

## Browns Range Exploration Update

### Highlights

- Excellent results received from Dazzler drill programs – Mineral Resource update underway;
- Best results from Dazzler include: 15m @ 2.72% TREO and 34m @ 1.55% TREO;
- Anomalous results from Dazzler Northwest warrant follow up;
- High-grade mineralisation extended west of Gambit West pit; and
- Broad mineralisation encountered at Banshee South, including best result of 22m @ 0.52% TREO

Australian heavy rare earths producer, Northern Minerals Limited (ASX: NTU) (the **Company**) is pleased to provide an update of exploration activities at Browns Range, located in the East Kimberley region of Western Australia. The exploration program is an important component of the growth aspect of the Browns Range Heavy Rare Earth Project.

Between September and December 2019, the Company has conducted reverse circulation (RC) drilling at a range of prospects and deposits. The program included Mineral Resource infill and expansion drilling, greenfields and reconnaissance drilling programs.

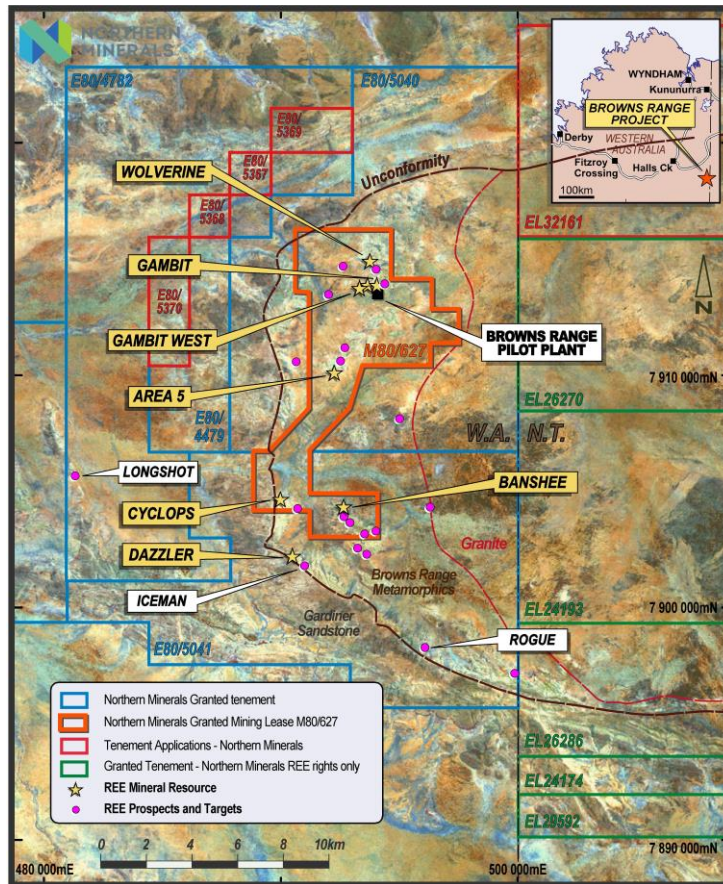
The Company continues to be pleased with the results from the Dazzler deposit, with the heavy rare earth grades consistently significantly higher than the average grade at Browns Range. In addition, significant widths of mineralisation at Banshee South have highlighted the potential of that prospect area.



RC drilling at Dazzler prospect

Further details on each of the programs is described below.

Figure 1 – Browns Range Project – Resource and prospect location



## Dazzler

All assay results have been received from Mineral Resource infill and step-out drilling completed at Dazzler in September and November 2019 (results of the first 12 holes of the program, BRDR0037-0048, already reported on 12 November 2019).

Better results included:

- BRDR0055 – 15m @ 0.75% TREO from 20m;
- BRDR0057 – 15m @ 2.72% TREO from 20m;
- BRDR0082 – 11m @ 2.21% TREO from 1m;
- BRDR0099 – 34m @ 1.55% TREO from 25m;

Additional mineralised zones were also located in the area between Dazzler and Iceman. Better results from this area included:

- BRDR0060 – 14m @ 1.8% TREO from 13m;
- BRDR0068 – 26m @ 0.87% TREO from 17m;
- BRDR0079 – 5m @ 1.60% TREO from 27m;
- BRDR0080 – 12m @ 1.13% TREO from 23m;

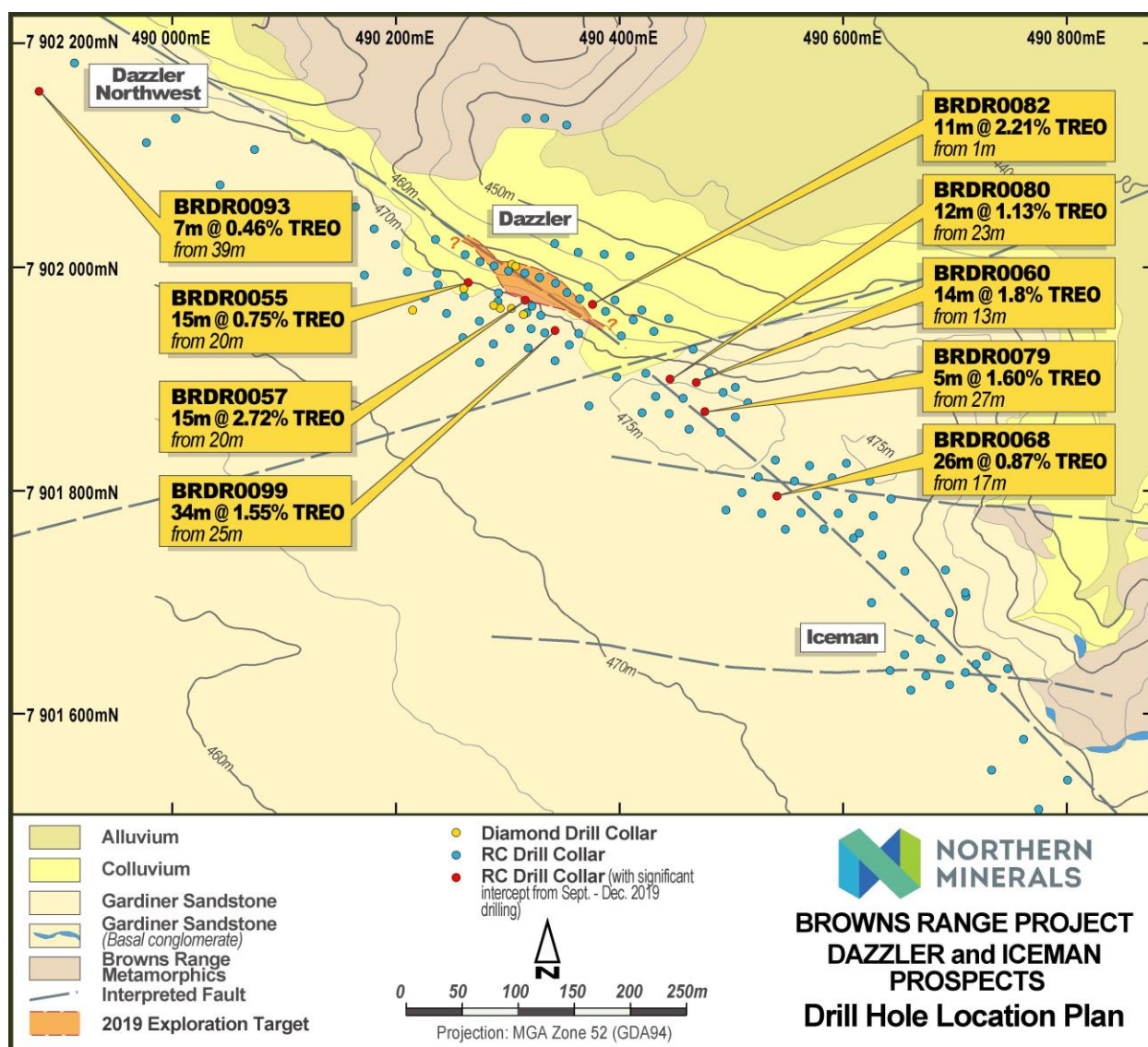
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(All intervals reported herein are downhole widths, **TREO = Total Rare Earth Oxides** – Sum of  $\text{La}_2\text{O}_3$ ,  $\text{CeO}_2$ ,  $\text{Pr}_6\text{O}_{11}$ ,  $\text{Nd}_2\text{O}_3$ ,  $\text{Sm}_2\text{O}_3$ ,  $\text{Eu}_2\text{O}_3$ ,  $\text{Gd}_2\text{O}_3$ ,  $\text{Tb}_4\text{O}_7$ ,  $\text{Dy}_2\text{O}_3$ ,  $\text{Ho}_2\text{O}_3$ ,  $\text{Er}_2\text{O}_3$ ,  $\text{Tm}_2\text{O}_3$ ,  $\text{Yb}_2\text{O}_3$ ,  $\text{Lu}_2\text{O}_3$ ,  $\text{Y}_2\text{O}_3$ )

Drilling in the Dazzler/Iceman area has now indicated a mineralised trend of over one kilometre, with further untested potential along strike to the northwest and southeast. All the new drill results have been incorporated into a revised geological model. An updated Mineral Resource estimate, aimed at revising the current Inferred Mineral Resource of 144,000 tonnes at 2.23% TREO comprising 3,200,000kg TREO, is underway and is expected to be announced towards the end of the March quarter.

Three geotechnical diamond drill holes and two more metallurgical drill holes were also completed at Dazzler in late 2019/early 2020. The core from the two PQ diameter diamond drill holes will be used as metallurgical sample for further testwork at Nagrom under Northern Minerals supervision. The geotechnical drill holes will provide data for pit design and geotechnical studies.

Figure 2 – Drill hole location plan of Dazzler/Iceman area with recent significant drill results



### Dazzler Northwest

Dazzler Northwest is located approximately 350m northwest of the main Dazzler deposit. Four RC drill holes were completed in November 2019 to test a gravity target which was outlined by a ground gravity survey completed in September 2019.

Two fences, 100m apart, comprising two RC drill holes on each fence were completed, with two of the drillholes returning significant intercepts:

BRDR0091 – 2m @ 0.18% TREO from 81m;  
BRDR0093 – 7m @ 0.46% TREO from 39m;

These results are considered significant given the wide-spaced nature of the first-pass drilling. Further drilling is planned to follow up these results in 2020.

### Banshee South

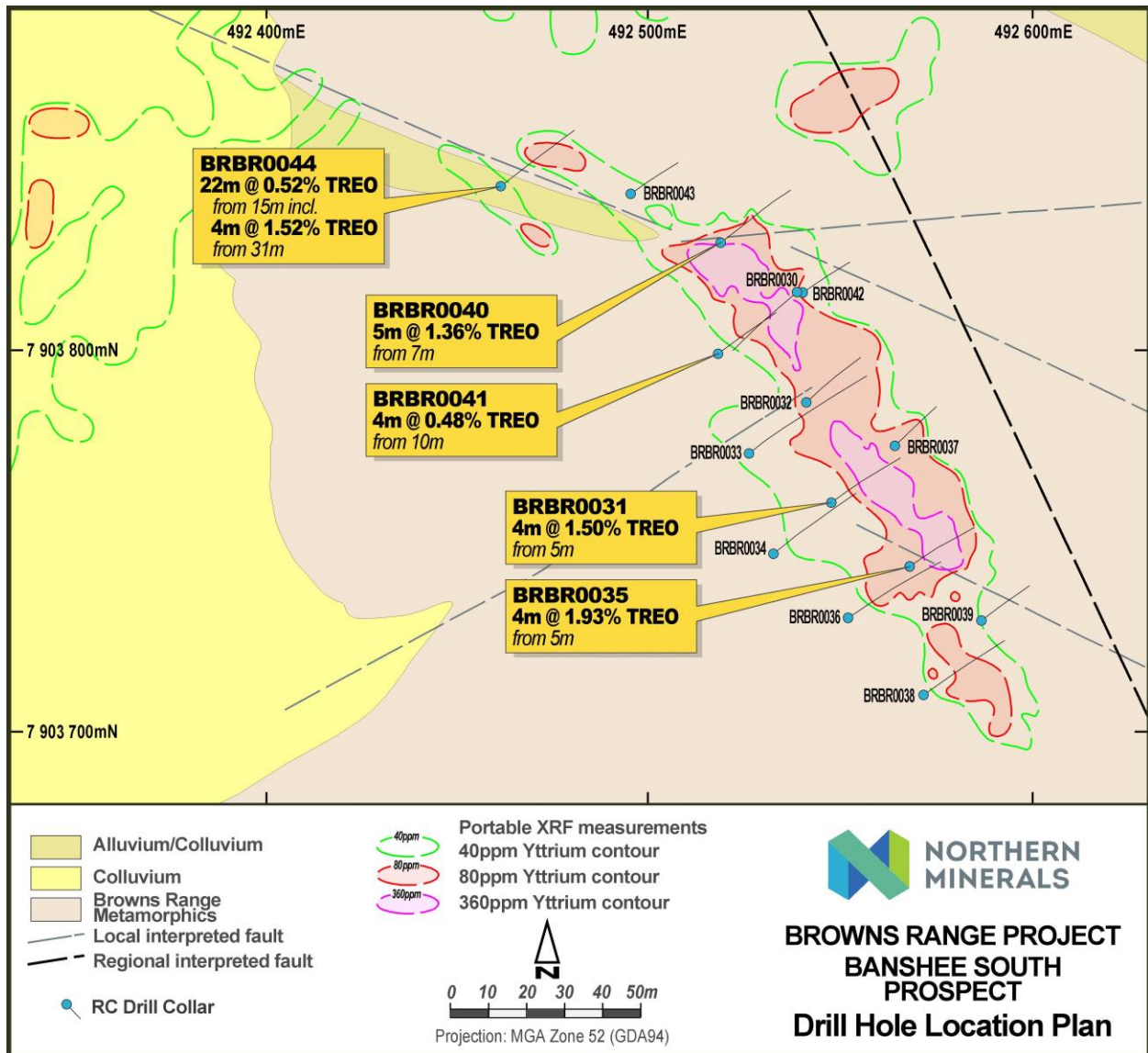
Eight RC drillholes were completed in October and December 2019.

The final hole, BRBR0044, is of particular significance having the broadest mineralisation intersected at the prospect to date, returning **22m @ 0.52% TREO** from 15m with a MHREO/TREO ratio of 0.91, which included **4m @ 1.52% TREO** from 31m. The drillhole is located outside the defined surface geochemical anomaly at the northwest end of the prospect, where the interpreted flat lying mineralisation is possibly concealed under outcrop. Other significant results from Banshee South include:

BRBR0040 – 5m @ 1.36% TREO from 7m;  
BRBR0041 – 4m @ 0.48% TREO from 10m;

There is no drilling immediately to the west of BRBR0044 and further drilling is required to follow up on this mineralisation in 2020.

Figure 3 – Banshee South – Drillhole location plan and significant drill results



### Gambit West

A program of eight RC drill holes along three sections 25m apart were drilled in December 2019 to test for down plunge extensions at the western end of the deposit. Narrow zones of relatively high-grade mineralisation were intersected.

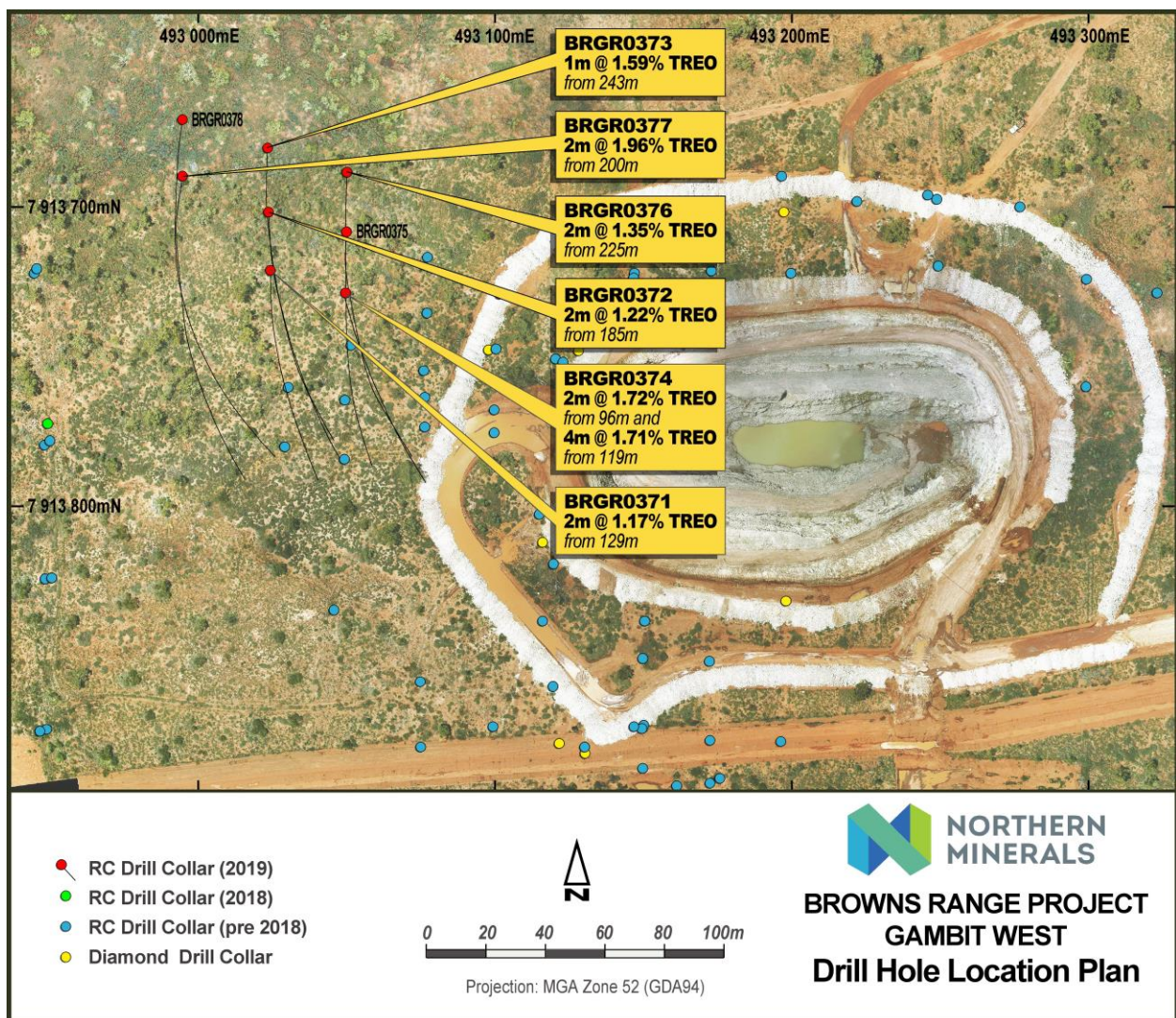
The most significant results included:

BRGR0371 – 2m @ 1.17% TREO from 129m;  
BRGR0372 – 2m @ 1.22% TREO from 185m;  
BRGR0373 – 1m @ 1.59% TREO from 243m;

BRGR0374 – 2m @ 1.72% TREO from 96m and 4m @ 1.71% TREO from 119m;  
 BRGR0376 – 2m @ 1.35% TREO from 225m;  
 BRGR0377 – 2m @ 1.96% TREO from 200m;

Gambit West was one of the deposits that was partially mined to provide ore for the Pilot Plant Project. The recent holes will provide data to refine the resource definition for a potential future underground mining operation. Additional drilling is required to further evaluate this area.

Figure 4 – Gambit West: Drill hole location plan and recent significant drill results



## Rogue

The Rogue prospect lies approximately 8km southeast along strike from Dazzler, close to the Browns Range Metamorphics/Gardiner Sandstone unconformity. Eight RC drill holes (BRRR0001-0008) were completed during a first pass drill program at Rogue, targeting a WNW-ESE trend of sporadically mineralised, brecciated quartz veins.

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Narrow zones of low-grade mineralisation were intersected in six of the eight holes that warrant follow up drilling in 2020.

### **Cyclops, Iceman and Longshot**

Eight RC holes were drilled at **Cyclops** in late 2019, designed to test the northern and southern extents of the deposit and to follow up on the deeper mineralisation. The program has effectively closed off the north and south extents of mineralisation and is not expected to increase substantially the current Inferred Mineral Resource of 330,000 tonnes at 0.27% TREO for 891,000kg contained TREO. The four holes along the south margin of the prospect (BRCR0030 to BRCR0033) confirm the mineralisation is low grade and patchy. The best result returned was in BRCR0032, with 12m @ 0.62% TREO from 1m.

Another two RC holes were drilled immediately to the west of Cyclops to test the Gardiner Sandstone/Browns Range Metamorphics unconformity. No significant results were received from these two drill holes.

At **Iceman**, seven RC drill holes for a total of 486m were completed in September to test for extensions to the previously defined mineralisation. Only minor low-grade mineralisation was intersected in two holes. No follow-up is planned in the immediate Iceman area. In November four RC holes were drilled into two gravity targets generated from a ground gravity survey completed in September 2019. The first gravity target is located just 100m southeast of Iceman, whilst the second gravity target is located over 400m southeast of Dazzler. No significant mineralisation was intersected in any of the holes however given the wide spaced nature of the drilling, further drilling may be required.

At **Longshot**, three RC holes were drilled in November 2019 with no significant mineralisation intersected.

Northern Minerals' Managing Director and CEO, George Bauk, commented "*The exploration program is an important component of the overall strength of the Browns Range Heavy Rare Earth Project.*"

*"As well as assessing the technical and economic feasibility of the larger scale project through production from the pilot plant, the exploration program is important in adding minelife to the project."*

### **ENDS**

Authorised for and on behalf of Northern Minerals Limited

Mark Tory  
Company Secretary

#### **For further information:**

George Bauk  
Managing Director/CEO  
Mark Tory  
CFO/Company Secretary  
Northern Minerals  
+61 8 9481 2344

#### **For media and broker enquiries**

Andrew Rowell  
Cannings Purple  
+61 8 6314 6314

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### About Northern Minerals:

Northern Minerals Limited (ASX: NTU; Northern Minerals or the Company) is the only producer of heavy rare earth element Dysprosium outside of China via production from the Browns Range Heavy Rare Earth Project in northern Western Australia.

The Company commenced the production of heavy rare earth carbonate in late 2018 as part of a three-year pilot assessment of economic and technical feasibility of a larger scale development at Browns Range.

The current program provides the opportunity to gain production experience and surety of supply for our offtake partner, Thyssenkrupp, as well as allowing the assessment of various project enhancement initiatives including ore sorting and the separation of the product into individual rare earth oxides.

Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals aims to build the Western Australian operation into a significant world producer of dysprosium outside of China.

The Project is 100% owned by Northern Minerals and has several deposits and prospects containing high value dysprosium and other HREs, hosted in xenotime mineralisation.

Dysprosium is an essential ingredient in the production of DyNdFeB (dysprosium neodymium iron-boron) magnets used in clean energy, military and high technology solutions.

For more information: [northernminerals.com.au](http://northernminerals.com.au).



ASX Code:	NTU	Market Capitalisation:	A\$79.8m
Issued Shares:	2,660m	Cash (as at 31 December 2019):	A\$5.8m

### Compliance Statement

The information in this report relating to Exploration Results was compiled by Mr Robin Wilson who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Wilson is a full time employee of Northern Minerals Limited and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code). Mr Wilson consents to the inclusion of this information in the form and context in which it appears.

The information in this document that relates to the Mineral Resource Estimates of the Wolverine, Gambit, Gambit West, Area 5, Cyclops, Banshee deposits and Pilot Plant Stockpiles is extracted from the Company's ASX Announcement dated 28 September 2018 entitled "Mineral Resource and Ore Reserve Update – Post Trial Mining Operations at June 30 2018" available to view on the Company's website ([www.northernminerals.com.au](http://www.northernminerals.com.au)) and [www.asx.com.au](http://www.asx.com.au), and was completed in accordance with the guidelines of the JORC Code (2012). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource 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.

The information in this document that relates to the Mineral Resource Estimate for the Dazzler deposit is extracted from the Company's ASX Announcement dated 6 March 2019 entitled "Dazzler shines with high-grade Maiden Mineral Resource" available to view on the Company's website ([www.northernminerals.com.au](http://www.northernminerals.com.au)) and [www.asx.com.au](http://www.asx.com.au), and was completed in accordance with the guidelines of the JORC Code (2012). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource 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.

Appendix 1

Dazzler RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRDR0049	490073.38	7902105.9	472.02	47.88	-59.32	72
BRDR0050	490043	7902074.09	471.03	46.28	-58.94	102
BRDR0051	490163.91	7902054.15	472.17	45.35	-58.93	54
BRDR0052	490135.34	7902024.89	472.02	45.46	-59.19	78
BRDR0053	490210.27	7901996.61	472.05	45.1	-58.99	72
BRDR0054	490237.2	7901995.94	471.65	44.41	-47.59	59
BRDR0055	490265.09	7901986.84	470.6	45.53	-47.39	59
BRDR0056	490259.76	7901938.15	471.98	47.11	-58.74	90
BRDR0057	490315.85	7901970.09	471.36	43.92	-48.69	53
BRDR0058	490363.25	7901941.44	470.26	44.78	-48.57	59
BRDR0059	490423.78	7901905.81	472.58	47.03	-48.8	83
BRDR0060	490468.24	7901896.95	472.32	44.1	-59.24	120
BRDR0061	490444.25	7901870.6	473.11	46.6	-58.25	138
BRDR0062	490456.7	7901883.91	472.98	46.97	-61	120
BRDR0063	490538.7	7901828.26	472.38	45.81	-60.62	102
BRDR0064	490523.26	7901813.39	472.2	46.26	-59.46	96
BRDR0065	490509.36	7901799.28	472.18	40.71	-59.51	78
BRDR0066	490494.7	7901784.52	471.63	41.34	-59.79	78
BRDR0067	490569.34	7901824.02	472.14	44.81	-59.72	102
BRDR0068	490540.47	7901795.92	472.27	41.82	-60.36	72
BRDR0069	490526.56	7901781.69	471.96	44.47	-60.23	60
BRDR0070	490555.97	7901810.28	472.5	41.29	-59.98	90
BRDR0071	490589.73	7901812.36	472.07	43.45	-59.47	90
BRDR0072	490622.8	7901809.9	472.6	42.72	-58.97	90
BRDR0073	490608.44	7901794.87	472.32	41.77	-59.91	72
BRDR0074	490595.4	7901781.28	472.15	43.62	-59.53	36
BRDR0075	490582.09	7901766.53	471.92	43.05	-58.78	30
BRDR0076	490642.31	7901794.38	472.29	43.99	-60.7	60

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BRDR0077	490491.81	7901889.09	472.13	38.05	-61	114
BRDR0078	490478.03	7901874.01	473.04	41.5	-60	18
BRDR0079	490475.59	7901871.4	472.97	43.32	-59.97	108
BRDR0080	490444.92	7901900.31	472.31	41.55	-58.05	83
BRDR0081	490432.33	7901885.93	472.93	40.35	-59.56	108
BRDR0082	490376.23	7901967.69	459.41	295.88	-89.51	36
BRDR0083	490371.82	7901983.04	456.52	279.53	-89.23	18
BRDR0084	490396.02	7901972.06	455.7	113.43	-89.42	24
BRDR0085	490419.91	7901962.45	455.55	226.35	-89.2	24
BRDR0086	490443.49	7901955.34	454.98	204.56	-84.84	36
BRDR0087	490503.29	7901867.3	472.95	40.05	-59.68	114
BRDR0088	490461.62	7901856.52	472.98	42.97	-61.51	107
BRDR0089	490419.58	7901871.22	472.95	44.4	-58.96	119
BRDR0090	490003.11	7902133.95	470.09	40.81	-61.65	65
BRDR0091	489977.41	7902111.86	469.92	42.23	-60.49	83
BRDR0092	489912.75	7902183.45	468.04	44.58	-60.27	77
BRDR0093	489882.04	7902158.17	467	41.32	-60.99	95
BRDR0094	490465.3	7901927.43	463.78	174.8	-83.8	41
BRDR0095	490430.55	7901943.67	458.63	222.64	-89.4	44
BRDR0096	490411.93	7901954.02	457.6	232.61	-89.15	41
BRDR0097	490503.1	7901893.85	471.34	45.03	-60.5	130
BRDR0098	490479.09	7901906.56	470.75	46.17	-60.53	100
BRDR0099	490341.99	7901943.91	471.17	52.2	-48.1	70

### Banshee South RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRBR0037	492564.58	7903774.69	440.83	42.58	-60.25	30
BRBR0038	492572.24	7903709.43	450.61	50.85	-60.2	53
BRBR0039	492587.23	7903728.91	447.32	51.2	-59.86	30
BRBR0040	492518.9	7903827.99	437.63	49.9	-61.02	48
BRBR0041	492518.21	7903798.95	446.08	51.84	-59.9	36
BRBR0042	492540.38	7903814.8	438.43	52.81	-60.45	30

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BRBR0043	492495.38	7903840.55	436.99	51.64	-60.28	30
BRBR0044	492461.27	7903842.66	436.19	51.21	-60.2	48

### Gambit West RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRGR0371	493024.89	7913678.51	443.88	174.47	-61.33	155
BRGR0372	493024.32	7913698.11	443.92	172.26	-60.64	197
BRGR0373	493023.86	7913719.55	444.11	177.75	-60.61	257
BRGR0374	493050.03	7913670.96	443.91	176.36	-58.96	130
BRGR0375	493050.21	7913691.38	443.95	177.65	-59.72	179
BRGR0376	493050.42	7913711.36	444.07	181.13	-58.56	239
BRGR0377	492995.23	7913710.16	443.88	181.74	-59.6	233
BRGR0378	492995.35	7913729.16	444.08	184.89	-58.82	287

### Cyclops RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRCR0028	489595.37	7904550.08	452.09	173.97	-59.24	126
BRCR0029	489599.81	7904648.52	443.91	174	-60.49	120
BRCR0030	489804.56	7904557.5	431.18	175.78	-62.36	95
BRCR0031	489785.75	7904570.33	431.36	176.43	-60.57	95
BRCR0032	489759.7	7904555.18	432.07	177.33	-62.18	119
BRCR0033	489735.04	7904570.05	432.66	176.97	-60.42	119
BRCR0034	489735.48	7904681.56	432.18	176.7	-60.9	65
BRCR0035	489735.68	7904704.92	431.97	176.95	-61.27	60
BRCR0036	489760.19	7904655.15	431.73	177.82	-57.73	59
BRCR0037	489760.41	7904680.56	431.6	175.44	-60	59

### Rogue RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRRR0001	496120.56	7897930.1	450	217.52	-61.54	41

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BRRR0002	496135.56	7897945.08	450	223.91	-60.99	95
BRRR0003	496076.09	7897947.73	450	219.63	-61.92	41
BRRR0004	496090.6	7897962.48	450	222.35	-62.48	83
BRRR0005	496035.27	7897975.07	450	224.23	-62.29	41
BRRR0006	496049.78	7897989.83	450	221.09	-61.48	83
BRRR0007	495960	7898030	450	224.75	-62.1	41
BRRR0008	495974.78	7898044.53	450	221.61	-61.37	79

### Iceman RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRIR0015	490634.12	7901743.96	471.99	39.94	-60.74	48
BRIR0016	490708.28	7901710.27	466.68	39.42	-58.49	60
BRIR0017	490690.53	7901729.98	466.75	326.59	-89.32	60
BRIR0018	490694.41	7901692.47	468.59	41.41	-59.23	78
BRIR0019	490708.92	7901707.61	466.75	88.21	-60.31	90
BRIR0020	490654.59	7901655.02	471.95	41.23	-60.81	72
BRIR0021	490641.09	7901640.93	471.52	40.57	-59.5	78
BRIR0022	491032.02	7901341.18	475.69	46.42	-62.33	59
BRIR0023	491005.11	7901317.91	476.1	46.12	-63.07	95
BRIR0024	490800.07	7901542.52	472.18	38.39	-61.3	41
BRIR0025	490774.18	7901515.72	472.86	43.58	-59.71	59

### Longshot RC drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
BRLR0001	480908.67	7905698.97	407.99	88.59	-60.28	120
BRLR0002	480953.36	7905700.8	408.14	87.54	-60.2	114
BRLR0003	481002.74	7905521.56	406.61	85.1	-59.77	102

### Dazzler Diamond drill hole collar details (all coordinates in GDA94 Zone 52)

Hole ID	East	North	RL	Mag Azimuth	Inclination	Depth(m)
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BRDD0004	490215.96	7901962.41	471.74	44.26	-60.6	61.2
BRDD0005	490261.68	7901982.32	471.44	39.7	-60	53.5
BRDD0006	490363.8	7901940.68	471.25	45.19	-60.3	60.8
BRDD0007	490294.04	7901964.33	471.91	224.5	-64.4	71.6
BRDD0008	490307.42	7902001.49	460.47	45.9	-61.6	60.8
BRDD0009	490304.27	7902003.24	460.37	9.1	-61	20.3

## Appendix 2

Dazzler RC drilling significant intercepts ( $\geq 2\text{m}$  @ 0.15% TREO or equivalent, and a maximum of 2m continuous internal dilution. No top cut has been applied. All widths are downhole lengths.)

Hole ID	Target	Width (m)	From (m)	To (m)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Assay grade (% TREO)
BRDR0050	Dazzler Extension	3	93	96	52.77	0.32
BRDR0053	Dazzler Infill	3	33	36	269.4	0.41
BRDR0053	Dazzler Infill	10	52	62	166.85	0.32
BRDR0054	Dazzler Infill	3	18	21	610.63	0.71
BRDR0054	Dazzler Infill	5	27	32	279.04	0.38
BRDR0054	Dazzler Infill	1	44	45	445.1	0.61
BRDR0054	Dazzler Infill	5	48	53	103.4	0.2
BRDR0055	Dazzler Infill	15	20	35	567.3	0.75
BRDR0055	Dazzler Infill	2	39	41	111.55	0.28
BRDR0055	Dazzler Infill	5	45	50	154.02	0.3
BRDR0057	Dazzler Infill	15	20	35	2513.83	2.72
BRDR0057	Dazzler Infill	2	43	45	219.9	0.38
BRDR0058	Dazzler Infill	2	14	16	610.5	0.62
BRDR0058	Dazzler Infill	20	22	42	348.13	0.41
BRDR0059	Dazzler Extension	4	6	10	130.03	0.15
BRDR0059	Dazzler Extension	1	37	38	323.7	0.34
BRDR0060	Dazzler Extension	14	13	27	1703.61	1.8
BRDR0060	Dazzler Extension	11	92	103	251.41	0.52
BRDR0061	Dazzler Extension	7	39	46	126.76	0.19
BRDR0061	Dazzler Extension	2	51	53	150.35	0.2
BRDR0061	Dazzler Extension	6	105	111	161.4	0.25
BRDR0061	Dazzler Extension	7	117	124	156.67	0.25
BRDR0062	Dazzler Extension	3	31	34	347.27	0.39
BRDR0062	Dazzler Extension	8	41	49	868.97	0.94
BRDR0062	Dazzler Extension	8	102	110	144.25	0.21
BRDR0063	Dazzler Extension	3	47	50	54.37	0.29
BRDR0064	Dazzler Extension	3	31	34	355.3	0.39

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BRDR0064	Dazzler Extension	2	41	43	86.15	0.3
BRDR0068	Dazzler Extension	26	17	43	641.31	0.87
BRDR0068	Dazzler Extension	1	58	59	239.2	0.3
BRDR0069	Dazzler Extension	2	39	41	264.15	0.38
BRDR0069	Dazzler Extension	1	45	46	328.6	0.36
BRDR0070	Dazzler Extension	3	24	27	1983.63	2.08
BRDR0070	Dazzler Extension	3	30	33	488.97	0.58
BRDR0070	Dazzler Extension	9	36	45	82.03	0.2
BRDR0073	Dazzler Extension	2	17	19	446.15	0.47
BRDR0073	Dazzler Extension	2	37	39	42.55	0.19
BRDR0079	Dazzler Extension	5	27	32	1550.38	1.6
BRDR0080	Dazzler Extension	12	23	35	1063.18	1.13
BRDR0081	Dazzler Extension	5	46	51	314.16	0.39
BRDR0081	Dazzler Extension	1	93	94	153.7	0.27
BRDR0081	Dazzler Extension	7	98	105	179.63	0.45
BRDR0082	Dazzler Extension	11	1	12	2307.87	2.21
BRDR0082	Dazzler Extension	4	15	19	345.2	0.43
BRDR0083	Dazzler Extension	2	0	2	715.85	0.76
BRDR0087	Dazzler Extension	3	109	112	89.2	0.12
BRDR0089	Dazzler Extension	3	105	108	501.93	0.62
BRDR0093	Dazzler NW	7	39	46	259.26	0.4
BRDR0095	Dazzler Infill	3	5	8	235.2	0.31
BRDR0098	Dazzler Infill	3	89	92	176.2	0.25
BRDR0099	Dazzler Infill	34	25	59	1455.77	1.55

All other holes in the range BRDR0049 to BRDR0099 not listed above had no significant intercepts.

**Banshee South RC drilling significant intercepts ( $\geq 2\text{m}$  @ 0.15% TREO or equivalent, and a maximum of 2m continuous internal dilution. No top cut has been applied. All widths are downhole lengths.)**

Hole ID	Width (m)	From (m)	To (m)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Assay grade (% TREO)
BRBR0040	1	2	3	198.7	0.20
BRBR0040	5	7	12	1063.92	1.36

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incl.	2	8	10	2039.05	2.60
BRBR0041	4	10	14	335.33	0.48
BRBR0044	22	15	37	445.27	0.52
Incl.	4	31	35	1331.33	1.52

All other holes in the range BRBR0037 to BRBR0044 not listed above had no significant intercepts.

**Gambit West RC drilling significant intercepts ( $\geq 2\text{m}$  @ 0.15% TREO or equivalent, and a maximum of 2m continuous internal dilution. No top cut has been applied. All widths are downhole lengths.)**

Hole ID	Width (m)	From (m)	To (m)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Assay grade (% TREO)
BRGR0371	1	54	55	201.4	0.32
BRGR0371	6	88	94	143.2	0.2
BRGR0371	2	129	131	1001.25	1.17
BRGR0372	3	184	187	793.4	0.86
incl.	2	185	187	1160.15	1.22
BRGR0373	4	240	244	419.2	0.58
incl.	1	243	244	1365.5	1.59
BRGR0374	4	82	86	84.05	0.21
BRGR0374	10	89	99	448.82	0.56
incl.	2	96	98	1487.1	1.72
BRGR0374	6	119	125	1055.38	1.2
incl.	4	119	123	1528	1.71
BRGR0376	2	225	227	1193.3	1.35
BRGR0377	1	194	195	574.9	0.7
BRGR0377	5	200	205	724.5	0.86
BRGR0378	1	250	251	297.3	0.59

All other holes in the range BRGR0371 to BRBR0378 not listed above had no significant intercepts.

Cyclops RC drilling significant intercepts ( $\geq 2\text{m}$  @ 0.15% TREO or equivalent, and a maximum of 2m continuous internal dilution. No top cut has been applied. All widths are downhole lengths.)

Hole ID	Width (m)	From (m)	To (m)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Assay grade (% TREO)
BRCR0030	3	61	64	599.33	0.68
BRCR0031	5	3	8	227	0.32
BRCR0031	2	57	59	290.3	0.37
BRCR0031	1	80	81	233.6	0.29
BRCR0032	12	1	13	522.13	0.62
BRCR0032	2	58	59	175.9	0.19
BRCR00032	1	80	81	117	0.19
BRCR0032	2	101	103	104.65	0.22
BRCR0032	1	111	112	678.2	0.74
BRCR0033	1	12	13	278.2	0.44
BRCR0033	5	27	32	159.98	0.22
BRCR0033	1	43	44	269.8	0.33
BRCR0033	2	70	72	191.7	0.24
BRCR0033	1	111	112	159.1	0.17
BRCR0034	3	26	29	602.37	0.73
BRCR0034	1	37	38	134.8	0.23
BRCR0036	6	13	19	298.8	0.46
BRCR0036	4	34	38	308.3	0.44
BRCR0036	1	43	44	67.5	0.18
BRCR0036	1	52	53	456.4	0.71
BRCR0037	1	12	13	93.9	0.21
BRCR0037	1	17	18	133.1	0.2
BRCR0037	3	23	26	247	0.38

All other holes in the range BRCR0028 to BRCR0037 not listed above had no significant intercepts.

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Rogue RC drilling significant intercepts ( $\geq 2\text{m}$  @ 0.15% TREO or equivalent, and a maximum of 2m continuous internal dilution. No top cut has been applied. All widths are downhole lengths.)

Hole ID	Width (m)	From (m)	To (m)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Assay grade (% TREO)
BRRR0003	2	12	14	253.15	0.496
BRRR0003	1	23	24	444.2	0.613
BRRR0004	7	17	24	242.31	0.338
BRRR0004	5	28	33	170.84	0.212
BRRR0005	3	8	11	141.13	0.304
BRRR0007	2	5	7	653	0.802
BRRR0008	3	19	22	444.77	0.535

All other holes in the range BRRR0001 to BRRR0008 not listed above had no significant intercepts.

Iceman RC drilling significant intercepts ( $\geq 2\text{m}$  @ 0.15% TREO or equivalent, and a maximum of 2m continuous internal dilution. No top cut has been applied. All widths are downhole lengths.)

Hole ID	Width (m)	From (m)	To (m)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Assay grade (% TREO)
BRIR0018	1	67	68	147.6	0.27
BRIR0020	2	43	45	54.1	0.36

All other holes in the range BRIR0015 to BRIR0025 not listed above had no significant intercepts.

**JORC TABLE ONE:****Section 1 Sampling Techniques and Data**

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>At the Dazzler prospect, since September 2019, 63 RC drill holes have been completed for 4,272m with hole depths between 18m and 138m. This report details assay results from the last 51 holes of the program (BRDR0049 – 0099) with the first 12 holes having been reported in November 2019. During the same period 6 diamond drill holes were completed at Dazzler, three of which were for geotechnical purposes and two for metallurgical samples. The last of these holes was an exploration hole which has yet to be assayed.</li> <li>At Banshee South 8 RC holes for 305m were drilled between October and December 2019. Hole depths ranged from 30m to 53m. At the Cyclops prospect, 10 RC drill holes for 917m were completed in October and November 2019. Hole depths were between 59m and 126m. At Iceman, since September 2019, 11 RC holes have been completed for 740m. At Gambit West, in November 2019 eight RC drill holes have been completed for 1677m. Hole depths ranged from 155m to 287m. At the Rogue prospect, eight RC holes were drilled for 504m in November 2019, with hole depths between 41m and 95m. At the Longshot prospect, 3 RC drill holes were completed in October 2019 for 336m.</li> <li>Reverse Circulation (RC) drill samples were analysed using Niton XRF XLt3-950 GOLDD+ portable XRF analyser (pXRF). The pXRF was placed on the primary split sample taken off the drilling rig's static cone splitter. One measurement was completed for each drill metre sample, through the calico bag'</li> <li>The pXRF instrument is calibrated and serviced annually or more frequently, with daily instrument calibration completed as a minimum. Additionally, at the start of each sampling session, standards are analysed. Sampling was carried out under NTU protocols and employed QAQC procedures in line with industry</li> </ul>

**Powering Technology.**

Northern Minerals  
Level 1  
675 Murray Street  
West Perth WA 6005

PO Box 669  
West Perth WA 6872  
northernminerals.com.au  
info@northernminerals.com.au

ASX: NTU  
T: +61 8 9481 2344  
F: +61 8 9481 5929  
ABN: 61 119 966 353

Criteria	JORC Code explanation	Commentary
		standard practice and fit for purpose. RC drill holes were sampled at one metre intervals exclusively. For resource definition drilling at Dazzler, Iceman, Cyclops and Gambit West samples were split using a manual triple tier riffle splitter to achieve a target 2-5 kilogram sample weight. For exploration drilling at the other prospects, Rogue, Banshee South and Longshot, samples were taken from the rig mounted static cone splitter.
<i>Drilling techniques</i>	<ul style="list-style-type: none"> <li>• <i>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).</i></li> </ul>	<ul style="list-style-type: none"> <li>• RC drilling was with nominal diameters of 145mm. RC drilling was completed using face sampling hammer.</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li>• <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• RC recovery was assessed via subjective assessment based on volume recovered. RC recovery information is recorded in the geologist logs and entered into the database. For resource drilling all mineralised intervals have been weighed.</li> <li>• Geologists were based at the RC rig, and regularly inspected operations to ensure correct procedures were being used. RC samples were visually checked for recovery, moisture and contamination. RC recoveries were observed to be generally acceptable with recoveries typically 80% or greater. RC recovery information is recorded in the geologist logs and entered in the database. The cyclone and splitter were routinely cleaned ensuring no material build up.</li> <li>• The relationship between sample recovery and grade has not been investigated at this stage.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• RC logging was completed on one metre intervals at the rig by the geologist. Logging is completed directly onto a laptop in the field using a proprietary geological logging package with in-built validation. Logging information was reviewed by the responsible geologist prior to final load into the database. Each one metre RC interval was collected into chip trays which were photographed.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>Logging was generally qualitative in nature.</li> <li>All recovered intervals were geologically logged and entered into the database.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li><i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><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></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable - core drilling not reported herein.</li> <li>RC samples were collected from the full recovered interval by rig mounted static cone splitter and screened using a handheld pXRF. For resource drilling the intervals selected for geochemical analysis had the full recovered interval re-split using a manual triple tier riffle splitter. Nearly all the samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples were split without drying.</li> <li>The sample preparation techniques employed for the RC samples follow industry standard practice at Intertek Genalysis Laboratory. Samples are oven dried, crushed if required and pulverised prior to a pulp packet being removed for analysis.</li> <li>Blanks were inserted in the field and developed from local host rock following chemical analysis. Field duplicates were collected by a second sample off the splitter (RC). Insertion rates targeted 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones.</li> <li>At this stage of exploration, subsampling is limited to a manual triple tier riffle splitter. No QA/QC of the splitting method has been carried out.</li> <li>Field duplicates from riffle split RC samples generally showed an excellent correlation between original and duplicates. Other measures of spread such as Half Absolute Relative Difference (HARD) plots also indicate good repeatability.</li> <li>The RC samples are appropriate for the grain size of the material.</li> </ul>
<i>Quality of assay data and</i>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> </ul>	<ul style="list-style-type: none"> <li>Samples assayed by Genalysis for rare earth elements were fused with sodium peroxide within a nickel crucible and dissolved with hydrochloric acid for analysis. Fusion digestion ensures complete</li> </ul>

Criteria	JORC Code explanation	Commentary
laboratory tests	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<p>dissolution of the refractory minerals such as xenotime, which are only partially dissolved if the pulp is digested in acids. The digestion solution, suitably diluted, is analysed by ICP Mass Spectroscopy (ICP-MS) for the determination of the REE (La – Lu) plus Y, Th and U</p> <ul style="list-style-type: none"> <li>In the field a Niton (XL3T-950 GOLDD+) XRF handheld tool was used to provide a preliminary quantitative measure of mineralisation. A reading time of 30 seconds was used, with a single reading taken for every metre of RC drilling. The reading was on unprepared raw RC chips, through the calico sample bag. The samples contained natural moisture. Calibration of the PXRF is at least daily with the silica blank standard and the TILL-4 yttrium standard checked at the beginning of every sample run.</li> <li>Certified reference materials, using values across the range of mineralisation, were inserted blindly and randomly. Insertion rates targeted 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones Results highlight that sample assay values are suitably accurate and unbiased. Blanks were inserted in the field and developed from local host rock following chemical analysis.</li> <li>Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Internal verification of significant results by more than one company geologist.</li> <li>Diamond drill hole BRDD0001 twinned the RC hole BRDR0014 (21m @ 2.15% TREO from 24m), and BRDD0002 twinned BRDR0010 (18m @ 9.1% TREO from 25m). Comparing the diamond drilling assays with the twinned RC drill hole assays, shows the interval in BRDD0001 as being narrower than the twinned RC drill hole but with much higher grade. For BRDD0002, the interval width is approximately the same as the twinned RC drill</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>hole, but the grade is significantly lower than the RC drill hole. Details of these drill holes were reported in the ASX announcement “Dazzler returns best ever drill result at Browns Range” dated 3<sup>rd</sup> September. Twinning of holes has not been carried out Cyclops, Iceman, Banshee South or Rogue. Twinning of holes has been completed at Gambit West prior to 2015 with satisfactory results.</p> <ul style="list-style-type: none"> <li>• Portable XRF - Analytical data was collected directly by the Niton pXRF and downloaded by digital transfer to an excel sheet with inbuilt QAQC. All data was checked by the responsible geologist and digitally transferred to Perth. Datashed is used as the database storage and management software and incorporates numerous data validation and integrity checks using a series of defined data loading tools. Data is stored on a SQL server and electronic backups completed three times per day</li> <li>RC Drilling - Primary data was collected into a proprietary logging package (OCRIS) with in-built validation. Details were extracted and pre-processed prior to loading. Datashed is used as the database storage and management software and incorporates numerous data validation and integrity checks, using a series of defined data loading tools. Data is stored on a SQL server by Northern Minerals Ltd subject to electronic backup.</li> <li>• The assay data were converted from reported elemental assays for a range of elements to the equivalent oxide compound as applicable to rare earth oxides. Oxide calculations are completed by the laboratory and checked by Northern Minerals. No issues were identified. The oxides were calculated from the element according to the following factors below: CeO<sub>2</sub> – 1.2284, Dy<sub>2</sub>O<sub>3</sub> – 1.1477, Er<sub>2</sub>O<sub>3</sub> – 1.1435, Eu<sub>2</sub>O<sub>3</sub> – 1.1579, Gd<sub>2</sub>O<sub>3</sub> – 1.1526, Ho<sub>2</sub>O<sub>3</sub> – 1.1455, La<sub>2</sub>O<sub>3</sub> – 1.1728, Lu<sub>2</sub>O<sub>3</sub> – 1.1371, Nd<sub>2</sub>O<sub>3</sub> – 1.1664, Pr<sub>6</sub>O<sub>11</sub> – 1.2082, Sm<sub>2</sub>O<sub>3</sub> – 1.1596, Tb<sub>4</sub>O<sub>7</sub> – 1.1421, Tm<sub>2</sub>O<sub>3</sub> – 1.1421, Y<sub>2</sub>O<sub>3</sub> – 1.2699, Yb<sub>2</sub>O<sub>3</sub> – 1.1387</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drill collar locations were surveyed using high accuracy KGPS. Down hole surveys were conducted using a Reflex Gyro survey instrument at the completion of drilling where practical. Survey accuracy of both collars and down hole is considered acceptable for this preliminary stage.</li> <li>• The grid system used is MGA94 Zone 52. All reported coordinates are referenced to this grid.</li> <li>• Topographic control is based on a LIDAR survey flown in November 2013 by Fugro. The Dazzler and Iceman prospects are located just outside the area covered by LIDAR, and topographic control is based on photogrammetry corrected to surveyed control points. This is considered adequate for this stage of exploration.</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Dazzler Prospect – Since September 2019, 63 RC drill holes have been completed for 4,272m, with most of the holes reported herein being infill or extension/step-out holes on the current Inferred Mineral Resource. Holes drilled on Inferred Mineral Resource and the area between Dazzler and Iceman generally on a 25m x 20m spaced grid. Most holes at Dazzler were drilled at 60 degrees towards northeast, however holes drilled on the scarp slope (15 holes in total), where access is restricted, were vertical.</li> <li>• Banshee South Prospect - 8 RC holes for 305m were drilled between October and December 2019. Holes were drilled on approximately 25m x 20m centres, although this was limited by access issues due to topography. Holes were all drilled at 60 degrees towards the northeast.</li> <li>• Gambit West - In November 2019 eight RC drill holes were completed for 1677m. Holes were drilled at 60 degrees towards the south, however a significant swing towards the southeast was encountered in all holes. The holes were drilled on three fences approximately 25m apart with holes spaced 20m apart.</li> <li>• Cyclops – 10 RC drill holes for 917m were completed in October and November 2019. Hole depths were between 59m and 126m. Two vertical exploration holes 100m apart and 110m west of Cyclops deposit were drilled to test the Gardiner</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>Sandstone/Browns Range Metamorphics unconformable contact. The other eight holes were drilled at the northern and southern extents of the deposit to close off mineralisation. Holes were generally drilled 25m apart and on 25m spaced fences at 60 degrees towards the south.</p> <ul style="list-style-type: none"> <li>• Rogue – Eight RC holes were completed for 504m with hole depths between 41m and 95m. All holes were drilled at 60 degrees towards the southwest. Holes were drilled on 4 fences either 50m or 100m apart, and at 25m spaced centres.</li> <li>• Iceman – Since September 2019, 11 RC holes have been completed for 740m. Seven holes were drilled to test for extensions of mineralisation, generally on 25m spaced fences and 20m apart. Four more holes were drilled southeast of Iceman on two fences 300m apart and at 40m spaced centres.</li> <li>• Longshot – Three RC drill holes were completed on two fences 200m apart and drilled at 60 degrees towards the east.</li> <li>• Exploration Results only reported herein.</li> <li>• Sampling is on 1m intervals. Results have not been physically composited.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Mineral Resource at Dazzler is currently interpreted to be moderately dipping (30-50 degrees) to the southwest, roughly coincident with the contact between the Gardiner Sandstone and the Browns Range Metamorphics stratigraphic units, and striking northwest-southeast. Other mineralisation outside the current resource is interpreted to dip moderately to steeply towards the south west and striking northwest-southeast. Infill and exploration drilling have been conducted at -60 or -50 degrees dips drilled to an azimuth of 045 degrees, and as such drill holes intersect the mineralisation at acceptable angles. Where access has been restricted, vertical holes have been drilled into the Dazzler resource, however due to the interpreted moderate dip of the mineralisation these holes still intersect the mineralisation at relatively high-angles. As such the orientation of drilling is not likely to introduce a sampling bias. At Gambit West, mineralisation is</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>interpreted to be hosted by sub-vertical hematitic fault breccias trending approximately east-west. Drilling reported herein was towards the south at a dip of 60 degrees and intended to intersect the mineralisation at high angle. Mineralisation at Cyclops and Banshee South is interpreted to be relatively shallow dipping towards the southwest and may be bedding controlled. At Rogue it is uncertain what the mineralising trend is, however, it is believed that the orientation of drilling at all prospects is not likely to introduce a sampling bias</p> <ul style="list-style-type: none"> <li>The orientation of drilling at Iceman and Dazzler with respect to mineralisation is not expected to introduce any sampling bias. There is sufficient drilling on the area between Iceman and Dazzler to confidently interpret the orientation of a potential mineralised zone. Current knowledge, based on Iceman and Dazzler drilling, indicates that the orientation of drilling with respect to overall structural and lithological trends is not expected to introduce any sampling bias. At Gambit West, due to a consistent swinging of holes towards the southeast, the intersection angle was sub-optimal. As described above drilling at all other prospects is interpreted to be at a relatively high angle to the mineralised trend and not likely to introduce a sampling bias.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Samples are collected on site under supervision of a responsible geologist and stored in bulka bags on site prior to transport by company truck or utility to Halls Creek commercial transport yard. The samples were stored in a secure area until loaded and delivered to Intertek Genalysis Laboratory in Perth. Laboratory dispatch sheets are completed and forwarded electronically as well as being placed within the samples transported. Dispatch sheets are compared against received samples and discrepancies reported and corrected.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>No audit/reviews have been conducted on the data reported herein.</li> </ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Iceman, Dazzler and Rogue prospects are all located wholly within Exploration Licence E80/5041. The Gambit West, Cyclops and Banshee South prospects are located on M80/627 and Longshot is located on E80/4782. The tenements are all located in the company's Browns Range Project approximately 150 kilometres south-east of Halls Creek and adjacent to the Northern Territory border in the Tanami Desert. Northern Minerals owns 100% of all mineral rights on the tenement. The Jaru Native Title Claim is registered over the Browns Range Project area and the fully determined Tjurabalan claim is located in the south of the project area.</li> <li>The tenements are in good standing and no known impediments exist.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Prior to Northern Minerals, no previous systematic exploration for rare earth element mineralisation has been completed at the Browns Range Project. Regional exploration for uranium mineralisation was completed in the 1980s by PNC and in the 2000s by Areva but without success.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The Browns Range deposits/prospects (including Dazzler, Gambit West, Banshee South, Cyclops and Rogue) are located on the western side of the Browns Range Dome, a Paleoproterozoic dome formed by a granitic core intruding the Paleoproterozoic Browns Range Metamorphics (meta-arkoses, feldspathic metasandstones and schists) and an Archaean orthogneiss and schist unit to the south. The dome and its aureole of metamorphics are surrounded by the Mesoproterozoic Gardiner Sandstone (Birrindudu Group). Mineralisation at Dazzler and Iceman is predominantly within an argillite unit and the Gardiner Sandstone adjacent to the unconformity with the underlying Browns Range Metamorphics. The argillite unit can be extremely altered being dominated by</li> </ul>

Criteria	JORC Code explanation	Commentary
		sericite and kaolinite. Mineralisation is related to the presence of hydrothermal xenotime. Petrographic analysis of RC samples has confirmed xenotime mineralisation. Gambit West mineralisation is hosted by a sub-vertical hematitic fault breccia(s) that trend approximately east-west, within the Browns Range Metamorphics. Mineralisation is again related to the presence of hydrothermal xenotime. At Cyclops and Banshee South the controls on the mineralisation are less obvious but it is believed that there is a stratigraphic control on the distribution of mineralisation, as well as being fault-controlled, with the dominant host being the arkosic sandstones of the Browns Range Metamorphics. At Rogue the host rock is the Browns Range Metamorphics which are in close proximity to the overlying Gardiner Sandstone. Mineralisation at all prospects/deposits is related to the presence of hydrothermal xenotime, with variable amounts of quartz veining, hematite, sericite and silica alteration associated. In most cases the xenotime has been confirmed by petrographic studies.
Drill hole Information	<ul style="list-style-type: none"> <li>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"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>See Appendix 1 and 2 above.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> </ul>	<ul style="list-style-type: none"> <li>Significant intervals were tabulated downhole for reporting. Each metre downhole was analysed using sodium fusion ICP-MS. All individual metres (one result per metre) were averaged over the entire tabulated range. A lower cut-off of 0.15% TREO was used</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<p>during data aggregation, allowing for 2m of internal dilution. No top-cuts have been applied.</p> <ul style="list-style-type: none"> <li>All intervals were initially based on 1m sample runs, with no lengths shorter than 1m. The geologist then qualitatively grouped contiguous mineralised runs together and the average analysis of the entire run is reported here.</li> <li>No metal equivalents values are used for reporting of exploration results.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>All mineralisation at Iceman and Dazzler is currently interpreted to be moderately dipping (30-40 degrees) to the southwest, roughly coincident with the contact between the Gardiner Sandstone and the Browns Range Metamorphics stratigraphic units, and striking northwest-southeast. Infill and exploration drilling have been conducted at -60 or -50 degrees dips drilled to an azimuth of 045 degrees, and as such drill holes intersect the mineralisation at a high angle. The same interpretation applies to the area between Iceman and Dazzler.</li> <li>At Gambit West, as stated previously, due to a consistent swinging of drill holes towards the southeast, the intersection angle with the mineralised zone was sub-optimal. The mineralisation trend is sub-vertical and east-west, with drill holes oriented at 60 degrees towards the south. The swinging of the drillholes may have led to a slight increase in the apparent width of the mineralised interval.</li> <li>At Cyclops, mineralisation has been interpreted to be relatively shallow dipping thus the drilling has in general intercepted the mineralised zones at an optimal angle.</li> <li>At Banshee South and Rogue there has been insufficient drilling to confidently determine the geometry and orientation of the mineralisation.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Figures 1 and 2 in the body of the text above.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Previous exploration results are the subject of previous reports. The results of all current drillholes have been reported, including those with “No Significant Results”. Holes with “No Significant results” are acknowledged in Appendix 2.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Dazzler and Iceman have previously had RC drilling in 2013 and 2018. Details of these drilling programs were reported to the ASX in 2014 and 2018. A maiden Inferred Mineral Resource Estimate was completed for Dazzler and reported in the ASX announcement dated 6 March 2019 and entitled “Dazzler shines with high-grade Maiden Mineral Resource”.</li> <li>In 2019 further RC drilling and diamond drilling were completed at the Dazzler deposit. In May 2019, 17 RC drillholes for 1143m and 3 diamond drill holes were completed at Dazzler. Details of these drilling programs and results were provided in the ASX announcements “High grades from Dazzler, Iceman diamond drilling” dated 21 August and “Dazzler returns best ever drill result at Browns Range” dated 3rd September. The most recent results from Dazzler drilling were reported on 12 November 2019 in the ASX announcement titled “Near surface high-grade results from Dazzler drilling at Browns Range, WA”.</li> <li>Mineral Resource Estimates have been completed for Gambit West, and Cyclops, Banshee as detailed in the Company’s ASX Announcement dated 28 September 2018 entitled “Mineral Resource and Ore Reserve Update – Post Trial Mining Operations at June 30, 2018</li> <li>At Banshee South, soil and rock chip sampling, detailed portable XRF surveys and geological mapping have been completed prior to any drilling taking place. The portable XRF survey highlighted a significant yttrium anomaly.</li> <li>At the Rogue prospect, geological mapping and soil sampling have been completed prior to the drilling.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> </ul>	<ul style="list-style-type: none"> <li>Follow-up drilling is planned for the Dazzler deposit, which will be infill and extension/step-out drilling, and exploration drilling to the</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<p>northwest of Dazzler.</p> <ul style="list-style-type: none"> <li>Follow-up drilling is also planned at Gambit West, Banshee South and Rogue.</li> <li>Refer to Figure 2, 3, 4 in the body of text above.</li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

Not applicable

### Section 4 Estimation and Reporting of Ore Reserves

Not applicable