

THREE NEW MINERAL SAND DISCOVERIES NEAR THUNDERBIRD

HIGHLIGHTS

- Significant new mineralisation outlined at Cold Duck, Porphyry Pearl, Cisco and Nomad prospects
- 37.5m @ 3.56% HM, including 16.5m @ 5.49%HM – broad intersection from surface at Cold Duck
- Multiple discoveries confirm the Canning Basin as major new mineral sand province
- Follows recent announcement of exceptional zircon rich drill results at Night Train
- New mineralisation located near Thunderbird with all targets open along strike and down dip

Sheffield Resources Limited (“Sheffield”, “the Company”) (ASX: SFX) today announced more significant drilling results from regional exploration drilling at the Cold Duck, Porphyry Pearl, Cisco and Nomad prospects at the Dampier Mineral Sands Project near Derby in northern Western Australia. The Cold Duck, Porphyry Pearl and Cisco prospects are all new discoveries located within 15km of the Company’s world class Thunderbird deposit and in close proximity to project infrastructure. Nomad, which was first drilled in 2015, is located within 5km of the proposed haul road and just 700m north of the Great Northern Highway.

These results follow recently released outstanding results from the Night Train deposit (see ASX announcement dated 9 October 2018 for further details) and relate to 94 aircore drill holes completed in September 2018. The drilling forms part of an extensive regional exploration program targeting additional large, zircon rich deposits suitable for downstream processing at the Thunderbird Project Dry Mineral Separation Plant (see ASX release 1 August 2018). Results include the following substantial intervals¹:

- 37.5m @ 3.56% HM from 1.5m (DAAC131), including 16.5m @ 5.49% HM from 21.0m (Cold Duck)
- 19.5m @ 2.93% HM from 19.5m (DAAC141), including 6.0m @ 5.80% HM from 21.0m (Porphyry Pearl)
- 34.5m @ 2.64% HM from 58.5m (DAAC149), including 12.0m @ 3.74% HM from 81.0m (Cisco)
- 7.5m @ 5.78% HM from 19.5m (DAAC119), including 6.0m @ 6.94% HM from 19.5m (Nomad)

Eight zones of significant mineralisation, including Thunderbird and Night Train have now been identified along a 100km long highly mineralised trend situated north of the highway and extending from Seagull in the north to Nomad in the south (Figure 2). Remaining drill results from the regional exploration program at Concorde and Buckfast, located south of the highway will be reported in the coming weeks.

Sheffield Managing Director, Bruce McFadzean, said the new discoveries along with the zircon-rich Night Train deposit, all located in close proximity to the Company’s world class Thunderbird deposit clearly demonstrate the global significance and strategic value of Sheffield’s Dampier Mineral Sands Project.

“These discoveries add to an already exciting time for shareholders as we move forward with the development of Thunderbird, continue to progress our Night Train discovery and unlock the exploration upside of the Canning Basin mineral sands province.”



Figure 1: Cold Duck drilling – Dampier project

¹ intervals reported above a 1% HM cut-off, including above 3% HM cut-off, refer to Table 1 and Appendix 1 for full details

The drilling results relate to 42 drill holes for a total 2,331.5m completed at the Cold Duck, Porphyry Pearl, Cisco and Nomad prospects (Figure 2). These are the second set of results to be reported from the extensive Dampier Project regional exploration program totalling 94 holes for 4,829m. So far all of the prospects targeted in the program have returned significant intervals of HM mineralisation, including the identification of a variety of mineralisation styles, host formations and heavy mineral assemblages. The high exploration success rate and increasing diversity of deposit styles identified to date are supportive of an emerging new mineral sand province within the Canning Basin.

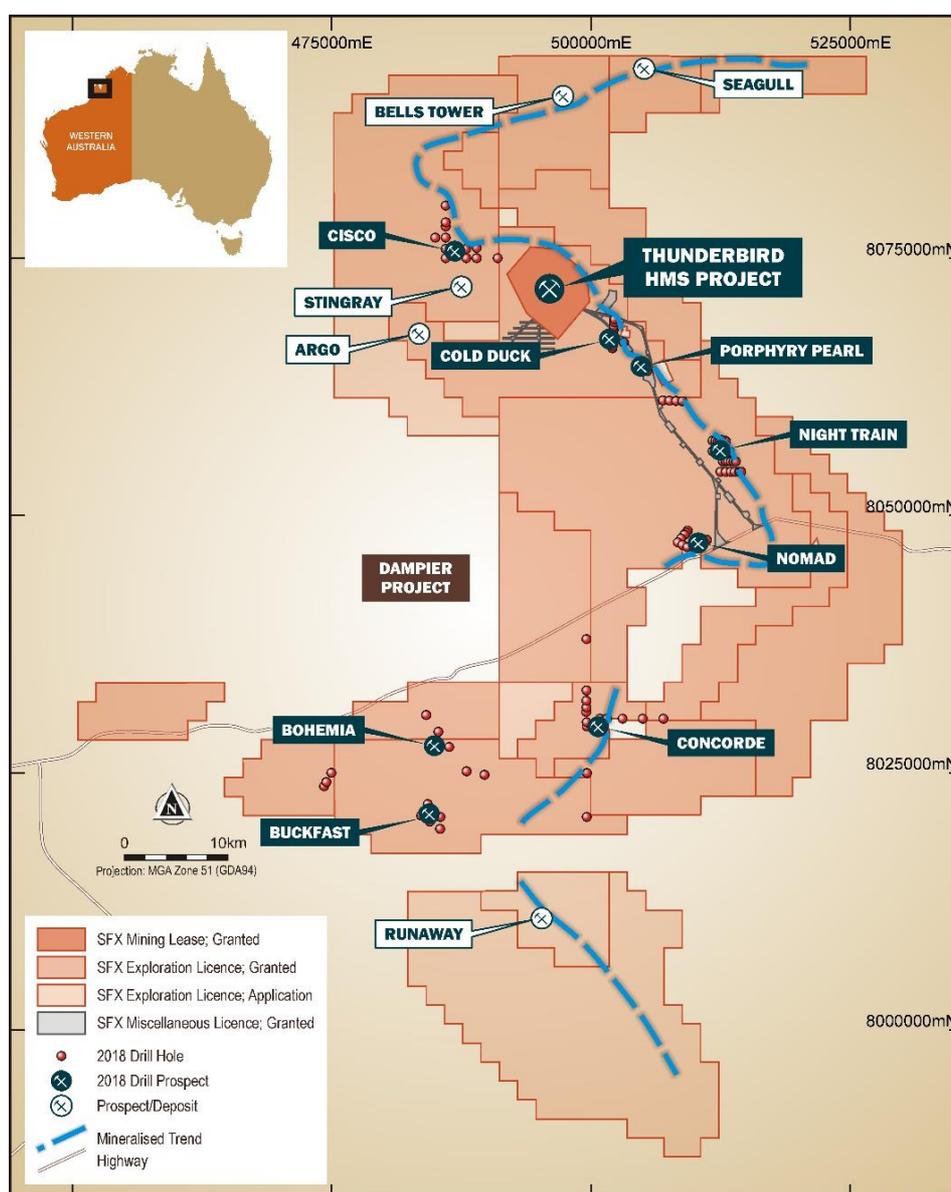


Figure 2: Prospect location plan – Dampier project

Cold Duck Prospect

Cold Duck is located 8km to the southeast of the Thunderbird deposit and adjacent to the proposed Thunderbird haul road (Figure 2 and 3). The prospect is defined by 10 drill holes, predominantly located on one north-south drill traverse, with the mineralisation defined over a 3km length (Figure 4).

At a 1% heavy mineral (HM) cut-off, the mineralisation is 3km wide and from 6m to 42m in thickness. At a 3% HM cut-off, mineralisation is 2 km wide and ranges from 4.5m to 16.5m in thickness. The mineralisation is open along strike to the northwest and southeast and down dip to the south (Figure 4). The mineralisation



at Cold Duck has minimal overburden as all intersections start from between 0m and 9.0m depth. The mineralisation thickens substantially to the south and shows a significant increase in HM grade towards the southern end of the drill traverse.

Visual examination of the HM from Cold Duck indicates some similarity with the Thunderbird mineralisation in terms of assemblage and host stratigraphy. The heavy mineral appears to have a high proportion of iron oxides in the assemblage along with ilmenite and zircon. The Company will undertake mineral assemblage testwork on the Cold Duck mineralisation during Q4 2018. Significant results from holes drilled at Cold Duck to date include:

- 37.5m @ 3.56% HM from 1.5m (DAAC131), including 16.5m @ 5.49% HM from 21.0m
 - 31.5m @ 2.94% HM from 3.0m (DAAC132), including 13.5m @ 4.10% HM from 10.5m
 - 30m @ 2.34% HM from 1.5m (DAAC133), including 6m @ 4.93% HM from 4.5m
 - 22.5m @ 2.15% HM from 0m (DAAC134), including 4.5m @ 3.99% HM from 0m
 - 42m @ 3.32% HM from 1.5m (DAAC139), including 12m @ 3.96% HM from 13.5m, also including 6m @ 8.45% HM from 36.0m
 - 15m @ 1.60% HM from 3.0m (DAAC135)
 - 13.5m @ 1.59% HM from 1.5m (DAAC142)
- (intervals reported above a 1% HM cut-off, including above 3% HM cut-off refer to Table 1 and Appendix 1 for full details)

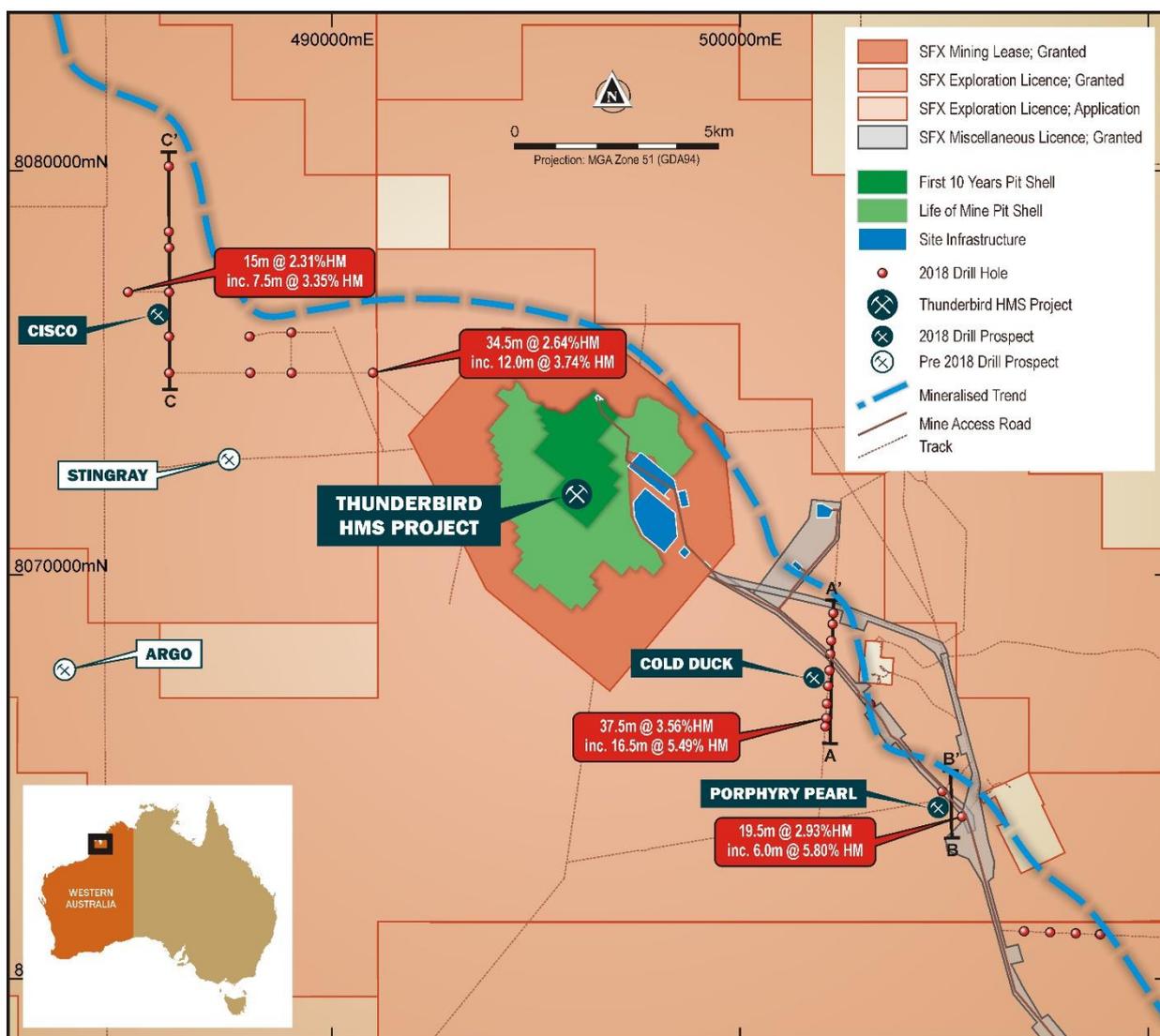


Figure 3: Prospect location plan - Cold Duck, Porphyry Pearl and Cisco prospects

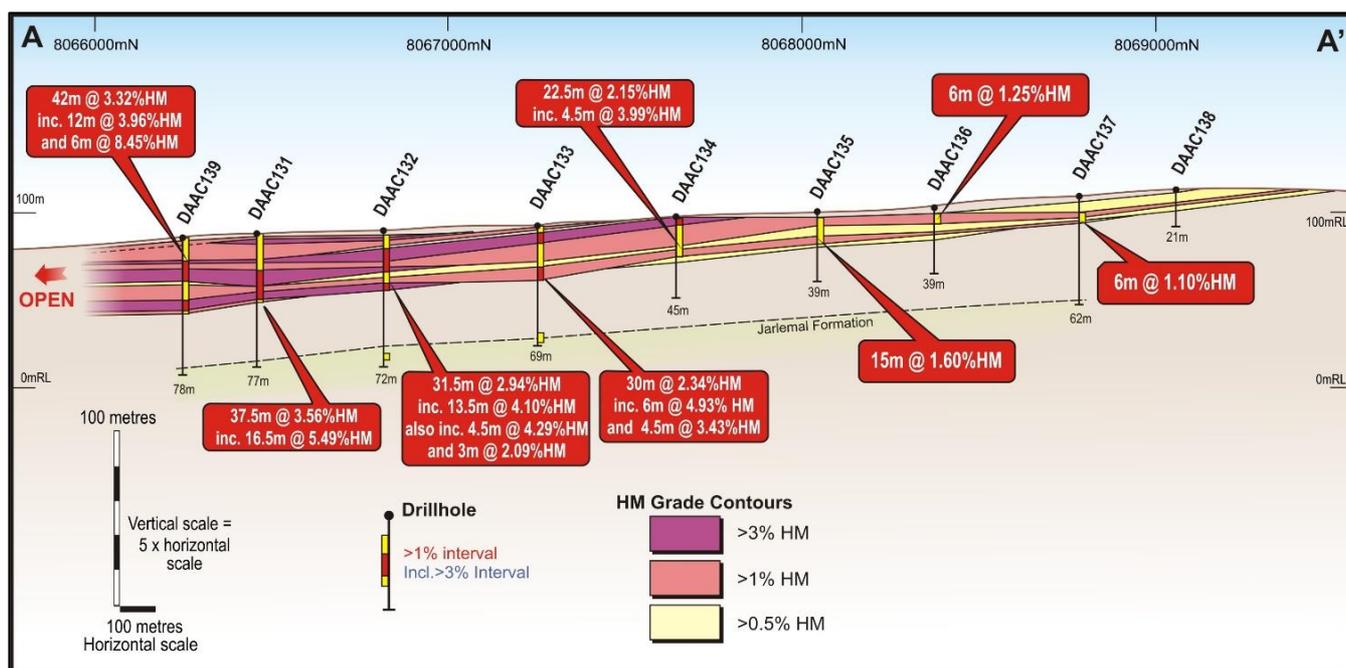


Figure 4: Cold Duck - Section A-A'



Figure 5: Panned HM from Cold Duck drill hole DAAC131

Porphyry Pearl Prospect

Porphyry Pearl is located 12km to the southeast of the Thunderbird deposit and adjacent to the proposed Thunderbird haul road (Figure 3). The prospect was identified by reconnaissance drilling and is currently defined by only two drill holes. Potential exists to extend the mineralisation to the northwest, southeast and down dip to the southwest.

Visual examination of the HM from Porphyry Pearl indicates that the heavy mineral assemblage is transitional between the typical heavy mineral assemblage of the Thunderbird deposit located 12km to the northwest and that of the Night Train deposit located 12km to the southeast. Previous testwork at Night Train has outlined high value mineral assemblage comprising 15% zircon, 53% leucoxene, 8% HiTi leucoxene and 16% ilmenite (total 92% Valuable Heavy Mineral (VHM)) (see ASX announcement dated 25

February). The Company will undertake heavy mineral assemblage testwork on the Porphyry Pearl mineralisation during Q4 2018.

The mineralisation is hosted by unconsolidated, fine, clean, predominantly white quartz sand (Figure 7). The mineralisation occurs below a stacked sequence of fine to coarse grained, highly weathered and partially indurated to indurated sandstones of the Melligo Formation (Figure 6)

Significant results from holes drilled at Porphyry Pearl to date include:

- **19.5m @ 2.93% HM** from 19.5m (DAAC141), including **6m @ 5.80% HM** from 21.0m
- **6m @ 3.06% HM** from 3m (DAAC140), including **3m @ 5.00% HM** from 6.0m

(intervals reported above a 1% HM cut-off, including above 3% HM cut-off refer to Table 1 and Appendix 1 for full details)

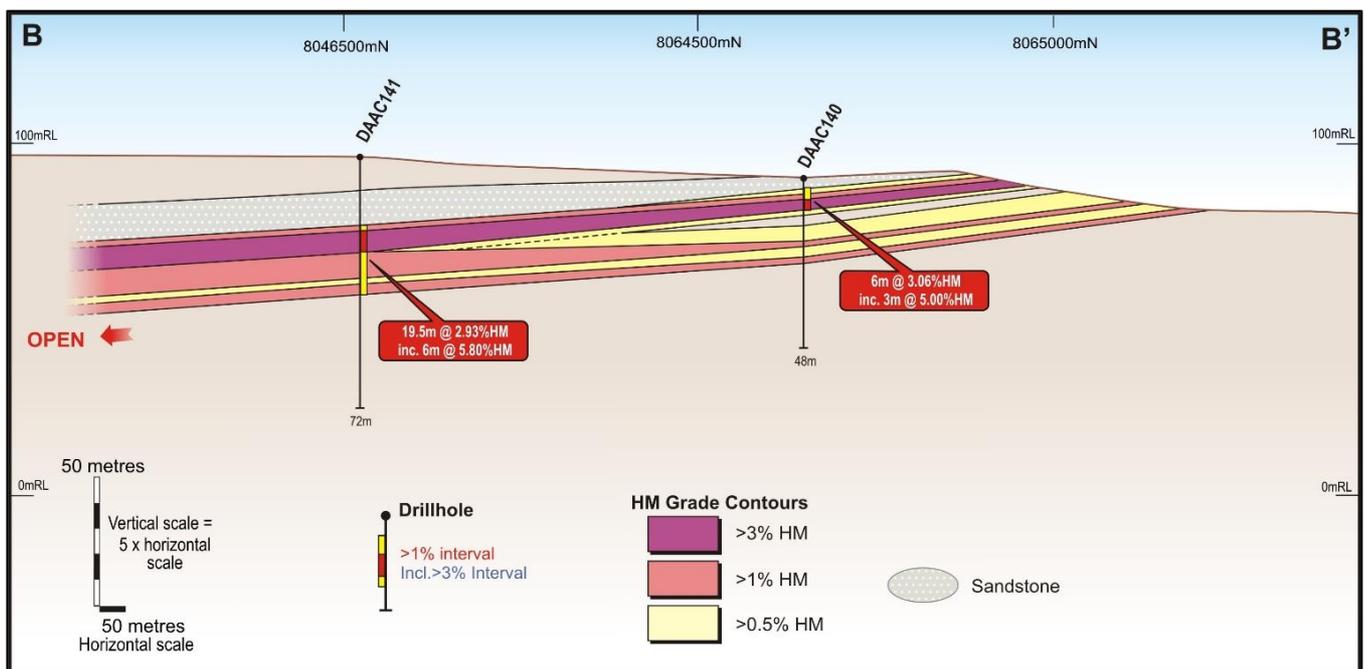


Figure 6: Porphyry Pearl - Section B-B'



Figure 7: Porphyry Pearl - Panned HM (left), Photomicrograph of HM concentrate drill hole DAAC140 (7.5 – 9.0m)

Cisco Prospect

Cisco is located 8km along strike to the northwest of Thunderbird (Figure 3). The prospect is defined by 12 reconnaissance drill holes, predominantly located on three drill traverses, with the mineralisation defined over a 10km length.

The mineralisation at Cisco occurs in two discrete regions. In the western zone the mineralisation has an approximate strike length of 4km, is 1km wide and from 3m to 21m in thickness (Figure 8). The mineralisation is open in most directions. In the eastern zone, drill hole DAAC149 intersected 34.5m at 2.64% HM from 58.5m depth and remains open in all directions.

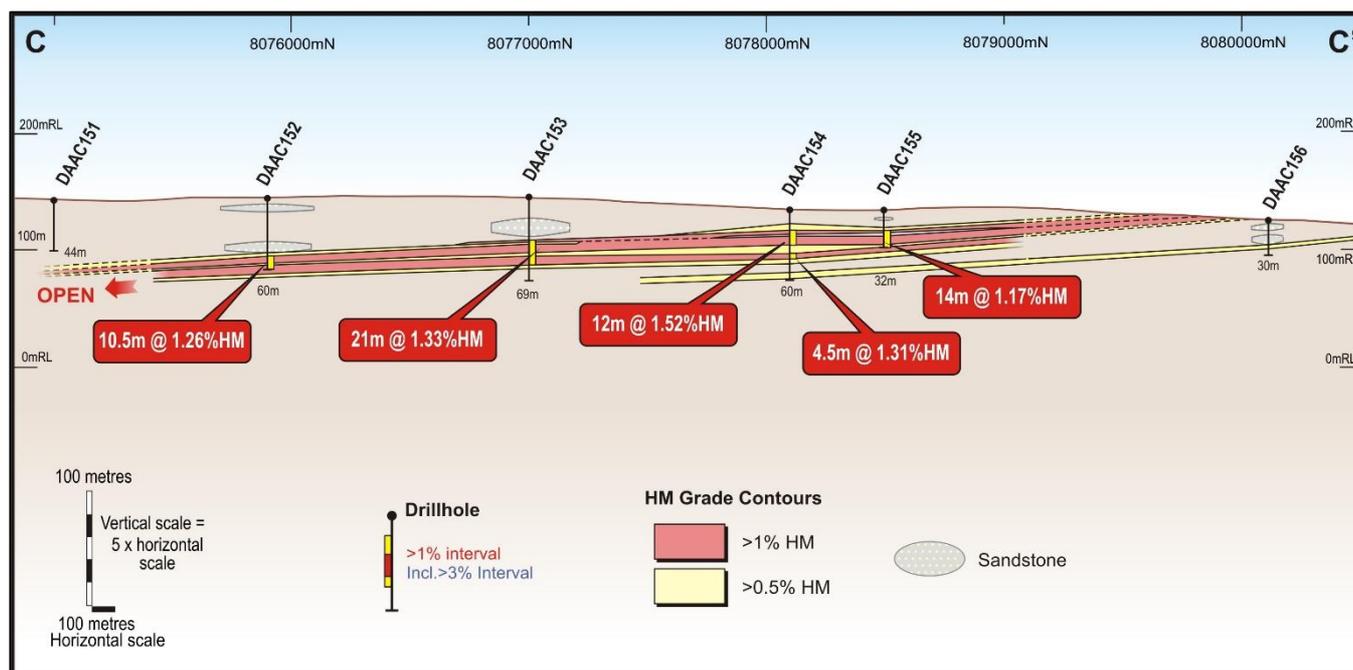


Figure 8: Cisco, western zone - Section C-C'

The reconnaissance drilling at Cisco has identified widespread, low grade, leucoxene rich HM mineralisation with depths to the top of the mineralised horizon varying between 6m and 58.5m. Future drilling programs at Cisco will focus on tracking this extensive mineralisation further up dip to where it occurs close to surface.

Visual examination of the HM from the western zone at Cisco indicates similarity to the deep mineralisation intersected down dip and 3km to the south in historic drilling by Rio Tinto Exploration Pty Ltd (RTE)¹ at the Sting Ray (Central Zone) prospect. The Sting Ray prospect located approximately 6km west of Thunderbird comprises relatively deep heavy mineral concentrations within four stacked, but relatively thin horizons (1.5m to 6m thick, >2% HM cut-off).

Mineral assemblage testwork was completed on the Sting Ray mineralisation by RTE using SEM modal mineralogy which was carried out by CSIRO by the AutoGeoSEM method. This testwork¹ showed that the mineral assemblage contained strongly elevated levels of leucoxene. Microscopic examination of the HM sachets from the western zone at Cisco also suggest the presence of similarly elevated levels of leucoxene in the assemblage (Figure 9). Sheffield's eastern most drill hole (DAAC149), however appears to have a mineral assemblage transitional to and more typical of the Thunderbird heavy mineral assemblage with a higher proportion of iron oxides present. The Company will undertake heavy mineral assemblage testwork on the Cisco mineralisation during Q4 2018.

¹Combined Annual Report (C96/2003 Mt Jowlaenga) For the Period 21 July 2007 to 20 July 2008, Rio Tinto Exploration Pty Ltd, G.D. Muggeridge, September 2008.



Figure 9: Photomicrograph of HM concentrate from Cisco drill hole DAAC154 (24.0-25.5m)

Significant results from holes drilled at Cisco to date include:

- 34.5m @ 2.64% HM from 58.5m (DAAC149), including 12m @ 3.74% HM from 81.0m
 - 21m @ 1.33% HM from 36.0m (DAAC153)
 - 10.5m @ 1.26% HM from 49.5m (DAAC152)
 - 12m @ 1.52% HM from 18.0m (DAAC154)
 - 15m @ 2.31% HM from 51.0m (DAAC157), including 7.5m @ 3.35% HM from 52.5m
- (intervals reported above a 1% HM cut-off, including above 3% HM cut-off refer to Table 1 and Appendix 1 for full details)

Nomad Prospect

Nomad is located 27km to the southeast of the Thunderbird deposit and 5km from the proposed Thunderbird haul road (Figures 2 & 10). Nomad was discovered in 2015 by drilling a linear magnetic trend identified from re-processed aeromagnetic survey data. A 1km wide mineralised zone was defined by 10 drill holes which formed part of a drill traverse adjacent to the Great Northern Highway (see ASX announcement dated 25 February 2015).

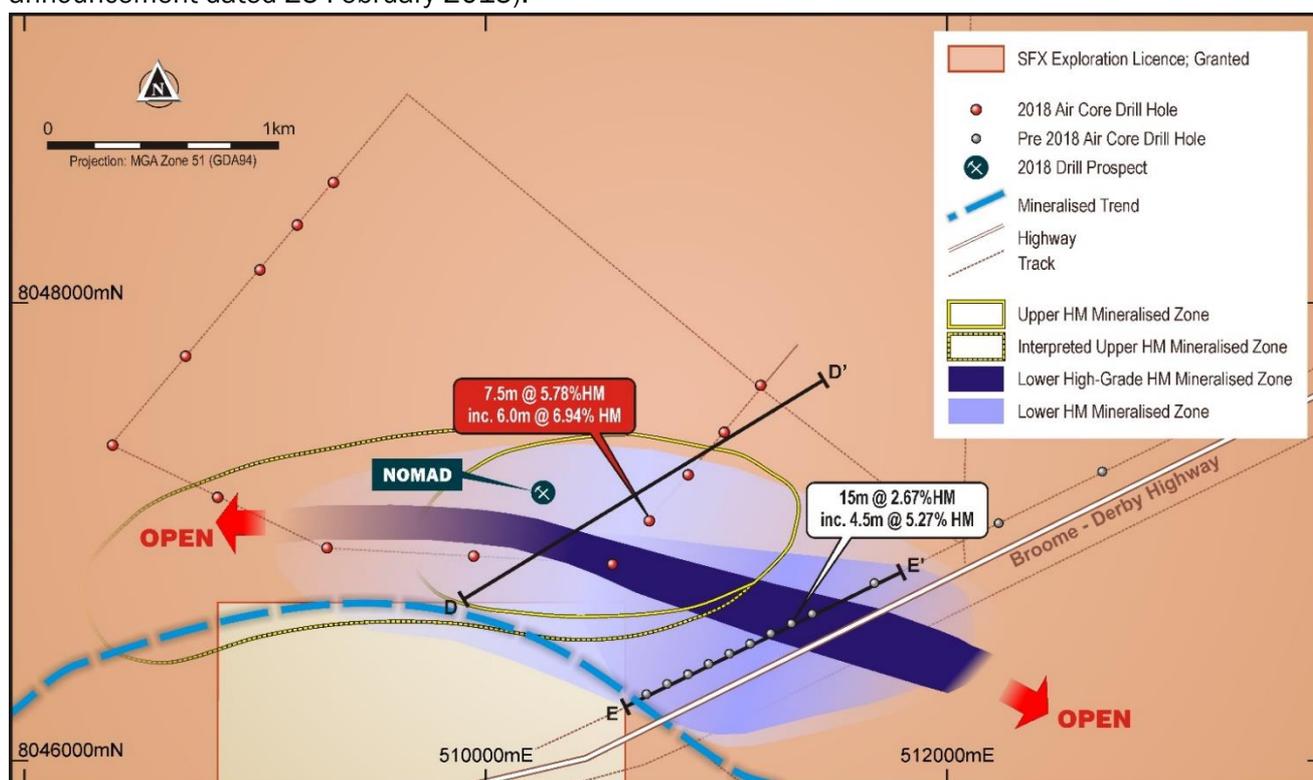


Figure 10: Prospect location plan - Nomad prospect

The recently completed drilling program at Nomad comprised 12 drill holes for 536.5m, along three irregularly oriented drill traverses located approximately 600m to the northwest of the original 2015 drill traverse. Mineralisation was intersected on two of the drill traverses. The north western drill traverse however failed to intersect any significant mineralisation. The drill holes on this line were collared too far to the northwest of the shallowly north westerly dipping target horizon.

Two styles of mineralisation have been intersected in the recent drilling at Nomad consisting of;

- An upper zone comprising a narrow 3m to 7.5m zone of moderate grade mineralisation located stratigraphically below the Melligo sandstone. Visual examination of the HM from this zone indicates some similarity with the Night Train style of heavy mineral assemblage (Figure 11).
- A lower zone comprising broad alluvial fan style deposition occurring as a deep wide zone of lower grade mineralisation. Visual examination of the HM from this zone indicates similarity with the mineralisation defined in the 2015 drilling program (Figure 11). Three composite samples from the 2015 program were analysed for mineral assemblage and averaged 10% zircon, 27% ilmenite, 4% leucoxene, and 4% HiTi leucoxene, with values up to 39% ilmenite and 12% zircon. Total VHM ranged from 37% to 61% with an average of 45%. Slimes were moderate (average 15%) and oversize was low (average 1.2%) (see ASX announcement dated 25 February 2015).

The Company will undertake further mineral assemblage testwork on the Nomad mineralisation during Q4 2018.

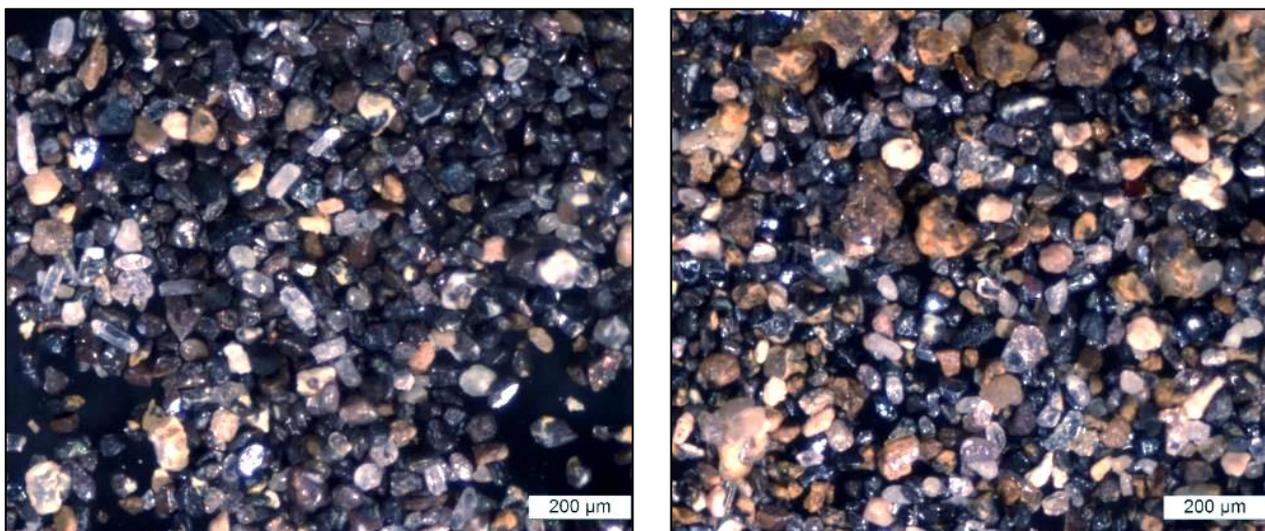


Figure 11: Photomicrograph of HM concentrate from Nomad drill hole DAAC119 (21.0-22.5m) Upper zone (left), DAAC120 (60.0-61.5m) Lower zone (right)

Significant results from holes drilled at the Nomad upper zone to date include:

- **7.5m @ 5.78% HM** from 19.5m (DAAC119), including **6m @ 6.94% HM** from 19.5m
- **3m @ 2.63% HM** from 15.0m (DAAC120)
- **3m @ 5.23% HM** from 28.5m (DAAC118)
- **3m @ 5.49% HM** from 21.0m (DAAC121)

(intervals reported above a 1% HM cut-off, including above 3% HM cut-off refer to Table 1 and Appendix 1 for full details)

Significant results from holes drilled at the Nomad Fluvial zone to date include:

- **15m @ 2.51% HM** from 30m (DAAC021), including **4.5m @ 4.48% HM** from 34.5m
- **13.5m @ 2.99% HM** from 34.5m (DAAC022), including **6m @ 4.81% HM** from 36m
- **15m @ 2.67% HM** from 31.5m (DAAC027), including **4.5m @ 5.27% HM** from 33m
- **22.5m @ 2.46% HM** from 51m (DAAC120), including **10.5m @ 3.54% HM** from 55.5m

(intervals reported above a 1% HM cut-off, including above 3% HM cut-off refer to Table 1 and Appendix 1 for full details)

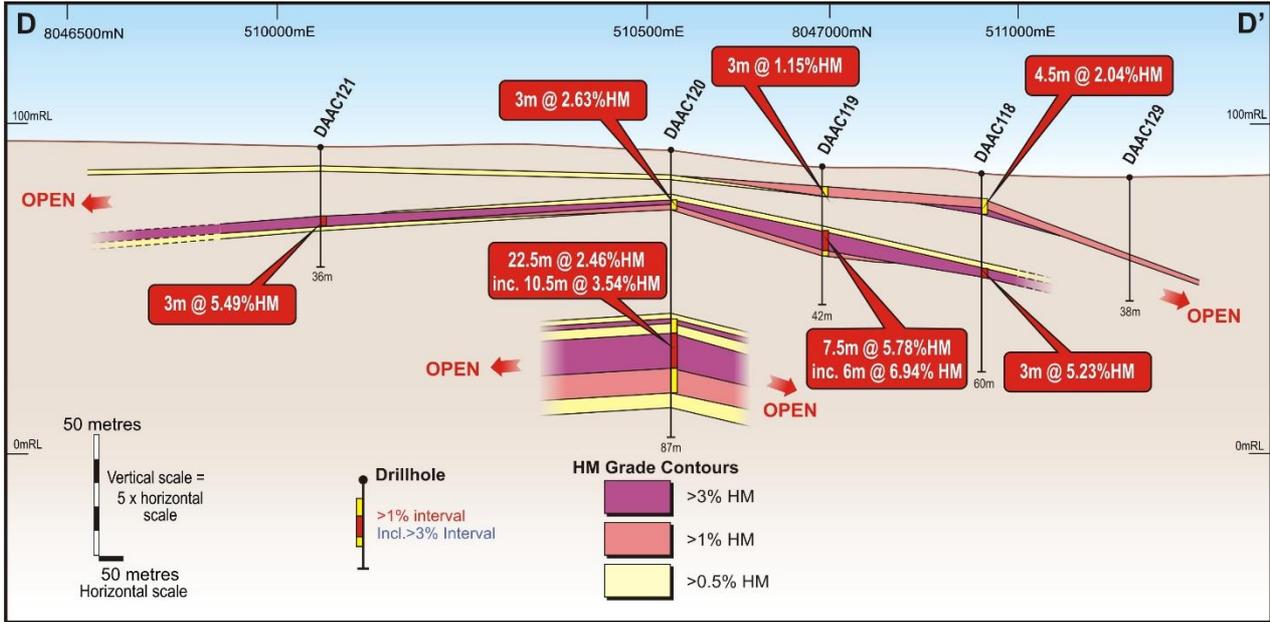


Figure 12: Nomad (2018 aircore drill holes) - Section D-D'

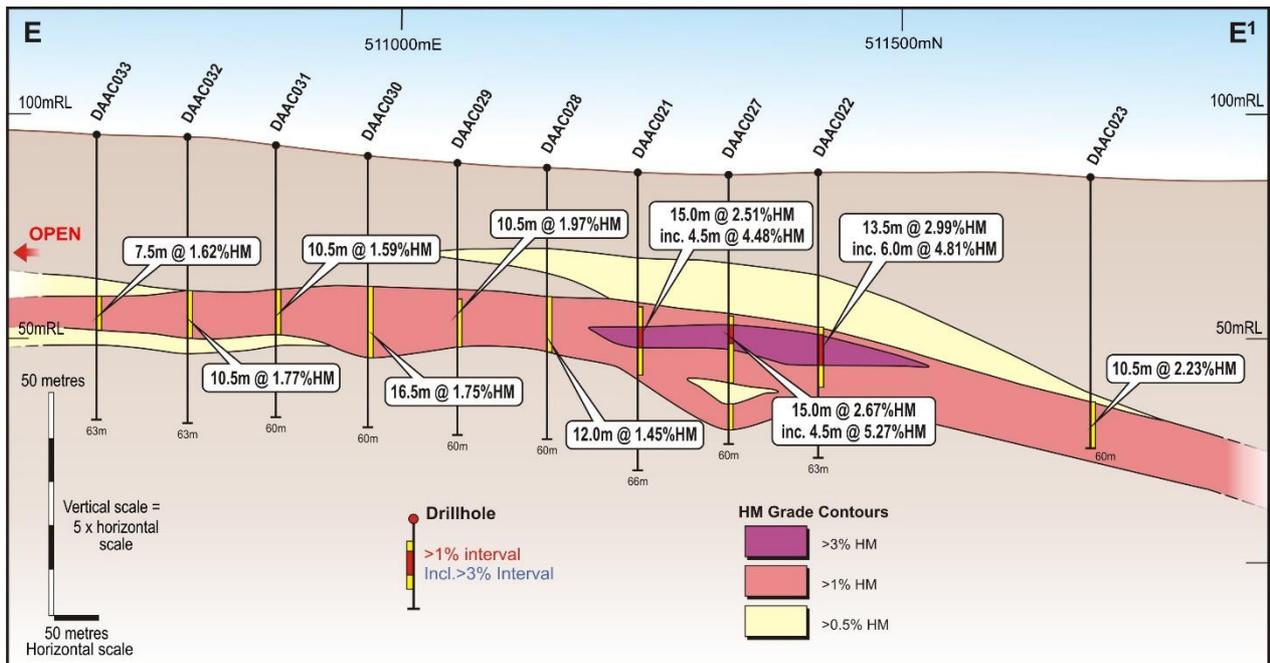


Figure 13: Nomad (2015 aircore drill holes) - Section E-E'

Further work

Mineral assemblage testwork will be undertaken at the Cold Duck, Porphyry Pearl, Cisco and Nomad prospects with results expected during Q1 2019. A follow-up aircore drilling program designed to extend and infill the defined mineralisation is scheduled for Q2-Q3 2019.

Results from the remaining 28 holes of the recently completed Dampier regional drilling program will be reported in coming weeks.

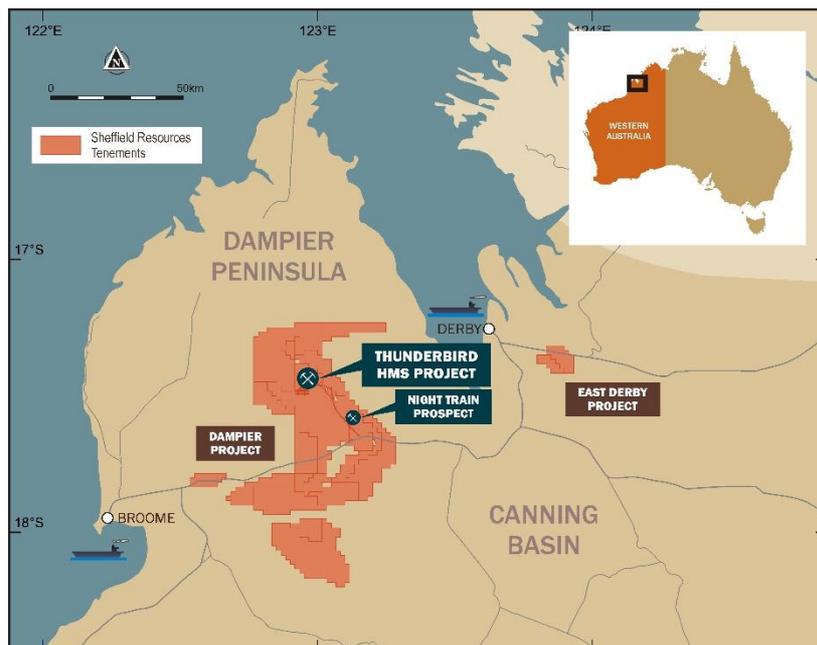


Figure 14: Location of Thunderbird Mineral Sands Project



Figure 15: Sheffield field crew - regional drill holes near Porphyry Pearl

ENDS

For further information please contact:

Bruce McFadzean
Managing Director
Tel: 08 6555 8777

info@sheffieldresources.com.au

Website: www.sheffieldresources.com.au

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Media: Yvonne Ball

Citadel-MAGNUS

Tel: +61 448 232 398

yball@citadelmagnus.com



Table 1: Exploration aircore drill results 17 October, 2018

Prospect	Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)*	HM	Slimes	Osize	Drill Hole Information			
					wt%	wt%	wt%	Easting	Northing	RL	Depth (m)
Nomad	DAAC118	7.5	12	4.5	2.04	15.8	26.1	510,878	8,047,248	85	60.0
	<i>and</i>	28.5	31.5	3	5.23	8.1	2.1				
	DAAC119	6	9	3	1.15	14.5	23.6	510,710	8,047,047	87	42.0
	<i>and</i>	19.5	27	7.5	5.78	9.6	3.7				
	<i>including</i>	19.5	25.5	6	6.94	9.8	4.6				
	DAAC120	15	18	3	2.63	11.7	10.9	510,549	8,046,858	92	87.0
	<i>and</i>	51	73.5	22.5	2.46	11.4	1.9				
	<i>including</i>	55.5	66	10.5	3.54	11.5	3.3				
	DAAC121	21	24	3	5.49	11.3	14.0	509,948	8,046,893	93	36.0
	DAAC122	No significant intersect, hole not to depth						509,312	8,046,929	94	10.0
	DAAC123	No significant intersect						509,340	8,048,526	87	66.0
	DAAC124	No significant intersect						509,183	8,048,340	88	42.0
	DAAC125	No significant intersect						509,021	8,048,144	91	45.0
	DAAC126	No significant intersect						508,699	8,047,767	94	45.0
DAAC127	No significant intersect						508,382	8,047,378	95	45.0	
DAAC128	No significant intersect, hole not to depth						508,838	8,047,150	94	21.0	
DAAC129	No significant intersect, hole not to depth						511,035	8,047,434	84	37.5	
Cold Duck	DAAC131	1.5	39	37.5	3.56	14.2	10.9	502,112	8,066,456	88	76.5
	<i>including</i>	21	37.5	16.5	5.49	11.4	8.9				
	DAAC132	3	34.5	31.5	2.94	15.6	14.7	502,126	8,066,816	90	78.0
	<i>including</i>	10.5	24	13.5	4.10	17.5	15.1				
	<i>also including</i>	30	34.5	4.5	4.29	7.3	7.8				
	<i>and</i>	72	75	3	2.09	28.3	0.5				
	DAAC133	1.5	31.5	30	2.34	15.3	9.8	502,159	8,067,253	93	69.0
	<i>including</i>	4.5	10.5	6	4.93	20.1	20.3				
	<i>and</i>	63	67.5	4.5	3.43	23.0	5.4				
	DAAC134	0	22.5	22.5	2.15	16.5	8.4	502,191	8,067,641	93	45.0
	<i>including</i>	0	4.5	4.5	3.99	23.8	21.0				
	DAAC135	3	18	15	1.60	19.8	17.7	502,209	8,068,042	93	39.0
	DAAC136	4.5	10.5	6	1.25	20.2	2.4	502,232	8,068,374	93	39.0
	DAAC137	9	15	6	1.10	21.0	1.5	502,267	8,068,783	93	61.5
DAAC138	No significant intersect						502,284	8,069,056	93	21.0	
DAAC139	1.5	43.5	42	3.32	11.6	13.9	502,088	8,066,249	88	78.0	
<i>including</i>	13.5	25.5	12	3.96	14.4	13.6					
<i>also including</i>	36	42	6	8.45	5.1	21.7					
DAAC142	1.5	15	13.5	1.59	16.9	13.8	503,191	8,066,804	90	49.5	
<i>and</i>	45	48	3	1.62	25.8	15.8					

*All intervals calculated using 1% HM lower cut, 3m minimum width, maximum 3m internal waste; "*including*" intervals >3% HM, 3m minimum width, maximum 3m internal waste. HM, Slimes and Oversize ("Osize") determined by Heavy Liquid Separation (HLS) using TBE (sg. 2.96g/cc); screen sizes: slimes 38µm and oversize ("Osize") +1mm. Drill hole collar locations were determined by handheld GPS with expected accuracy of +/- 15m horizontal. RL determined by projection to a regional DTM model created from SRTM data. Easting and Northing coordinate system is MGA Zone 51 (GDA94). RL is AHD. All holes were drilled vertically.



Prospect	Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)*	HM	Slimes wt%	Osized	Drill Hole Information			
					wt%	wt%	wt%	Easting	Northing	RL	Depth (m)
Porphyry Pearl	DAAC140 <i>including</i>	3	9	6	3.06	18.4	18.2	504,952	8,064,648	90	48.0
		6	9	3	5.00	22.7	1.6				
	DAAC141 <i>including</i>	19.5	39	19.5	2.93	18.4	2.7	505,439	8,064,024	98	72.0
		21	27	6	5.80	21.2	0.9				
Regional (Mt J fence)	DAAC130	No significant intersect, hole not to depth						508,821	8,061,110	106	1.5
	DAAC143	67.5	75	7.5	1.39	12.3	0.9	508,828	8,061,108	106	98.0
	DAAC144	60	63	3	2.26	13.6	0.1	508,228	8,061,133	104	69.0
	DAAC145	No significant intersect						507,599	8,061,159	103	54.0
	DAAC146	No significant intersect						506,962	8,061,186	101	39.0
Cisco	DAAC149 <i>including</i>	58.5	93	34.5	2.64	13.1	2.8	491,006	8,075,003	126	93.0
		81	93	12	3.74	14.0	5.7				
	DAAC150	No significant intersect, hole not to depth						487,997	8,075,000	133	16.5
	DAAC151	No significant intersect, hole not to depth						486,011	8,074,996	143	43.5
	DAAC152	49.5	60	10.5	1.26	10.9	5.9	486,007	8,075,899	144	60.0
	DAAC153	36	57	21	1.33	12.0	8.0	486,007	8,076,997	144	69.0
	DAAC154	18	30	12	1.52	10.0	2.0	486,009	8,078,097	135	60.0
	and	37.5	42	4.5	1.31	12.6	0.9	486,009	8,078,097	135	60.0
	DAAC155	18	32	14	1.17	9.3	10.6	486,000	8,078,491	135	32.0
	DAAC156	No significant intersect						485,999	8,080,107	125	30.0
	DAAC157 <i>including</i>	51	66	15	2.31	8.6	2.0	484,995	8,077,002	149	84.0
		52.5	60	7.5	3.35	8.8	0.9				
	DAAC158 and	6	9	3	1.19	11.9	13.2	487,979	8,075,899	122	48.0
		21	24	3	1.31	9.3	0.2				
	DAAC159	75	78	3	2.17	8.3	0.2	489,003	8,075,996	126	87.0
DAAC160	No significant intersect						489,008	8,074,996	128	72.0	

Previously announced results from Nomad

Nomad	DAAC021 <i>including</i>	30	45	15	2.51	14.1	0.3	511,236	8,046,555	87	66.0
		34.5	39	4.5	4.48	12.6	0.4				
	DAAC022 <i>including</i>	34.5	48	13.5	2.99	12.9	0.3	511,416	8,046,641	87	63.0
		36	42	6	4.81	13.7	0.4				
	DAAC023^	49.5	60	10.5	2.23	15.1	3.4	511,686	8,046,775	86	60.0
	DAAC024	No significant intersect						512,225	8,047,037	85	46.0
	DAAC025	No significant intersect						512,674	8,047,262	87	48.0
	DAAC026	No significant intersect						513,123	8,047,486	87	53.0
	DAAC027 <i>including</i> and	31.5	46.5	15	2.67	13.7	0.7	511,326	8,046,598	87	60.0
		33	37.5	4.5	5.27	14.4	1.7				
		51	57	6	1.01	11.3	0.3				
	DAAC028	28.5	40.5	12	1.45	19.0	0.5	511,147	8,046,510	88	60.0
	DAAC029	30	40.5	10.5	1.97	15.1	0.8	511,057	8,046,466	89	60.0
	DAAC030	28.5	45	16.5	1.75	15.1	2.2	510,967	8,046,422	90	60.0
	DAAC031	31.5	42	10.5	1.59	15.7	1.9	510,877	8,046,377	93	60.0
DAAC032	34.5	45	10.5	1.77	15.3	2.9	510,787	8,046,334	94	63.0	
DAAC033	36	43.5	7.5	1.62	17.1	0.3	510,697	8,046,290	95	63.0	

*All intervals calculated using 1% HM lower cut, 3m minimum width, maximum 3m internal waste; "including" intervals >3% HM, 3m minimum width, maximum 3m internal waste. HM, Slimes and Oversize ("Osized") determined by Heavy Liquid Separation (HLS) using TBE (sg. 2.96g/cc); screen sizes: slimes 38µm and oversize ("Osized") +1mm. Drill hole collar locations were determined by handheld GPS with expected accuracy of +/- 15m horizontal. RL determined by projection to a regional DTM model created from SRTM data. Easting and Northing coordinate system is MGA Zone 51 (GDA94), RL is AHD. All holes were drilled vertically. See Appendix 1 for further details. Previously announced results from Nomad (refer to ASX announcement 25 February 2015).

COMPLIANCE STATEMENTS

EXPLORATION RESULTS

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.

PREVIOUSLY REPORTED INFORMATION

This report includes information that relates to Exploration 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

- Night Train results: "EXCEPTIONAL RESULTS CONFIRM MAJOR DISCOVERY AT NIGHT TRAIN", 09 October 2018
- Drilling commences: "SHEFFIELD COMMENCES 8,000m REGIONAL DRILLING PROGRAM AT THUNDERBIRD", 01 August 2018
- Quarterly report: "QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 JUNE 2018" 12 July 2018
- Night Train metallurgical scoping results: "PREMIUM ZIRCON AT NIGHT TRAIN", 14 April, 2016
- Night Train Discovery: "NEW MINERAL SANDS DISCOVERY AT NIGHT TRAIN" 22 September, 2015
- Regional drilling results: "THREE NEW MINERAL SANDS DISCOVERIES IN CANNING BASIN" 25 February, 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 announcement and, in the case of reporting of Ore Reserves, Mineral Resources and results of Prefeasibility Studies that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which any 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.

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 42 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 LTR Ilmenite which will be one of the highest-grade sulfate feedstocks available globally.

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 2020. The initial planned production profile is aligned with expected emerging supply gaps in global mineral sands markets.

ASX Code:	SFX	Market Capitalisation:	A\$253m
Issued shares:	229.8m	Cash (unaudited, 30 June 2018):	A\$23.1m



Appendix 1: JORC (2012) Table 1 Report (17 October, 2018 Regional drilling results)

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. 	<ul style="list-style-type: none"> NQ (70mm) diameter aircore drilling was used by Sheffield to collect rotary split 1-3kg samples at 1.5m intervals down-hole The air core method of drilling used at Cold Duck, Cisco, Porphyry Pearl and Nomad is an Industry Standard for Mineral sands deposits See below for sample and QAQC procedures and analysis
Drilling techniques	<ul style="list-style-type: none"> Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc). 	<ul style="list-style-type: none"> Aircore system approx. 70mm diameter holes. Sheffield used an aircore system using a blade (face sampling) drill bit, NQ size. An air core bit hammer was used in the first 15m when sandstone was particularly hard and penetration could not be achieved Drill system used as an industry standard.
Drill sample recovery	<ul style="list-style-type: none"> Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. 	<ul style="list-style-type: none"> Sheffield drilling used a rotary splitter to collect a 1-3 kg sub-sample from 1.5m intervals. Sample weight was recorded at the laboratory. Duplicate samples for Sheffield drill holes were collected at the drill site (see below) to enable analysis of data precision. Sample condition of Sheffield holes (wet to dry and good to poor qualitative recovery) was logged at the drill site. The sample quality is considered appropriate, for example, to establish context of exploration results and support Mineral Resource estimation.
Logging	<ul style="list-style-type: none"> Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	<ul style="list-style-type: none"> Every drill sample is washed and panned, then geologically logged on-site in 1.5m intervals Primary, secondary and oversize lithology, qualitative hardness, grain size, rounding, sorting, and washability, visual estimates of HM%, SL% and OS%, and depth to water table recorded. Heavy mineral sachets were examined under a microscope following heavy medium separation by laboratory and assessed as to whether sand or from rock. The entire length of the drill hole is logged; minimum (nominal) interval length is 1.5m. Logging is suitable such that interpretations of



Criteria	JORC Code explanation	Commentary
		grade and deposit geology can be used to support the Mineral Resource estimation and classification applied.
<p>Sub-sampling techniques and sample preparation</p>	<ul style="list-style-type: none"> • <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i> • <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i> • <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i> • <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i> • <i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i> • <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i> 	<p>HM%, SL% OS% Determination</p> <p>Drill Site</p> <ul style="list-style-type: none"> • A 1-3kg sample was collected at 1.5m intervals in numbered bags at the drill site via rotary splitter at the cyclone discharge point. • 1-3kg sample collected at 1.5m intervals in numbered bags at the drill site via rotary splitter at cyclone discharge point. • Duplicate samples (field duplicates) collected at drill site 1 in every 40 samples. • Reference standard and blank material samples inserted 1 each in every 40 samples. • Duplicate samples (field duplicates) collected at drill site. • Reference blank (builders sand) and standard samples material samples inserted at site. <p>Laboratory</p> <ul style="list-style-type: none"> • Samples submitted to an external laboratory for heavy liquid separation (HLS) determination of weight per cent heavy mineral (HM%), slimes (SL%) and oversize (OS%) at a screen split of - 38µm, +38µm and +1mm • Laboratory provides a sachet containing the heavy mineral concentrate (HMC) for each sample • Visual estimates of HM%, SL% and OS% logged at the drill site are compared against laboratory results to identify any significant errors. • Spacing of duplicate, standard, blank and laboratory repeat samples for Sheffield drilling are designed to identify sample misplacement or misallocation during sample collection and laboratory analysis. • Laboratory repeats are conducted 1 in every 20 samples, and laboratory reference standard inserted 1 in every 40 samples. • The 200g sample is soaked overnight in water then screened and weighed. • The 1-3kg sample is sub-sampled via a rotary splitter to approx. 200g for analysis. • Sample submitted to external laboratory for heavy liquid separation (HLS) determination of weight per cent Heavy Mineral (HM), Slimes (SL) and Oversize (OS). • 1-3kg drill sample sub-split via rotary splitter to approx. 200g for analysis. • HM, SL and OS calculated as percentage of total sample weight. <p>All</p> <ul style="list-style-type: none"> • Spacing of duplicate, standard, blank and lab repeat samples are designed to identify sample misplacement or misallocation during sample collection and laboratory analysis. • Sample representivity and data precision has been determined as acceptable through analysis of



Criteria	JORC Code explanation	Commentary
		<p>results from field duplicate samples and laboratory repeats.</p> <ul style="list-style-type: none"> • Visual estimates of HM, Slimes and OS logged at the drill site are compared against laboratory results to identify any major errors. • Analysis of duplicates show the data has acceptable precision, indicating sampling techniques are appropriate for the deposit style. • Techniques are considered appropriate for use in public reporting of exploration results and Mineral Resource estimation.
<p>Quality of assay data and laboratory tests</p>	<ul style="list-style-type: none"> • <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i> • <i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i> • <i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i> 	<p>HM%, SL% OS% Determination</p> <ul style="list-style-type: none"> • Assay and laboratory procedures are industry standard for HMS, although laboratories' methods and heavy liquid composition vary slightly. TBE (2.96g/ml) is used for these results. • SL% determined using a -38µm screen. • OS% was determined using a +1mm screen. • Method produces a total grade as weight per cent of the primary sample. • Method does not determine the relative amounts of valuable (saleable or marketable) and non-valuable heavy mineral species. • QAQC sample frequency is described above. The HM reference sample used is a field-homogenised bulk sample with expected values and ranges determined internally from assay results. • Blank material used is commercially available builder's sand. • Reference standards and blanks are examined for performance over time and within laboratory batches. Batches or sub-batches are re-analysed if unacceptable QAQC data are returned. • Analysis of reference standards, blanks and laboratory repeats show the data to be of acceptable accuracy and precision for use in public reporting of exploration results and Mineral Resource estimation. • HM assemblage determination at Nomad was by the QEMSCAN™ process which uses observed mass and chemistry to classify particles according to their average chemistry, and then report mineral abundance by % mass. • For the TiO₂ minerals specific breakpoints are used to distinguish between rutile (>90% TiO₂), leucoxene (70-90% TiO₂) and ilmenite (<70% TiO₂). • Reference material for QEMSCAN analysis is not used. Other measures of accuracy and the method design are considered sufficient to establish acceptable accuracy
<p>Verification of sampling and assaying</p>	<ul style="list-style-type: none"> • <i>The verification of significant intersections by either independent or alternative company personnel.</i> • <i>The use of twinned holes.</i> • <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i> • <i>Discuss any adjustment to assay data.</i> 	<ul style="list-style-type: none"> • Significant intervals are reviewed by senior Sheffield personnel prior to release. • Data is logged electronically using "validation at point of entry" systems prior to storage in the Company's drill hole database, which is managed by Company personnel and an external consultancy. • Documentation related to data custody and



Criteria	JORC Code explanation	Commentary
		<p>validation are maintained on the Company's' server.</p> <ul style="list-style-type: none"> No assay data have been adjusted. Hole DAAC140 significant intersect was calculated from 3m and not surface due to non-liberated mineral in sandstone.
Location of data points	<ul style="list-style-type: none"> Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control. 	<ul style="list-style-type: none"> Drill hole collar locations were determined by handheld GPS with expected accuracy of +/- 5m horizontal. RL was determined by projection to a regional DTM model created from SRTM data. Coordinates are referenced to the Map Grid of Australia (MGA) zone 51 on the Geographic Datum of Australia (GDA94), RL are AHD. Digital elevation models (DEM) were obtained by Sheffield from Landgate, with an accuracy of +/- 1.5m, for the Dampier Project area. The drill hole collar data was projected to the DEM surfaces to determine the collar elevations for sections The quality and accuracy of the topographic control is considered sufficient for the reporting of exploration results.
Data spacing and distribution	<ul style="list-style-type: none"> Data spacing for reporting of Exploration Results. Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied. 	<ul style="list-style-type: none"> Holes were drilled to test regional targets and spaced at appropriate distance to enable SFX geologists to determine the trends in mineralisation At Cold Duck holes were drilled between 200m and 1,000m apart along a north south axis with one hole situated to the east Porphyry Pearl holes are 800m apart At Cisco holes were drilled between 400m and 2000m apart along two main axis's Holes drilled at Nomad are spaced in a 'Ç' orientation spaced between 240m and 2000m apart Holes drilled along the Old Mt Jowlaenga fence line did not intersect significant mineralisation. These holes were drilled 600m apart on an east - west axis Significant intervals are reported as indicated in the relevant table(s) in the body of the announcement.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. 	<ul style="list-style-type: none"> Mineralisation is generally flat-lying, vertical drill holes therefore approximate true thickness and perpendicular intersection of mineralisation. Note sections in the body of the announcement are displayed with 5 x vertical exaggeration to ensure clarity. The true strike direction of the mineralisation at Cold Duck, Cisco and Porphyry Pearl is yet to be determined due to the exploratory first pass nature of the drilling. Dip direction along the drilled corridors are 2° to the south at Cold Duck, 1.2° to the south at Porphyry Pearl and 0.7° to the south at Cisco. The deeper intersect at Cisco was an isolated hole and no apparent dip is possible to determine Mineralisation at Nomad consists of a deeper broad zone of lower grade mineralisation dipping to the north and northwest, and a shallower



Criteria	JORC Code explanation	Commentary
		<p>thinner zone of mineralisation overlying.</p> <ul style="list-style-type: none"> Dip of mineralisation is 2.2° to the north at Nomad
Sample security	<ul style="list-style-type: none"> <i>The measures taken to ensure sample security.</i> 	<ul style="list-style-type: none"> Sample security is not considered a significant risk given the location of the deposit and bulk nature of mineralisation. Nevertheless, the use of recognised transport providers, and sample dispatch procedures directly from the field to the laboratory are considered sufficient to ensure appropriate sample security.
Audits or reviews	<ul style="list-style-type: none"> <i>The results of any audits or reviews of sampling techniques and data.</i> 	<ul style="list-style-type: none"> No formal external audits or review of sample techniques or data have been conducted. Audits are not considered necessary at this stage, Industry-standard methods are being employed. All data has been validated by at least two Company geologists

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	Statement	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i> <i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i> 	<ul style="list-style-type: none"> The exploration results reported are from Exploration Licence E04/2171, E04/2083 and E04/2084, located on the Dampier Peninsula about 60km west of Derby, and 20km north of the sealed Great Northern Hwy joining Derby and Broome. E04/2083 was granted on 05/09/2011 and is due to expire on 04/09/2021. E04/2084 was granted on 22/03/2013 and is due to expire on 21/03/2023. E04/2171 was granted on 21/02/2013 and is due to expire on 20/02/2023. The tenements are held 100% by Thunderbird Operations Pty Ltd a fully owned subsidiary of Sheffield Resources Ltd. There are no known or experienced impediments to obtaining a licence to operate in the area. Sheffield has been operating successfully in the region for more than 7 years to date.
Exploration done by other parties	<ul style="list-style-type: none"> <i>Acknowledgment and appraisal of exploration by other parties.</i> 	<ul style="list-style-type: none"> Cold Duck was initially identified by Rio Tinto Exploration Pty Ltd (RTE) in 2005 during a regional air core program. See DMIRS report RTE Annual Report for the period ending 20th July 2006 Muggeridge G. D (#a073223) Porphyry Pearl is a new discovery by Sheffield Cisco is a new discovery by Sheffield and proximal to the Central Zone identified by RTE See DMIRS report RTE Annual Report for the period ending 20th July 2008 Muggeridge G. D (#a079432) Nomad is a SFX discovery previously announced 25 February 2015 Drilling along the Mt Jowlaenga fence line was first pass exploratory work by Sheffield
Geology	<ul style="list-style-type: none"> <i>Deposit type, geological setting and style of mineralisation.</i> 	<ul style="list-style-type: none"> The Dampier Project is located within the Canning Basin in the Kimberley region of Western Australia. The Canning Basin is an intracratonic basin which contains Ordovician to Cretaceous deposits covered by Cenozoic sediments. Cold Duck is 8 km to the southeast of Thunderbird and consists of a relatively high proportion of iron



Criteria	Statement	Commentary
		<p>oxides in the assemblage along with zircon and ilmenite. The environment of deposition appears similar to that of Sheffield's Thunderbird deposit which was deposited in an offshore shoal environment.</p> <ul style="list-style-type: none"> • Porphyry Pearl is hosted within a deeply weathered clean soft sand within the sublittoral zone situated stratigraphically between Thunderbird and Night Train. • Cisco is situated to the north of Thundrebird and consists of leucoxene rich HM. The assemblage appears transitional to Thunderbird. • Nomad consists of an upper higher grade thin sublittoral horizon and a broader lower grade horizon which is associated with an interpreted alluvial fan. Mineralisation sits stratigraphically below the Melligo sandstone which representing the littoral zone
Drill hole Information	<ul style="list-style-type: none"> • A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. 	<ul style="list-style-type: none"> • Information relating to the number of drill holes, assayed samples, location accuracy, orientation etc. is included in this table, and in the body of the announcement. • Diagrams in the body of the announcement show the location of and distribution of drill holes.
Data aggregation methods	<ul style="list-style-type: none"> • In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated. 	<ul style="list-style-type: none"> • Criteria for calculating significant intervals are included at the end of Table 1 in the body of the announcement. Minimum widths, maximum internal waste intervals and cut-off grades have been selected to most-appropriately represent the mineralisation. Higher-grade components of significant intervals are detailed in Table 1 preceded by the term "including". • All intervals calculated using 1% HM lower cut, 3m minimum width, maximum 3m internal waste • "Including" intervals >3% HM, 3m minimum width, maximum 3m internal waste. HM, Slimes and Oversize ("Osize")
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> • These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known'). 	<ul style="list-style-type: none"> • Mineralisation is generally flat-lying to less than 4deg. dip, vertical drill holes therefore approximate true thickness. • Refer to diagrams in the body of the announcement for visual representation of drill hole orientation vs. deposit orientation, note the vertical exaggeration used.
Diagrams	<ul style="list-style-type: none"> • Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These 	<ul style="list-style-type: none"> • See body of announcement for plan and cross section views and tabulation of results (Table 1).



Criteria	Statement	Commentary
	<i>should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	
Balanced reporting	<ul style="list-style-type: none"> Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results. 	<ul style="list-style-type: none"> All current drill hole results are reported in this announcement. Where results do not meet the criteria of significant interval these are reported in Table 1 as “no significant interval” or “no significant intersect, hole not to depth”. All information considered material to the reader’s understanding of the exploration results have been reported.
Other substantive exploration data	<ul style="list-style-type: none"> Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. 	<ul style="list-style-type: none"> Where relevant this information has been referred to in the body of this announcement.
Further work	<ul style="list-style-type: none"> The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	<ul style="list-style-type: none"> Refer to the Further Work section in the body of announcement.