QEMSCAN analyses which is the same as for the ore reserve
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• Primary environmental approvals are well underway and are expected in third quarter 2017. • Mining and transportation methods are not new and commonly used throughout Australia. • Sheffield has undertaken significant investigation and consultation to confirm environmental issues and stakeholder concerns. • This knowledge has confirmed that the environment factors are not complicated and has also allowed the project design to minimise impacts and meet EPA objectives. • Secondary approvals are well understood and a strategy has been defined and implemented to ensure these are obtained in time for construction and operation. • Sheffield has systems in place to make sure community concerns and environmental issues are managed • Mine waste characterisation demonstrates that overburden material arising from the Project is extremely benign and represents no risk to the surrounding environment. In addition, mine waste arising from depths up to 48.5 m below the water table do not present an acid-forming risk. Some potentially acid forming material is present >48.5 m below the water table; however, these materials will not be encountered until approximately 35 years from commencement of mining and are not considered to be extensive and not expected to require complex management measures to be implemented. Analysis of process residue demonstrates it is non-acid forming and is completely benign.

Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• The site is located 98 km northeast of Broome and 72 km west of Derby in Western Australia. There is currently no substantial on-site infrastructure, and the study estimates the costs for the development of all necessary infrastructure items.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Central to the development of the Processing Plant Capital Cost estimate was the completion of process design, PFDs, equipment lists, plant layouts and an overall mine site layout which was sufficient to define plant and equipment scope and sizing. This data was then considered by suitably experienced EPC contractors to derive proposals for capital costs for the process plant and associated infrastructure and works. Non processing plant infrastructure and owners costs were estimated by Sheffield using industry sources or in- house estimation and expertise to determine the non–process plant infrastructure direct costs. • Direct processing plant and non-processing plant capital estimates are based on a mixture of estimating methods such as the fielding of selected Request for Quotations (RFQs), Request for Proposals (RFP) capable of being negotiated into construction contracts, recent historical pricing (i.e.; <15 months old), factored cost estimates and the input of applied rates for off-shore fabrication of steelwork and plate work (applied to MTO lists). Major plant equipment costs are based on the fielding of selected RFQs and recent historical pricing (i.e.; <12 months old). • Installation costs are based on factored cost estimates, then compared with similar known costs as a check measure. Indirect costs have been built up based on factored cost estimates, then compared with similar known costs as a check measure. • Capital costs for the Stage 2 upgrade were estimated by Sheffield on the basis to replicate the current plant area, and utilise common or expended elements within the Stage 1 plant area where appropriate to do so.

- Mining operating costs were estimated by Entech based on the following information and assumptions:
  - Local base salary labour rates that are representative of typical labour costs within the region.
  - Labour on-costs include allowances for superannuation, payroll tax, workers compensation insurance premiums and recruitment and relocation costs and are representative of similar operations in the same region of Western Australia;
  - Net diesel fuel cost of $0.70 per litre after allowing for rebate;
  - Equipment productivities calculated by Entech in consultation with industry experts and mining contractors;
  - Mining costs estimated by Entech in consultation with industry experts, equipment suppliers and mining contractors; and
  - Equipment ownership and operating costs as provided by equipment suppliers in consultation with Entech.
- Central to the development of the Processing Plant Operating Costs was the completion of pump and motor calculations (to assess power demand), Mechanical Equipment lists (to assess power demand), manning schedules (to assess operating labour), mobile equipment and duty schedules (to assess fuel demand) and supporting calculations for all other consumables (such as reagents, flocculants etc.).
- Power and LNG prices were obtained from various independent sources, including an expression of interest process issued and evaluated by Sheffield and third party consultants.
- General and administration operating costs were built up on a first principles basis from manning schedules,

		labour work rosters (DIDO), quotations for the supply and operation of on-site camp facilities, light vehicle and mobile equipment requirements and associated leasing and running costs and other administration-related fixed costs such as communications, IT, consultants, recruitment, annual tenement costs and the like. • All cost estimates have been prepared on Australian Dollar basis • All infrastructure components and consumables are assumed delivered to site at estimated road haulage rates. • There are no additional treatment or refining charges applied, and minerals are sold as finished products. • HiTi88 and Premium Zircon are sold as bagged products. All other products are bulk. Suitable provision has been made for bagging, transportation and port charges. • An appropriate allowance has been made for Western Australian State and Native Title royalties. All royalties are applied as a % of gross revenue. • The mine planning underpinning the Ore Reserves was conducted using preliminary cost assumptions that was considered suitable for block model coding, strategic planning and mine design.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• The revenue is a function of block modelled grade and mineral assemblage, modelled comprehensively through the mining, mineral processing, and transportation chain where it is expected to be delivered to an offtaker at a forecast price. • The mine planning underpinning the Ore Reserves was conducted using preliminary product pricing that was suitable for block model coding, strategic planning and mine design. In the final financial analysis, revenue from Ore deliveries were then recalculated using an updated pricing model. The Ore Reserves are feasible and economic under both pricing schedules

- An A$/US$ exchange rate of US$0.75 is assumed for the life of mine, based on Consensus forecasts.
- Sheffield has applied TZMI's long term pricing assumptions for Thunderbird premium zircon, zircon concentrate, LTR ilmenite and HiTi88 products. TZMI state that their long term price for zircon is not anticipated reaching this level before 2020, consequently Sheffield has applied a ramp-up to that pricing level for 2019 and 2020.
- Sheffield has applied Ruidow's long term pricing assumption for the Thunderbird titano-magnetite product.
- Prices for the zircon concentrate and titano-magnetite have been converted from CIF to FOB. Conversion from CIF to FOB for zircon concentrate has assumed current ocean going rates of US$23 per tonne for 10,000t shipments of zircon concentrate to China. Rates of US$17 per tonne have been assumed for 20,000t shipments of titano-magnetite to the main ports in China.
- Prices for products on a FOB basis are as follows:
  - LTR Ilmenite $US 183 per tonne
  - HiTi88 $US 500 per tonne
  - Premium Zircon $US 1,125 per tonne (CY2019)
  - Premium Zircon $US 1,225 per tonne (CY2020)
  - Premium Zircon $US 1,319 per tonne (CY2021)
  - Premium Zircon $US 1,387 per tonne (FY2022 and beyond)
  - Zircon Concentrate $US 613 per tonne (CY2019)
  - Zircon Concentrate $US 651 per tonne (CY2020).
  - Zircon Concentrate $US 677 per tonne (CY2021 and beyond).
  - Titano-magnetite $US 48 per tonne.

Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• In relation to Sulphate Ilmenite supply and demand, TZMI report that global pigment production is expected to increase by 13% between 2015 and 2020, or a growth of 2.5% compound annual growth rate (CAGR) from the 2015 base. • In relation to Zircon supply and demand, TZMI predict that global demand is forecast to return to moderate growth of 2.5% CAGR to 2020, following a period of declining offtake in 2015 and 2016. • Market analysis commissioned for SFX suggests zircon is largely of premium quality suitable for the ceramic market. Upgraded Ilmenite should command a premium in the sulfate ilmenite market and is an ideal chloride slag feedstock. HiTi is expected to be sold into the welding rod market. Titanomagnetite product can be used in the steel industry to protect against erosion of the blast furnace hearth. • Key regional markets for supply of premium grade zircon include China, India, and Europe as primary target markets, with South America, Southeast Asia and the Middle East also having potential for consuming lower volumes of material and becoming secondary target markets. Sheffield plans on supplying approximately 50,000 t (metric tonnes) per annum of premium zircon in years 1-4, with substantially increased volumes of between approximately 65,000 and 115,000 t per annum (average 80,000 t) from year 5. • Key major primary markets for supply of LTR ilmenite include China, Southeast Asia and Europe with the Middle East and Americas as secondary target markets. Sheffield plans to supply approximately 240,000 t per annum of ilmenite in years 1-4 with a significant increase of volume of between approximately 330,000 to 520,000 t per annum (average 400,000 t) from year 5.

	• Sheffield plans to supply approximately 12,000 t per annum of HiTi88 material for years 1-4, with an increase in volume to between approximately 18,000 t and 26,000 t per annum (average 21,000 t) from year 5. • The major target market for titanomagnetite will be Chinese steel manufacturers, primarily on the east coast of China due to their favourable location for shipping. Sheffield plans to supply approximately 150,000 t per annum of titanomagnetite in years 1-4, with a significant increase of volume to between approximately 200,000 t and 310,000 t per annum (average 235,000) from year 5. • The key target market for Sheffield's zircon concentrate is the Chinese concentrate processing market. Sheffield intends on supplying approximately 50,000 t per annum of zircon concentrate in years 1-4, with an increase of volume to between approximately 55,000 t and 100,000 t per annum (average 70,000 t) from year 5. • TZMI have reviewed the proposed product specifications of the Thunderbird ilmenite, zircon and HiTi and have verified that they will meet various market uses and typical specifications required for those markets. • Over 30 product samples were dispatched late 2016, to leading global ilmenite and zircon consumers. Completion of analysis and preliminary test work performed by potential off-take partners resulting in both the ilmenite and zircon products being approved for use in the market place by consumers. Positive feedback from consumers and subsequent site visits to potential Chinese off-take partners confirmed the marketability of Thunderbird products, and consequently offtake discussions have progressed. These discussions will continue during the first half of 2017 with several customer visits organised through Europe, Asia and India. Sheffield continues to work towards completing offtake agreements in the first half of 2017.

Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• For the purpose of estimating an Ore Reserve, a NPV was estimated at a discount rate of 10%. The confidence in the inputs is consistent with a Bankable Feasibility level of study. The project demonstrated a positive NPV. • Financial outcomes of the Bankable Feasibility Study were tested by varying revenue, cost and macro-economic factors. These factors include commodity price, costs (both operating and capital), production volume and ratios, along with economic discount factors. Positive outcomes for NPV, IRR and cash flow were generated in all cases to support the Ore Reserve estimate
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• Engagement with key stakeholders, including Traditional Owners, pastoralists and government agencies, has been ongoing and will continue in parallel with further technical studies and approvals processes. • Permitting processes for the Project are supported by Lead Agency project status afforded to Thunderbird by the Government of Western Australia's Department of Mines and Petroleum. • A comprehensive Heritage Survey with Traditional Owners was completed in 2016 over the proposed area of mining operations and associated infrastructure. • The Company has agreed with Traditional Owners to observe a number of Aboriginal heritage exclusion zones around the edges of the deposit, one of which overlaps the Ore Reserve. This is not considered to have a material effect on the Ore Reserve as it does not occur until late in the life of mine schedule, and the mine plan is technically and economically viable without the inclusion of this area.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.*	• All naturally occurring risks are assumed to have adequate prospects for control and mitigation. • There are no material agreements and/or marketing arrangements currently in place.

	• *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• The Thunderbird deposit is within Exploration Licence E04/2083, held 100% by Sheffield Resources Ltd, and due to expire on 04/09/2021. • Sheffield has applied for Mining Lease 04/459 for mining and processing operations, and Miscellaneous Licences 04/82, 04/83, 04/84, 04/85 and 04/86 for ancillary infrastructure. Miscellaneous Licences 04/84, 04/85 and 04/86 are granted tenure, Mining Lease 04/459 and Miscellaneous Licences 04/82 and 04/83 are pending applications and are expected to be granted at the conclusion of Native Title negotiations and consultation. • Sheffield expects that grant of these tenements, and all other necessary approvals will be received within the timeframes anticipated.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• The Proved and Probable Ore Reserve is based on that portion of the Measured and Indicated Mineral Resources within the mine designs that may be economically extracted. • The result appropriately reflects the Competent Persons view of the deposit. • None of the Probable Ore Reserves have been derived from Measured Mineral Resource.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• No external audit of the Ore Reserve estimate has been undertaken.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be*	• This Ore Reserve is attributed a confidence classification of "Proved" and "Probable" Ore Reserve. There is a degree of uncertainty associated with the Mineral Resource estimate and the modifying factors. • Overall accuracy of the operating and Stage 1 capital cost estimate is considered to be -10% to +15%. Accuracy of the Stage 2 capital cost estimate is considered to be +/- 20%

	relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Stress testing of operating cashflow shows this remains positive well beyond the stated accuracy of the cost estimates. • No production data is available against which the Ore Reserve estimates may be reconciled.

Appendix B: Thunderbird Deposit Mineral Resource 5 July 2016

Thunderbird Deposit Mineral Resource Summary

Resource Category	Cut-off HM%	Mineral Resources		Valuable HM Grade (In-situ)				
		Material Million Tonnes	HM %	Zircon %	HiTi Leucoxene %	Leucoxene %	Ilmenite %	Total VHM %
Measured	3.0	510	8.9	0.71	0.20	0.19	2.4	3.5
Indicated	3.0	2,120	6.6	0.55	0.18	0.20	1.8	2.8
Inferred	3.0	600	6.3	0.53	0.17	0.20	1.7	2.6
Total	**3.0**	**3,230**	**6.9**	**0.57**	**0.18**	**0.20**	**1.9**	**2.9**
Measured	7.5	220	14.5	1.07	0.31	0.27	3.9	5.5
Indicated	7.5	640	11.8	0.90	0.28	0.25	3.3	4.7
Inferred	7.5	180	10.8	0.87	0.27	0.26	3.0	4.4
Total	**7.5**	**1,050**	**12.2**	**0.93**	**0.28**	**0.26**	**3.3**	**4.8**

Thunderbird Deposit Mineral Resource

Resource Category	Cut off (HM%)	Mineral Resources						Mineral Assemblage			
		Material (Mt)	Bulk Density	HM %	Slimes %	Osize %	In-situ THM (Mt)	Zircon %	HiTi Leuc %	Leuc %	Ilmenite %
Measured	**3.0**	510	2.1	8.9	18	12	45	8.0	2.3	2.2	27
Indicated	**3.0**	2,120	2.0	6.6	16	9	140	8.4	2.7	3.1	28
Inferred	**3.0**	600	2.0	6.3	15	8	38	8.4	2.6	3.2	28
Total	**3.0**	3,230	2.0	6.9	16	9	223	8.3	2.6	2.9	28
Measured	**7.5**	220	2.1	14.5	16	15	32	7.4	2.1	1.9	27
Indicated	**7.5**	640	2.1	11.8	14	11	76	7.6	2.4	2.1	28
Inferred	**7.5**	180	2.0	10.8	13	9	20	8.0	2.5	2.4	28
Total	**7.5**	1,050	2.1	12.2	15	11	127	7.6	2.3	2.1	27

Thunderbird Deposit contained Valuable HM (VHM) Resource Inventory

Resource Category	Cut off (HM%)	Zircon (kt)	HiTi Leucoxene (kt)	Leucoxene (kt)	Ilmenite (kt)	Total VHM (kt)
Measured	**3.0**	3,600	1,000	1,000	12,000	17,700
Indicated	**3.0**	11,800	3,800	4,300	39,100	59,000
Inferred	**3.0**	3,200	1,000	1,200	10,500	15,900
Total	**3.0**	18,600	5,900	6,500	61,700	92,600
Measured	**7.5**	2,300	700	600	8,400	12,000
Indicated	**7.5**	5,800	1,800	1,600	21,000	30,200
Inferred	**7.5**	1,600	500	500	5,600	8,200
Total	**7.5**	9,700	3,000	2,700	35,000	50,400

Notes: Mineral Resources are reported inclusive of (not additional to) Ore Reserves. Mineral Resources reported above 3% HM cut-off are inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off.
All tonnages and grades have been rounded to reflect the relative accuracy and confidence level of the estimate, thus sum of columns may not equal.
The in-situ grade is determined by multiplying the percentage of total HM by the percentage of each valuable heavy mineral within the heavy mineral assemblage at the resource block model scale.
Estimates of Mineral Assemblage are presented as percentages of the total heavy mineral (THM) component of the deposit, as determined by magnetic separation, QEMSCAN and XRF. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: Ilmenite: 40-70% TiO_2 >90% Liberation; Leucoxene: 70-94% TiO_2 >90% Liberation; High Titanium Leucoxene (HiTi Leucoxene): >94% TiO_2 >90% Liberation; and Zircon: 66.7% ZrO_2+HfO_2 >90% Liberation. The non-magnetic fraction was submitted for XRF analysis and minerals determined as follows: Zircon: ZrO_2+HfO_2/0.667 and High Titanium Leucoxene (HiTi Leucoxene): TiO_2/0.94.

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 explore the Dampier Project for other mineral sands targets identified within the region.

Sheffield is also exploring the Eneabba and McCalls regions north of Perth, Western Australia for mineral sands deposits. As an exploration company, Sheffield continues to 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.

The deposit is rich in zircon, which sets it apart from many of the world's operating and undeveloped mineral sands projects which are dominated by lower value ilmenite.

Sheffield's Pre-Feasibility study shows Thunderbird is a modest capex project that generates strong cash margins from globally significant levels of production over a 40 year mine life.

The Company is targeting project construction commencing in 2017 with initial production in 2019. The initial planned production profile is aligned with expected emerging supply gaps in global mineral sands markets

ASX Code:	SFX	Market Capitalisation:	A$106m
Issued shares:	181.0m	Cash (unaudited, 28 Feb 2017):	A$11.7m