ASX ANNOUNCEMENT
29 July 2022

NORTHERN MINERALS

Quarterly Activities Report: June 2022

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Highlights

- Appointment of Mr Nick Curtis AM as Executive Chairman;
- Appointment of Mr Bin Cai as Executive Director;
- Continued work on Feasibility Study for full scale beneficiation plant;
- Sale of final rare earth carbonate from pilot plant for A$1.5 million;
- Final drill assays from 2021 received during the quarter from Banshee;
- Best results include:
  - 32m at 0.56% TREO from 53m in hole BRBR0192;
  - 17m at 0.30% TREO from 57m in hole BRBR0193.

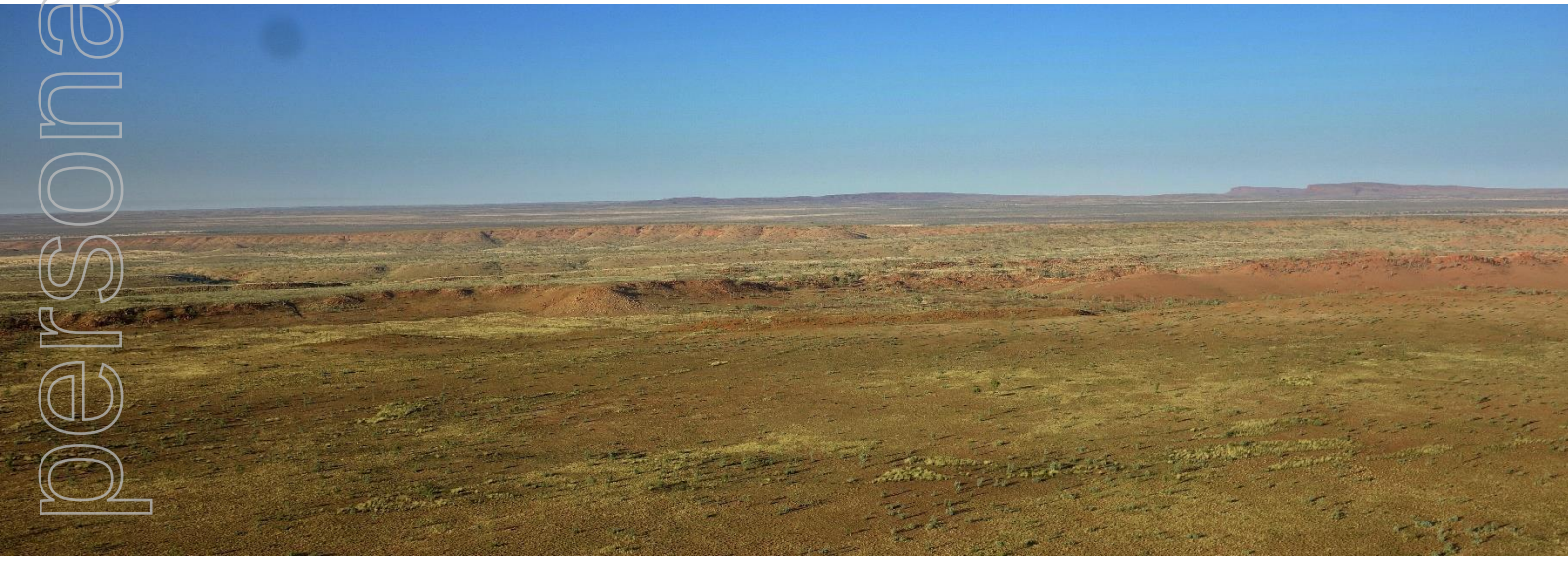

Figure 1: Browns Range Dome Southern Area

Powering Technology.

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Northern Minerals Limited (ASX: NTU) (Company) is pleased to update shareholders on its activities for the quarter ending 30 June 2022.

During the quarter, the Company appointed Mr Nicholas (Nick) Curtis AM as Executive Chairman. Mr Curtis brings over 30 years experience in mining and finance, in particular the rare earths industry through his leadership at Lynas Corporation for 14 years. Mr Curtis will oversee the work carried out by CEO Mark Tory and the operations team who are continuing to focus on the Company's strategy to build a full-scale beneficiation processing facility at Browns Range. He will bring to the team financing and industry contacts as well as his wealth of knowledge in the rare earths industry.

The company also appointed Mr Bin Cai as Executive Director during the quarter. Mr Cai has been involved with the Company for over 10 years and was appointed as a non-executive director in July 2021 after acting as an alternate director since 2013. Mr Cai has been involved in the rare earth industry for over 15 years and has assisted the Company with critical financing and other activities over the years.

Work programs continued during the quarter to address risk areas identified during the strategic review which, together with continuing discussions in relation to an off-take agreement for the concentrate, will be required prior to restarting the Feasibility Study (FS) for a commercial-scale beneficiation plant at Browns Range.

Dysprosium and Terbium are critical metals in a low carbon future where rare earth permanent magnet electric motors are going to drive the way the world works, from vehicles, to homes, and to industry. Forecast demand for these metals is strong. The work done over the last ten years by the Company means that it is in a great position to prosper from this important strategic asset. The Board believes the Company is ready to build a broad business that positions itself as a key part of the supply chain for the growing permanent magnet industry.

Sale of the final rare earth carbonate produced from the pilot plant was made during the quarter for A$1.5 million. The pilot plant remains on care and maintenance.

During the quarter the Company expended approximately $0.9 million on production and development activities.

Final assay results (22 holes) have been received from drilling at the Banshee prospect during the quarter. Significant intercepts are reported in Appendix 1 and drill hole collars are reported in Appendix 2.

Best result from Banshee was 32m @ 0.56% TREO from 53m in BRBR0192.

Geological reconnaissance also commenced at the Company's Boulder Ridge project located 130km to the SE of Browns Range following up on historical high grade rock chip samples collected in 2013.

On-going exploration drilling was planned during the Quarter targeting extensions to mineralisation at depth at Wolverine, strike and depth extensions at Cyclops where drilling in 2021 returned a significant intercept of 15.65m at 1.83% TREO form 24.35m downhole. Strike extensions to mineralisation at Rockslider, Zero and Gambit were also planned.

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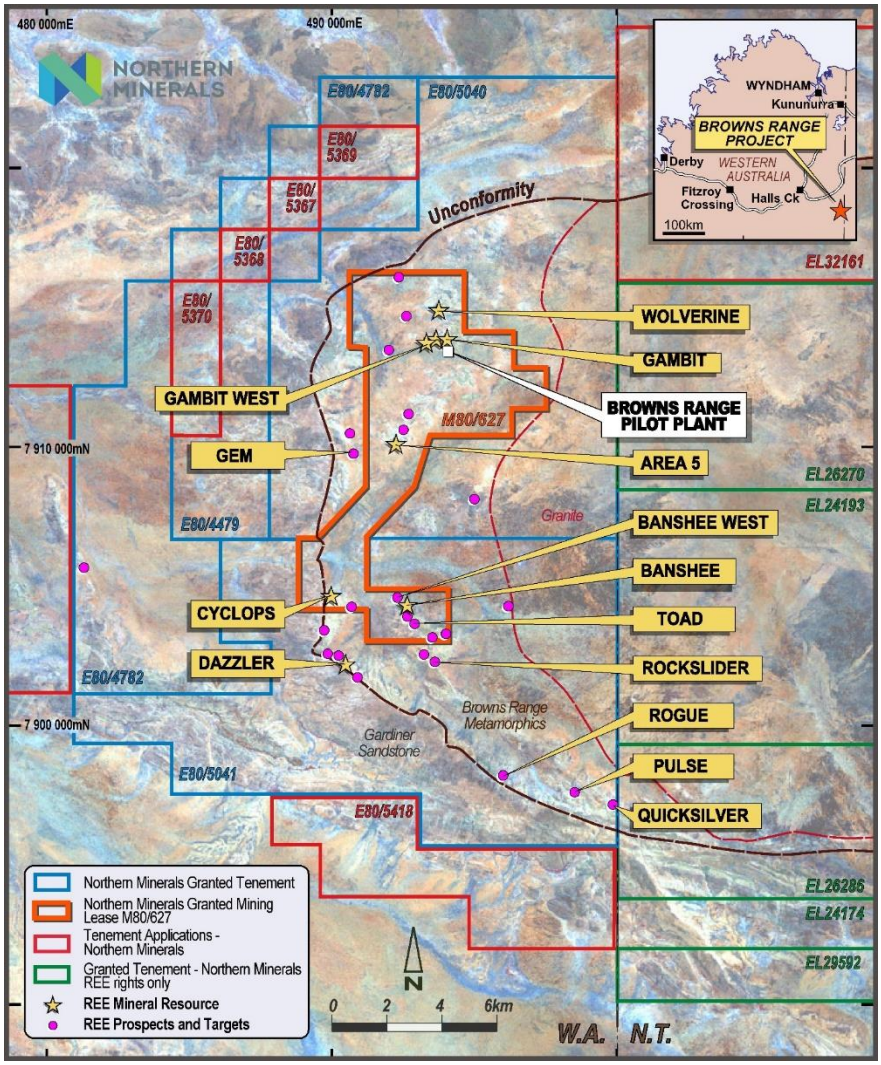

Figure 2: Browns Range Prospect Location Plan

Banshee

The Banshee prospect is located approximately 2km north of Rockslider within mining lease M80/627 (Figure 2). A total of 110 RC holes were completed for 7,826 metres in 2021. Assay results have been received for the final 22 holes outstanding.

Final results reported in this release are in line with previous results reported for Banshee indicating broad, low-grade mineralisation. Best results include:

- 32m at 0.56% TREO from 53m in hole BRBR0192;
- 17m at 0.30% TREO from 57m in hole BRBR0193;

Regional Exploration

The Company currently holds approximately 3,600 square kilometres of granted tenure within the Northern Territory (Figure 4). The majority of exploration activities over the past 10 years has centred around the Browns Range WA tenements where significant deposits and prospects for heavy rare earth (HRE) mineralisation have been defined and identified.

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Desk top studies have been completed utilising both internal and external geochemical and geophysical data sets to identify prospective geology that is likely to host HRE mineralisation. Helicopter supported geological reconnaissance during the quarter on the eastern side of the Browns Range Dome has identified numerous targets that share similar structural affinities with the Wolverine deposit that will be followed up during the second half of 2022 with mapping and sampling programmes.

During the quarter, the Company undertook geological mapping and sampling over the highly prospective Boulder Ridge prospect where historical surface rock chip sampling returned highly anomalous total rare earth oxide (TREO) grades. Follow up work during the quarter involved:

- Geological mapping
- Rock chip sampling
- pXRF surveys

Xenotime (HRE) mineralisation was identified within quartz vein breccias over several kilometres in strike. Further significant rock chip samples confirmed anomalous historical TREO results. Best results included 12.69% TREO, 12.22% TREO and 9.6% TREO from quartz breccia veins within the prospect area.

Based on the results from mapping and sampling, the Company has now planned a RC drill programme to test the strike and depth extent of this mineralisation. Drilling is expected to commence in the second half of 2022.

During the quarter the Company expended approximately $1.1 million on exploration and evaluation activities.

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Payments to related parties of the entity and their associates

Payments made during the quarter and included in 6.1 and 6.2 of Appendix 5B – Mining exploration entity quarterly cash flow report are detailed below:

Aggregate amount of payments to related parties and their associates included in cash flows from operating activities total $132,000.

This comprises of payments to Executive and Non-executive Directors remuneration from services. There were no payments to related parties and their associates included in cash flows from investing activities.

Authorised for release by the Board

Compliance Statement – Exploration Results

The information in this report relating to Exploration Results was compiled by Mr Simon Pooley who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Pooley 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 Pooley consents to the inclusion of this information in the form and context in which it appears.

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About Northern Minerals:

Northern Minerals Limited (ASX: NTU) (Northern Minerals or the Company) is one of a few companies that has produced the heavy rare earth elements Dysprosium and Terbium outside of China with production from the Browns Range Heavy Rare Earth pilot plant project in northern Western Australia.

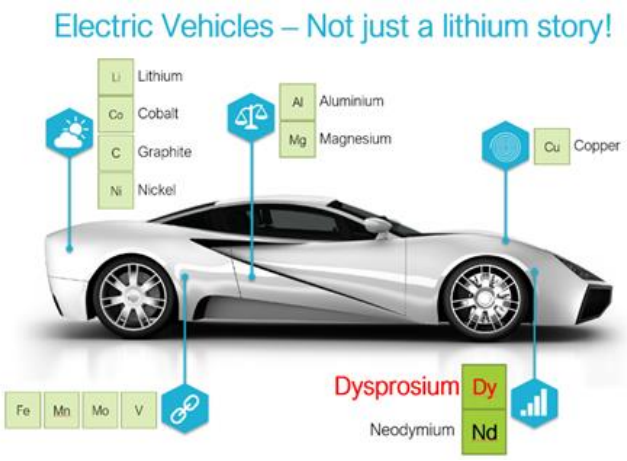
The Company commenced the production of heavy rare earth carbonate in late 2018 as part of pilot assessment of economic and technical feasibility of a larger scale development at Browns Range. An ore sorter was installed and commissioned during 2021 which also tested for its economic and technical feasibility at the front end of the pilot plant. The Company completed the three-year test program on the Pilot Plant at Browns Range during the March 2022 quarter and the Pilot Plant has been placed on care and maintenance.

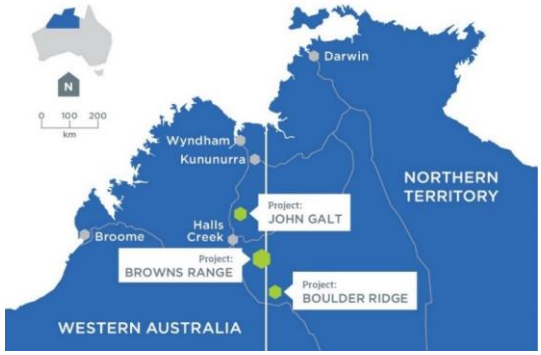
Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals aims to build the Western Australian operation into a significant world producer of dysprosium outside of China.

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.





ASX Code:	NTU	Market Capitalisation:	A$194.6m
Issued Shares:	4,864m	Cash (as at 30 June 2022)	A$2.9m

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Tenement Report

Project	Location	Tenement ID	State	Status	Holder Application	Interest
Browns Range WA	Browns Range	E80/4479	WA	Granted	Northern Minerals	100%
	Browns Range	E80/4782	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5040	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5041	WA	Granted	Northern Minerals	100%
	Browns Range	M80/627	WA	Granted	Northern Minerals	100%
	Browns Range	L80/76	WA	Granted	Northern Minerals	100%
	Browns Range	L80/77	WA	Granted	Northern Minerals	100%
	Browns Range	L80/78	WA	Granted	Northern Minerals	100%
	Browns Range	L80/79	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5260	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5261	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5367	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5368	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5369	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5370	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5418	WA	Granted	Northern Minerals	100%
Browns Range NT	Browns Range	EL24193	NT	Granted	Northern Minerals	100%
	Browns Range	EL24174	NT	Granted	Northern Star Resources	REE rights only
	Browns Range	EL26270	NT	Granted	Northern Minerals	100%
Browns Range NT	Browns Range	EL26286	NT	Granted	Northern Minerals	100%
	Browns Range	ELA32161	NT	Application	Northern Minerals	100%
	Browns Range	ELA32162	NT	Application	Northern Minerals	100%

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Project	Location	Tenement ID	State	Status	Holder Application	Interest
John Galt	John Galt	E80/4298	WA	Granted	Northern Minerals	100%
	John Galt	E80/4967	WA	Granted	Northern Minerals	100%
	John Galt	E80/5070	WA	Granted	Northern Minerals	100%
	John Galt	E80/5230	WA	Granted	Northern Minerals	100%
Boulder Ridge	Boulder Ridge	EL29594	NT	Granted	Northern Minerals	100% (excluding gold rights)
	Boulder Ridge	ELA24849	NT	Application	Northern Minerals	100% (excluding gold rights)
	Boulder Ridge	ELA24935	NT	Application	Northern Minerals	100% (excluding gold rights)
Gardiner-Tanami NT	Boulder Ridge	EL24177	NT	Granted	Northern Minerals	100%
	Boulder Ridge	EL25171	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL23932	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL25009	NT	Granted	Northern Star Resources	REE rights only
	Ware Range	EL26498	NT	Granted	Northern Minerals	100%
	Ware Range	EL26541	NT	Granted	Northern Minerals	100%
	Pargee	EL27367	NT	Granted	Northern Minerals	100%
	Tanami	EL29592	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL29593	NT	Granted	Northern Star Resources	REE rights only
Gardiner-Tanami NT	Tanami	EL29595	NT	Granted	Northern Minerals	100%
	Tanami	ELA29619	NT	Application	Northern Star Resources	REE rights only
	Tanami	ELA29621	NT	Application	Northern Star Resources	REE rights only
	Tanami	EL26635	NT	Granted	Northern Star Resources	REE rights only
	Boulder Ridge	ELA28868	NT	Application	Northern Star Resources	REE rights only

Project	Location	Tenement ID	State	Status	Holder Application	Interest
	Boulder Ridge	ELA30132	NT	Application	Northern Minerals	100%
	Boulder Ridge	EL27590	NT	Granted	Northern Star Resources	REE rights only
	Tanami	ELA32163	NT	Application	Northern Star Resources	REE rights only
	Tanami	ELA32164	NT	Application	Northern Star Resources	REE rights only
Rabbit Flats	Rabbit Flats	ELA25159	NT	Application	Northern Star Resources	REE rights only
	Rabbit Flats	ELA25160	NT	Application	Northern Star Resources	REE rights only

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Appendix 1: Significant Drill Hole Intercepts

Hole Number	Prospect	Hole Type		From (m)	To (m)	Interval (m)	TREO (%)	Dy2O3 (ppm)
BRBR0191	Banshee	RC		25	28	3	0.23	181
			and	32	39	7	0.32	279
			and	42	54	12	0.28	249
			and	59	64	5	0.18	162
			and	72	83	11	0.19	175
			and	112	125	13	0.3	251
BRBR0192	Banshee	RC		53	85	32	0.56	498
			and	88	98	10	0.26	233
			and	102	105	3	0.38	343
BRBR0193	Banshee	RC		57	74	17	0.3	262
			and	90	98	8	0.37	321
BRBR0194	Banshee	RC		63	68	5	0.21	147
			and	71	90	19	0.2	161
BRBR0196	Banshee	RC		56	62	6	0.23	173
BRBR0197	Banshee	RC		45	48	3	0.44	362
			and	52	56	4	0.2	185
BRBR0198	Banshee	RC		83	86	3	0.17	141
BRBR0202	Banshee	RC		43	45	2	0.24	94
BRBR0204	Banshee	RC		48	55	7	0.28	69
BRBR0205	Banshee	RC		8	12	4	0.23	209
			and	49	67	18	0.28	259
BRBR0206	Banshee	RC		56	63	7	0.21	170
			and	66	68	2	0.37	343
BRBR0207	Banshee	RC		31	33	2	0.2	187
			and	49	51	2	0.3	269
			and	62	76	14	0.27	216
BRBR0208	Banshee	RC		51	56	5	0.31	277
			and	69	71	2	0.27	154
BRBR0209	Banshee	RC		15	19	4	0.25	217
			and	30	38	8	0.34	275
			and	42	46	4	0.24	197
			and	55	60	5	0.18	159
			and	72	81	9	0.23	201
BRBR0210	Banshee	RC		25	33	8	0.23	192
			and	47	56	9	0.16	140
			and	66	82	16	0.15	138

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Hole Number	Prospect	Hole Type		From (m)	To (m)	Interval (m)	TREO (%)	Dy2O3 (ppm)
BRBR0211	Banshee	RC		17	18	1	0.3	243
			and	35	39	4	0.35	264
			and	42	48	6	0.21	151
			and	54	58	4	0.18	171
			and	73	75	2	0.24	228
			and	79	82	3	0.14	134
BRBR0212	Banshee	RC		17	30	13	0.25	167
			and	39	53	14	0.16	113
			and	59	61	2	0.22	204
			and	87	90	3	0.16	146

Significant intercepts (>=2m @ 0.15% TREO or equivalent, with a maximum of 2m continuous internal dilution. No top-cut has been applied all widths are downhole lengths.)

(TREO – Total Rare Earth Oxides = Sum of La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3)

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Appendix 2: Drill Hole Collars

Banshee

Hole ID	Easting (mE)	Northing (mN)	RL (mASL)	Mag Azimuth (Degrees)	Dip (Degrees)	Depth (m)
BRBR0191	492474	7904015	447	357	-60	126
BRBR0192	492472	7903984	449	357	-60	126
BRBR0193	492474	7903957	447	002	-60	108
BRBR0194	492475	7903936	446	360	-60	90
BRBR0195	492475	7903911	446	002	-60	90
BRBR0196	492341	7904048	443	358	-60	90
BRBR0197	492308	7904071	443	360	-60	90
BRBR0198	492309	7904052	442	358	-60	90
BRBR0199	492309	7904033	440	359	-59	90
BRBR0200	492258	7904066	442	001	-60	90
BRBR0201	492347	7904021	439	001	-60	90
BRBR0202	492260	7904033	436	359	-59	90
BRBR0203	492260	7904012	434	359	-60	90
BRBR0204	492351	7904186	436	360	-60	66
BRBR0205	492474	7904238	435	358	-59	72
BRBR0206	492475	7904212	436	001	-60	78
BRBR0207	492483	7904186	438	001	-59	84
BRBR0208	492482	7904162	440	359	-61	78
BRBR0209	492481	7904137	441	359	-59	84
BRBR0210	492483	7904110	442	359	-59	90
BRBR0211	492485	7904085	442	359	-60	90
BRBR0212	492485	7904066	443	001	-60	90

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Table 1: JORC code, 2012 Edition

Section 1 - Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. 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.*	Drill collar locations have been surveyed using high accuracy KGPS. Down hole surveys were completed using a gyroscope where possible. RC samples were collected at one metre intervals and subsampled via a rig mounted static cone splitter. 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. The results from the initial pXRF readings formed the basis for sample selection for additional geochemical analysis.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	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 standard practice and fit for purpose i.e. first-pass exploration drilling. RC drill holes were sampled at one metre intervals exclusively and split at the rig to achieve a target 2 to 5 kilogram sample weight.
	Aspects of the determination of mineralisation that are Material to the Public Report.	This report relates to exploration results only.

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Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).*	RC drilling at Zero, Banshee, Dazzler and Rockslider was with nominal diameter of 5 3/8 inches bit. RC drilling was completed using face sampling hammer.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	RC recovery was initially assessed by subjective assessment based on volume recovered. All intervals selected for geochemical analysis were subsequently weighed incorporating the bulk sample plus the primary and duplicate samples. 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 into the database.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Geologists were based at the RC rig, and regularly inspected operations to ensure correct procedures were being used. RC sample recoveries were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned to minimise material build up.
	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.	At this stage of exploration this relationship has not been investigated at the prospects in question.
Logging	*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.*	RC logging was completed on one metre intervals at the rig by the geologist. Typically, lithology, structure and mineralisation was recorded. 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. Chip trays were collected for each of the RC intervals.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Logging was generally qualitative in nature.
	The total length and percentage of the relevant intersections logged.	All RC drilling metres were logged and entered into the database.

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Sub-sampling techniques and	*If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	RC samples were collected from the full recovered interval by rig mounted static cone splitter. The majority of samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples were split without drying.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	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.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	At this stage of exploration, subsampling is limited to on rig splitting using a static cone splitter. No QA/QC of the splitting method has been carried out. With diamond core sampling, half core is retained for future reference.
	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.	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..
Sample preparation	*Whether sample sizes are appropriate to the grain size of the material being sampled.*	The RC sample is appropriate for the grain size of the material.
	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	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 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.
Quality of assay data and laboratory tests	*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.*	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. With diamond core, up to 4 point readings were recorded every metre. 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.

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	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	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. Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures.
	The verification of significant intersections by either independent or alternative company personnel.	Internal verification of significant results by more than one company geologist.
Verification of sampling and assay	*The use of twinned holes.*	No holes have been twinned due to this being early stage exploration at the prospects in question.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	**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. **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.
	Discuss any adjustment to assay data.	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_2 –1.2284, Dy_2O_3 – 1.1477, Er_2O_3 – 1.1435, Eu_2O_3 –

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		1.1579, Gd2O3 – 1.1526, Ho2O3 – 1.1455, La2O3 – 1.1728, Lu2O3 – 1.1371, Nd2O3 – 1.1664, Pr6O11 – 1.2082, Sm2O3 – 1.1596, Tb4O7 – 1.1421, Tm2O3 – 1.1421, Y2O3 – 1.2699, Yb2O3 – 1.1387
	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.	Drill collar locations have been surveyed with a high accuracy KGPS. Down hole surveys were completed by the drilling contractor using a gyroscope or single-shot survey tool at the time of drilling. Drill collar locations have subsequently been surveyed using high accuracy KGPS. Down hole surveys have also been conducted post-drilling, where practical, using a Reflex Gyro survey instrument. Survey accuracy of both collars and down hole is considered acceptable at this stage of the exploration program.
Location of data points	*Specification of the grid system used.*	The grid system used is MGA94 Zone 52. All reported coordinates are referenced to this grid.
	Quality and adequacy of topographic control.	Topographic control is based on airborne digital terrain survey data collected in 2011 with accuracy considered to be +/-1m.
	Data spacing for reporting of Exploration Results.	Banshee – 110 drill holes completed on numerous drill fences 50m to 75m apart, with individual holes 25m apart (along fences containing previous drilling). At Dazzler, drilling was infill on a 25m x 25m spacing. At Rockslider and Zero drill lines where 50m apart and 25m apart along drill lines.
Data spacing and distribution	*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.*	Exploration Results only. Data spacing and distribution is not yet sufficient to support Mineral Resource or Ore Reserve Estimation.
	Whether sample compositing has been applied.	N/A

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Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	Most drill holes in the current program have been drilled at an inclination of 60° at an orientation perpendicular to the interpreted structural and/or lithological trend. For the Banshee drilling, all holes are drilled -60 degrees to the north to intersect subvertical to steeply dipping, east – west trending primary structures known to host mineralisation. At Dazzler, holes were drilled at -60 degrees towards an azimuth of 45 degrees, the same orientation as the majority of holes completed at Dazzler, targeting extensions along west-northwest mineralised trend. At Rockslider, holes were drilled perpendicular to the strike of the mapped haematite breccia. At Zero, holes were drilled to an azimuth of 045 degrees, perpendicular to the interpreted strike of the fault zone.
	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.	Current knowledge indicates that the orientation of drilling with respect to overall structural and lithological trends is not expected to introduce any sampling bias. *The orientation of the drilling is suitable for each prospect and is not expected to introduce any sampling bias.
Sample security	*The measures taken to ensure sample security.*	Samples are collected on site under supervision of the responsible geologist and stored in bulk bags on site prior to transport by company truck or utility to Halls Creek commercial transport yard. The samples are stored in a secure area until loaded and delivered to the Intertek Genalysis laboratory in Perth.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No audits/reviews have been conducted.

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Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	*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.*	The Banshee prospect is located on M80/627. The tenement is 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 fully determined 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. The Dazzler and Rockslider prospects are located immediately south of M80/627 within E80/5041. Zero is located immediately west of M80/627 within E80/5041
	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.	The tenements are in good standing and no known impediments exist.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	No previous systematic exploration for REE mineralisation has been completed by other parties prior to Northern Minerals at the prospects in question. Regional exploration for uranium mineralisation was completed in the 1980s without success.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Browns Range prospects 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 meta-sandstones 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). The Browns Range xenotime mineralisation is typically hosted in hydrothermal quartz and hematite veins and breccias within the meta-arkoses of the Archaean Browns Range Metamorphics. Various alteration styles and intensities have been observed; namely silicification, sericitisation and kaolinite alteration. Cyclops and Rockslider- mineralisation is hosted by a sub-vertical quartz-hematitic fault breccia(s) that trend approximately east-west, within the Browns Range

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		Metamorphics. Mineralisation is again related to the presence of hydrothermal xenotime. The Dazzler area prospects are located on a scarp slope that marks the unconformity between the younger overlying Gardiner Sandstone and the older Browns Range Metamorphics. At both prospects it is currently unclear what the controls on mineralisation are, however there is a clear spatial association between the unconformity and the most anomalous zones, with mineralisation occurring in both units above and below the unconformity. At Banshee, Xenotime mineralisation is hosted within coarser grained arkose units of the Browns Range Metamorphics and is considered bedding conformable.
Drill hole Information	*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:* *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.*	See tables above in Appendix 2.
Data aggregation methods	*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.*	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 during data aggregation, allowing for 2m of internal dilution. No top-cuts have been applied.
	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	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.

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	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.	No metal equivalents values are used for reporting of exploration results.
Relationship between mineralisation widths and intercept lengths	*If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	The geometry of mineralisation at Dazzler is generally assumed to be east-west and northwest-southeast at Zero based on mineralisation and outcropping structures at adjacent prospects or targets. Based on these assumptions the drilling orientation at each of the aforementioned prospects is considered optimal. At Rockslider and Banshee, mineralisation trends NW – SE and dips to the SW
Diagrams	*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.*	N/A
Balanced reporting	*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.*	Previous exploration results are the subject of previous reports. The results of all drill holes have been reported. Where holes were not reported with significant intercepts there were no significant results.
Other substantive exploration data	*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.*	At Browns Range Project WA, airborne magnetic and radiometric surveys were acquired by Northern Minerals in 2011. Hypersp and ectral data captured during October 2012 by Hyvista Corporation Pty Ltd. Very high resolution "Ultracam" aerial photography was captured by Hyvista during the Hyperspectral survey. Regional reconnaissance including geological mapping, rock chip sampling and also geochemical soil sampling completed over all the prospects reported herein. Ground based radiometric surveys were also completed. Mineral Resource estimates have been completed at the Dazzler and Banshee deposits.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Follow-up drilling is being planned at the Zero, Banshee and Rockslider prospects.

	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	N/A

Section 3: Estimation and Reporting of Mineral Resources

Not applicable

Section 4: Estimation and Reporting of Ore Reserves

Not applicable

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