ASX ANNOUNCEMENT
15 October 2014

NORTHERN MINERALS

Further increase in Browns Range Mineral Resource

Highlights

- HRE resource at Browns Range Project increased, with the global Mineral Resource now estimated at **52,372,000kg of TREO in 8.47 million tonnes @ 0.62% TREO** (classified and reported according to the guidelines of the 2012 JORC Code[1]).
- This is an increase of 4,375,000kg of TREO from the Mineral Resource estimate announced on 26 February 2014 and attributed to the two new deposits, Cyclops and Banshee.
- Resource remains dominated by high value dysprosium and yttrium.
- 87% of the TREO within the global (Indicated and Inferred) Mineral Resource is HRE.

Northern Minerals (ASX: NTU) is pleased to announce a further increase in the JORC compliant, heavy rare earth (HRE) Mineral Resource estimate for the Browns Range Project (the Project) in northern Western Australia.

The Total Mineral Resource at the Browns Range Project is now estimated at 8.47 Mt @ 0.62% total rare earth oxides (TREO) comprising 52,372,000kg (52,372 tonnes) contained TREO using a cut-off grade of 0.15% TREO.

A key feature of the Browns Range Mineral Resource is the dominance of the high value dysprosium, terbium and yttrium elements with average grades of 0.51kg/t, 0.08kg/t and 3.44kg/t respectively within the Total (Indicated and Inferred) Resource. The HRE percentage of the Total Rare Earths is 87% (Indicated and Inferred Resource). The presence of xenotime as the dominant HRE mineral is a major competitive advantage for Browns Range. The xenotime mineralisation is not only rich in dysprosium, it is also hosted in a mainly silica rock which allows the ore to be significantly concentrated, up to 30 times, through a relatively simple beneficiation process with excellent recoveries.

Northern Minerals' Managing Director George Bauk said the upgrade in resource is a fantastic result for the Project and a clear demonstration of the Project's future exploration potential.

"Our exploration results continue to exceed our expectations, and we have been successful in converting these results into defined resources. Today's resource upgrade shows continued growth of the Browns Range asset base with the inclusion of two new deposits Cyclops and Banshee. Drilling at both deposits has been limited and like all of Browns Range's deposits, they remain open, indicating the opportunity to further expand the Mineral Resource estimate and increase the Project's mine life." Mr Bauk said.

[1] Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, The JORC Code 2012 Edition, Effective December 2013, Prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

Powering Technology.

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Table 1: Global JORC compliant Mineral Resource Estimate (October 2014)

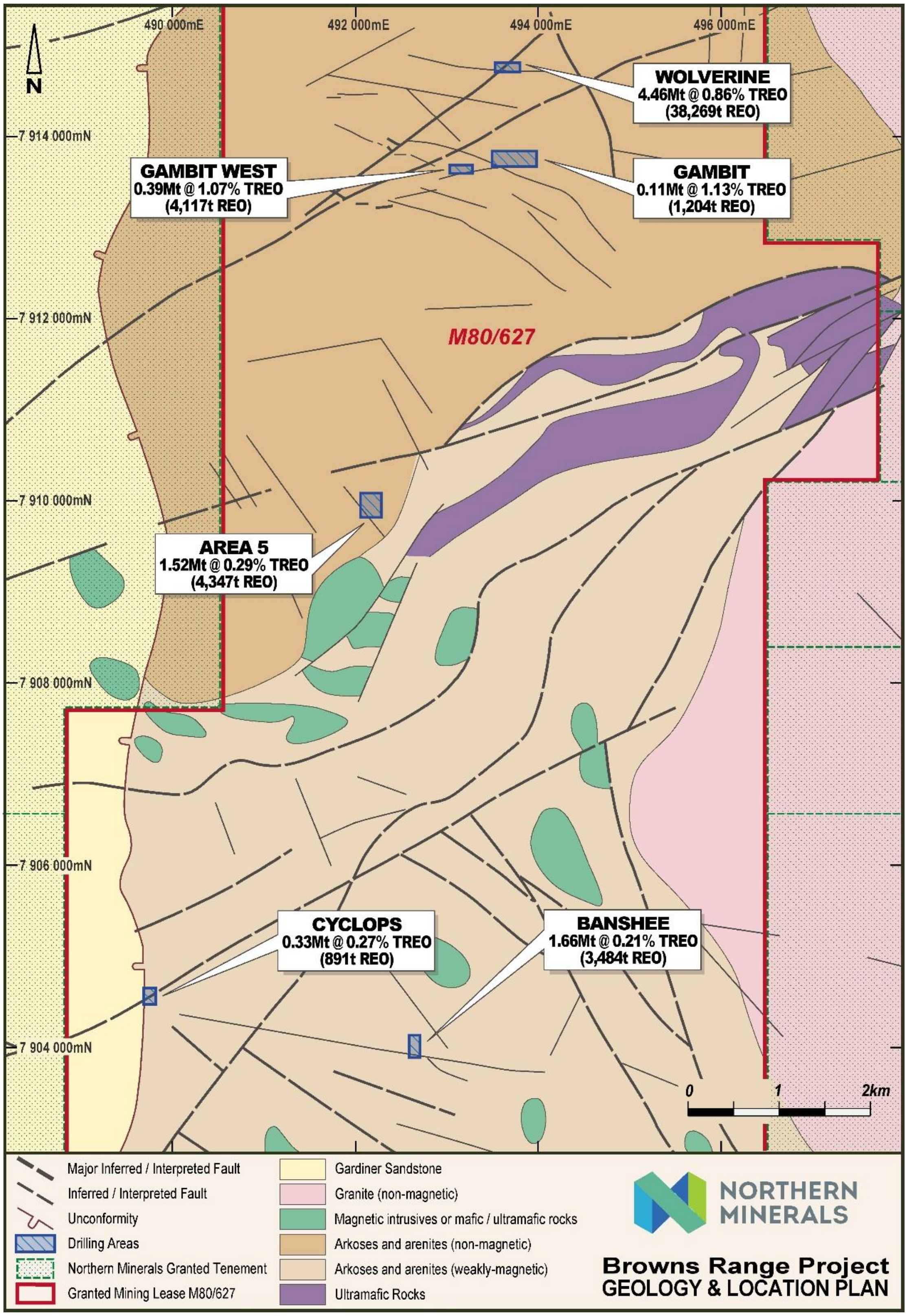
Deposit	Category	Mt	TREO %	Dy_2O_3 Kg/t	Y_2O_3 Kg/t	Tb_4O_7 Kg/t	HREO %	TREO Tonnes
Wolverine	Indicated	2.66	0.89	0.78	5.17	0.12	89	23,705
	Inferred	1.8	0.81	0.67	4.45	0.1	87	14,564
	Total[1]	4.46	0.86	0.74	4.88	0.11	88	38,269
Gambit West	Indicated	0.27	1.26	1.07	7.06	0.14	90	3,424
	Inferred	0.12	0.64	0.54	3.67	0.07	85	753
	Total[1]	0.39	1.07	0.91	6.04	0.12	89	4,177
Gambit	Indicated	0.05	1.06	0.92	6.62	0.12	97	533
	Inferred	0.06	1.2	1.01	6.8	0.15	95	671
	Total[1]	0.11	1.13	0.97	6.72	0.13	96	1,204
Area 5	Indicated	1.38	0.29	0.18	1.27	0.03	69	3,953
	Inferred	0.14	0.27	0.17	1.17	0.03	70	394
	Total[1]	1.52	0.29	0.18	1.26	0.03	69	4,347
Cyclops	Indicated	-	-	-	-	-	-	-
	Inferred	0.33	0.27	0.18	1.24	0.03	70	891
	Total[1]	0.33	0.27	0.18	1.24	0.03	70	891
Banshee	Indicated	-	-	-	-	-	-	-
	Inferred	1.66	0.21	0.16	1.17	0.02	87	3,484
	Total[1]	1.66	0.21	0.16	1.17	0.02	87	3,484
Total[1]	**Indicated**	4.36	0.73	0.61	4.07	0.09	87	31,615
	Inferred	4.07	0.51	0.41	2.77	0.06	86	20,728
	Total[1]	8.47	0.62	0.51	3.44	0.08	87	52,372

[1] - Rounding may cause some computational discrepancies (TREO (metal) tonnes estimated from Mt x TREO%)

TREO = Total Rare Earth Oxides – 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;

HREO = Heavy Rare Earth Oxides – Total of 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

Figure 1 – Location and Geology of Mineral Resources



SUMMARY OF MATERIAL INFORMATION

The Project is located in the Tanami region of Western Australia, approximately 160km south east of the town of Halls Creek near the Northern Territory border. The Wolverine, Gambit West, Gambit, Area 5, Cyclops and Banshee deposits are all within the project area and located wholly within granted mining lease M80/627. The Jaru Native Title Claim is registered over the project area and Northern Minerals entered into a Co-existence Agreement with the Jaru Traditional Owners in June 2014.

The Project is located on the western side of the Browns Range Dome (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).

CYCLOPS DEPOSIT

Cyclops Deposit – Mineral Resource estimate (October 2014)

Category	Mt	TREO %	Dy_2O_3 Kg/t	Y_2O_3 Kg/t	Tb_4O_7 Kg/t	HREO %	U_3O_8 (ppm)	ThO_2 (ppm)	TREO Tonnes
Inferred	0.33	0.27	0.18	1.24	0.03	70	34	24	891
Total	0.33	0.27	0.18	1.24	0.03	70	34	24	891

Cyclops (October 2014) Mineral Resource Individual REO Proportions at 0.15% TREO Cut-off Grade

REO	Inferred %	Total Resource %
La_2O_3	5.33	5.33
CeO_2	13.65	13.65
Pr_6O_{11}	2.1	2.1
Nd_2O_3	8.49	8.49
Sm_2O_3	2.33	2.33
Eu_2O_3	0.41	0.41
Gd_2O_3	4.48	4.48
Tb_4O_7	0.98	0.98
Dy_2O_3	6.68	6.68
Ho_2O_3	1.39	1.39

REO	Inferred %	Total Resource %
Er_2O_3	3.9	3.9
Tm_2O_3	0.52	0.52
Yb_2O_3	2.92	2.92
Y_2O_3	46.44	46.44
Lu_2O_3	0.39	0.39

Geology and Geological Interpretation

Locally at Cyclops the hosting Browns Range Metamorphics are a variable sequence of meta-quartz-lithic and arkosic arenites interbedded with finer grained meta-sediments. The rare earth mineralisation is interpreted to be hosted in a number of east-west trending veins and breccias that dip steeply to the north. The mineralisation is also controlled by lithology, being restricted to the coarser grained arenites and rarely observed in the finer grained units.

The mineralisation at Cyclops is thought to be associated with the phosphate rare earth mineral xenotime as observed at other deposits within the project area.

Drilling Techniques

All drilling at the Cyclops deposit was using Reverse Circulation (RC) with face sampling hammer. Hole depths ranged from 50m to 162m. A total of 27 holes for 2322m was drilled at the Cyclops deposit.

Drilling has been completed on a nominal 25m in easting by 25m in northing grid spacing, although this increases to broader spacing at the lateral extremities of the deposit.

Sampling Techniques

RC samples were collected at the drill rig by either riffle splitting or using a static cone splitter. All samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. RC drill holes were sampled at one metre intervals exclusively and split at the rig to achieve a target 2-5 kilogram sample weight.

Field QAQC procedures included the field insertion of certified reference materials (standards), blanks and duplicates. Blanks were developed from local host rock following chemical analysis. Field duplicates were collected as a second sample off the splitter (RC). Insertion rates averaged 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones.

Resource Classification Criteria

Classification for Cyclops is based upon continuity of geology, mineralisation and grade as well as drill hole and data spacing and quality. Parts of the estimate poorly supported by drilling have not been classified as Mineral Resource.

Sample Analysis Method

Sample analysis was performed by Genalysis Laboratories in Perth.

Up to and including the 2013 drilling the following analytical process occurred; samples were dried, split if necessary, and pulverised prior to analysis of rare earth element suite using ICP-MS. Samples assayed for rare earth elements were fused with sodium peroxide within a nickel crucible and dissolved with hydrochloric acid for analysis. This fusion digestion ensures complete dissolution of the refractory minerals such as xenotime and is considered a total analysis. The digestion solution, suitably diluted, is analysed by ICP Mass Spectroscopy (ICP-MS) for the determination of the rare earth elements (REE) (La – Lu) plus Y, Th, U.

In 2014, a two tiered sampling process was employed; samples were dried, split if necessary, and pulverised prior to preliminary analysis of the sample using a portable X-Ray Fluorescence (pXRF) technique set to analyse yttrium. A threshold value was applied to the preliminary pXRF result and all samples above this threshold (plus selected samples below this threshold) were then progressed for analysis using ICP-MS. Samples below the threshold value were returned to Northern Minerals, and further analysis was performed using a pXRF analyser for additional elements, including yttrium and cerium.

Estimation and Modelling Techniques

Grade estimation using Ordinary Kriging (OK) was completed for the Mineral Resource, using Surpac software. Potentially economic elements yttrium, lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and lutetium were estimated in standard oxide forms. Total rare earth oxide was then calculated as the sum of the estimated values for 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. Additionally, the elements uranium and thorium were estimated as deleterious elements.

The geological interpretation was used to define the mineralisation domains. The mineralisation domains were used as hard boundaries to select sample populations for data analysis and grade estimation.

Drill hole spacing is typically 25m in easting by 25m in northing. Drill hole sample data was flagged with domain codes unique to each mineralisation domain. Sample data was composited to one metre downhole lengths. The influence of extreme sample outliers was reduced by top cutting where required.

Cut-off Parameters

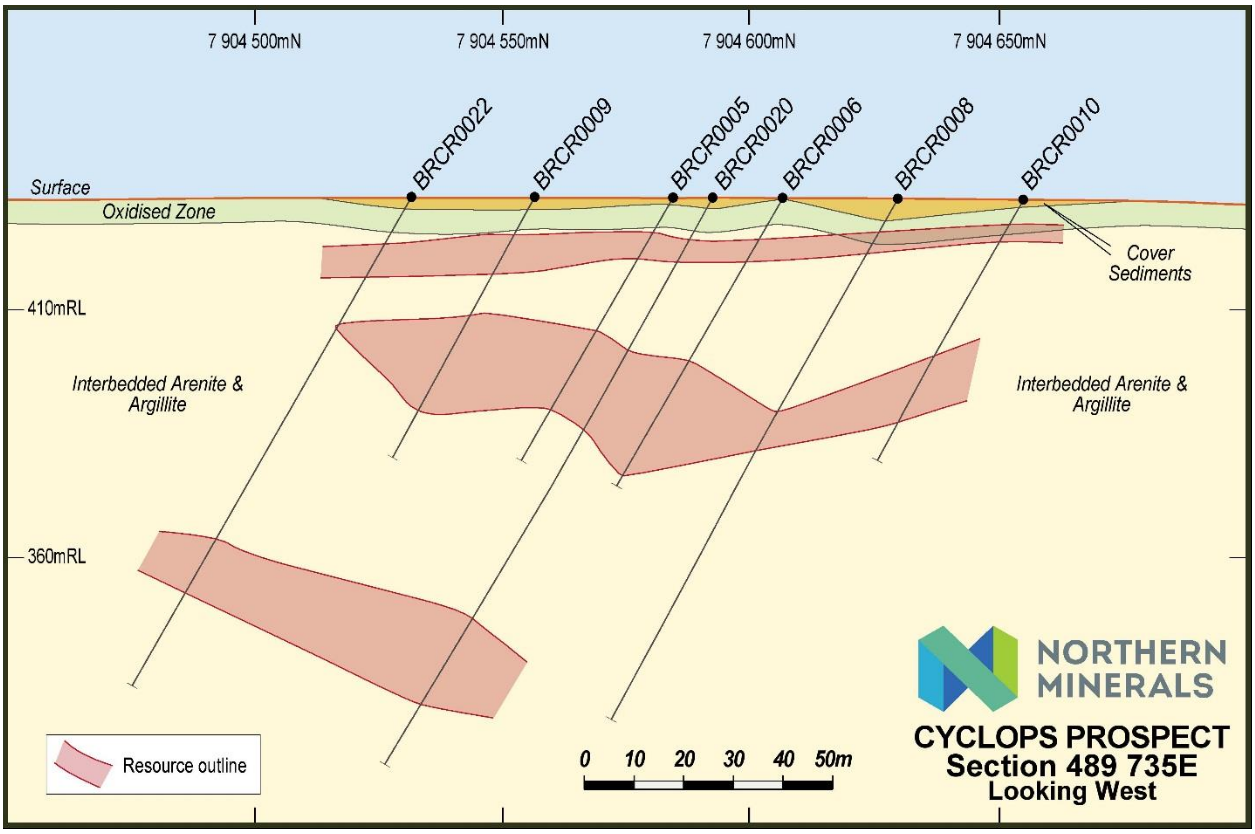
A nominal grade cut off at 0.15% TREO has been used to report the Mineral Resource at the Cyclops deposit. Consideration of mining, metallurgical and pricing assumptions, while not rigorous, suggest that material exceeding 0.15%TREO has a reasonable prospect for eventual economic extraction.

Metallurgical and Mining Assumptions

No metallurgical studies have been completed to date on Cyclops mineralisation. However, the nearby Wolverine and Gambit West deposits have been extensively tested for metallurgical performance, and therefore it is assumed that Cyclops has reasonable prospects for satisfactory metallurgical extraction using similar processes.

To date, no externally reportable technical studies have been completed on suitable mining methods for the Cyclops deposit. Given the grade and dimensions of the Cyclops deposit, generic standard open cut methods provide reasonable prospects of eventual economic extraction. No further assumptions with respect to mining methodology have been made.

Figure 2 – Cyclops Deposit – View of Resource wireframes and drill hole traces



NORTHERN MINERALS

BANSHEE DEPOSIT

Banshee Deposit – Mineral Resource estimate (October 2014)

Category	Mt	TREO %	Dy_2O_3 Kg/t	Y_2O_3 Kg/t	Tb_4O_7 Kg/t	HREO %	U_3O_8 (ppm)	ThO_2 (ppm)	TREO Tonnes
Inferred	1.66	0.21	0.16	1.17	0.02	87	117	51	3,484
Total	1.66	0.21	0.16	1.17	0.02	87	117	51	3,484

Banshee (October 2014) Mineral Resource Individual REO Proportions at 0.15% TREO Cut-off Grade

REO	Inferred %	Total Resource %
La_2O_3	3.12	3.12
CeO_2	6.34	6.34
Pr_6O_{11}	0.73	0.73
Nd_2O_3	3.17	3.17
Sm_2O_3	1.51	1.51
Eu_2O_3	0.24	0.24
Gd_2O_3	3.37	3.37
Tb_4O_7	0.93	0.93
Dy_2O_3	8	8
Ho_2O_3	1.85	1.85
Er_2O_3	6.1	6.1
Tm_2O_3	0.93	0.93
Yb_2O_3	5.86	5.86
Y_2O_3	57	57
Lu_2O_3	0.83	0.83

Geology and Geological Interpretation

The rare earth mineralisation identified to date at the Banshee prospect consists of a number of interpreted mineralised veins striking between 090 and 110 and dipping steeply (65°-85°) to the north. The lateral extent of these features is currently limited to the extent of drilling, while the depth extent is interpreted to be limited by the presence of a chloritic schist zone, which becomes shallower to the south and east of the resource area. Interpreted veins vary in width from one metre up to greater than ten metres, although generally averaging 3-4 metres in width.

The mineralisation at Banshee is thought to be associated with the phosphate rare earth mineral xenotime as observed at other deposits within the project area.

Drilling Techniques

All drilling at the Banshee deposit was using Reverse Circulation (RC) with face sampling hammer. Hole depths ranged from 58m to 124m. A total of 29 holes for 2318m was drilled at the Banshee deposit.

Drilling has been completed on a nominal 50m in easting by 25m in northing grid spacing although this increases to broader spacing at the lateral extremities of the deposit.

Sampling Techniques

RC samples were collected at the drill rig by riffle splitting. All samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. RC drill holes were sampled at one metre intervals exclusively and split at the rig to achieve a target 2-5kg sample weight.

Field QAQC procedures included the field insertion of certified reference materials (standards), blanks and duplicates. Blanks were developed from local host rock following chemical analysis. Field duplicates were collected as a second sample off the splitter (RC). Insertion rates averaged 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones.

Resource Classification Criteria

Classification for Banshee is based upon continuity of geology, mineralisation and grade as well as drill hole and data spacing and quality. Parts of the estimate poorly supported by drilling have not been classified as Mineral Resource.

Sample Analysis Method

Sample analysis was performed by Genalysis Laboratories in Perth.

Up to and including the 2013 drilling the following analytical process occurred; samples were dried, split if necessary, and pulverised prior to analysis of rare earth element suite using ICP-MS. Samples assayed for rare earth elements were fused with sodium peroxide within a nickel crucible and dissolved with hydrochloric acid for analysis. This fusion digestion ensures complete dissolution of the refractory minerals such as xenotime, and is considered a total analysis. The digestion solution, suitably diluted, is analysed by ICP Mass Spectroscopy (ICP-MS) for the determination of the REE (La – Lu) plus Y, Th, U.

Estimation and Modelling Techniques

Grade estimation using Ordinary Kriging (OK) was completed for the Mineral Resource, using Surpac software. Potentially economic elements yttrium, lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and lutetium were estimated in standard oxide forms. TREO was then estimated as the sum of the estimated values for 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. Additionally, the elements uranium and thorium were estimated as elements of potential interest.

The geological interpretation was used to define the mineralisation domains. The mineralisation domains were used as hard boundaries to select sample populations for data analysis and grade estimation.

Drill hole spacing is typically 50m in easting by 25m in northing. Drill hole sample data was flagged with domain codes unique to each mineralisation domain. Sample data was composited to one metre downhole lengths. The influence of extreme sample outliers was reduced by top cutting where required.

Cut-off Parameters

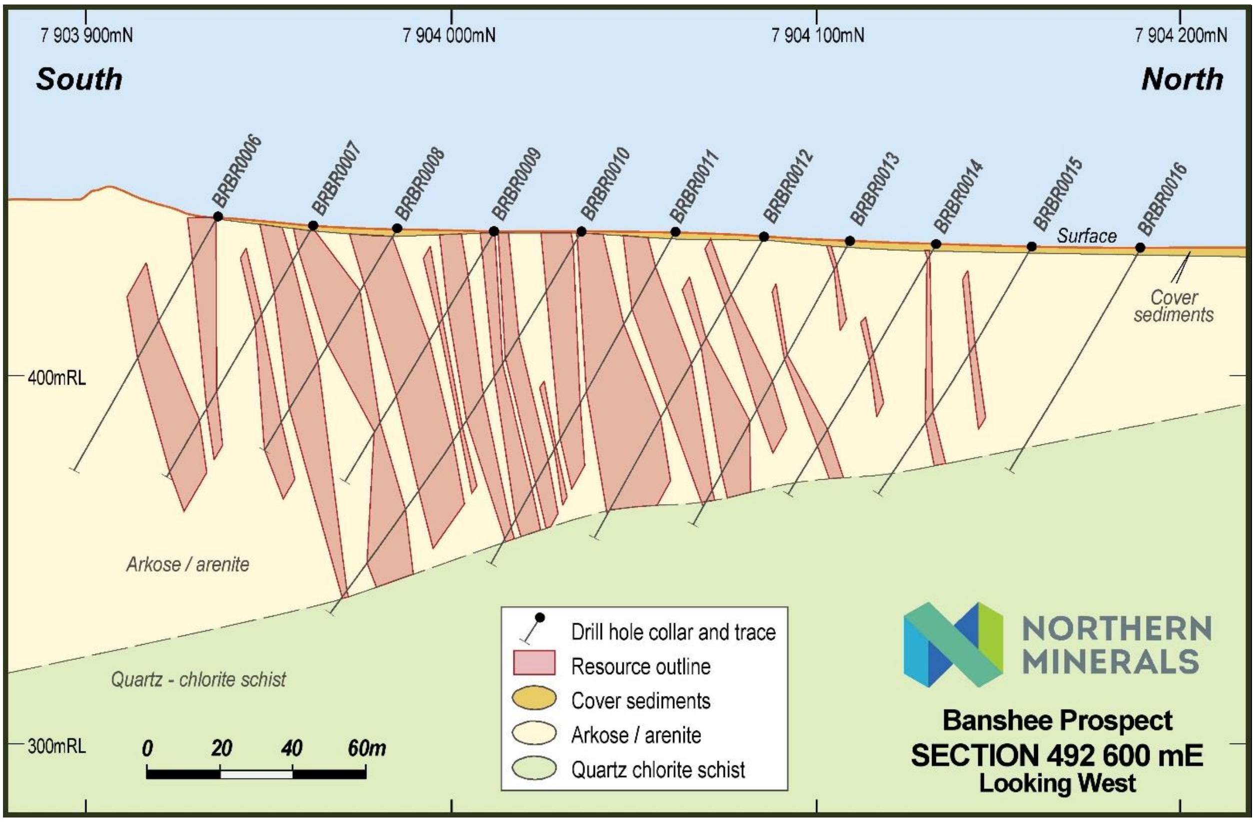
A nominal grade cut off at 0.15% TREO has been used to report the Mineral Resource at the Banshee deposit. Consideration of mining, metallurgical and pricing assumptions, while not rigorous, suggest that material exceeding 0.15%TREO has a reasonable prospect for eventual economic extraction.

Metallurgical and Mining Assumptions

No metallurgical studies have been completed to date on Banshee mineralisation. However, the nearby Wolverine and Gambit West deposits have been extensively tested for metallurgical performance, and therefore it is assumed that Banshee has reasonable prospects for satisfactory metallurgical extraction using similar processes.

To date, no externally reportable technical studies have been completed on suitable mining methods for the Banshee deposit. Given the grade and dimensions of the Banshee deposit, generic standard open cut methods provide reasonable prospects of eventual economic extraction. No further assumptions with respect to mining methodology have been made.

Figure 3 – Banshee Deposit – Simplified cross section



Competent Persons Declaration and Compliance Statements:

The information in this announcement that relates to the Mineral Resource Estimates of Cyclops and Banshee deposits was compiled by Mr Bill Rayson who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Rayson is a full time employee of Northern Minerals and has sufficient experience relevant to the style of mineralization 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 Rayson consents to the inclusion of this information in the form and context in which it appears.

The information in the announcement that relates to the Mineral Resource Estimates of the Wolverine, Gambit, Gambit West and Area 5 deposits is extracted from the report entitled "Wolverine Total Resource Doubled in a Major Upgrade of Browns Range HRE Mineral Resource Estimate" dated 26 February 2014 and is available to view on the Company's website (www.northernminerals.com.au). 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 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.

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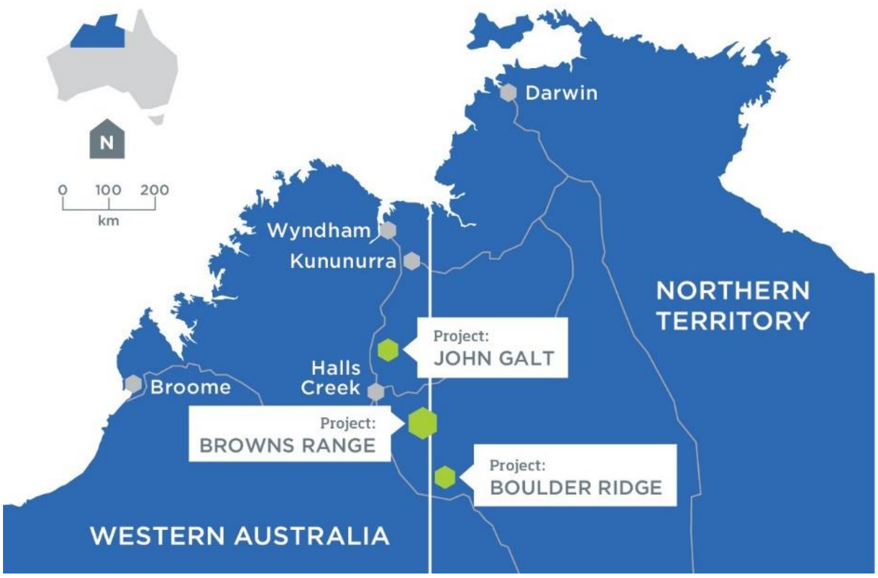
About Northern Minerals:

Northern Minerals Limited (ASX: NTU) is focussed on the becoming a globally significant producer of the heavy rare earth (HRE), dysprosium. NTU has a large landholding in Western Australia and the Northern Territory that is highly prospective for this element.

NTU's 100% owned flagship project is the Browns Range Project (the Project), where it has a number of deposits and prospects containing high value dysprosium and other HREs, hosted in xenotime mineralisation. Dysprosium is an essential ingredient in the production of NdFeB (neodymium iron-boron) magnets used in clean energy and high technology solutions. As a result of increasing global demand for these applications dysprosium supply is critical. The Project's xenotime mineralisation facilitates the use of a relatively simple and cost effective processing flowsheet to produce a high grade dysprosium rich mixed rare earth oxide. The Company is targeting construction to commence in April 2015, followed by production in Q3 2016.

Exploration is also underway at the geologically similar John Galt and Boulder Ridge projects.

For more information northernminerals.com.au.



NORTHERN MINERALS

Table 1 Cyclops
Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• The deposit was sampled using Reverse Circulation (RC) drilling from surface. A total of 27 RC holes for 2,322m were completed at the Cyclops prospect. Holes were drilled towards the south (180 degrees) at a dip of -60 degrees and were completed on a nominal 25m x 25m grid (in easting and northing). • Drill hole collars were originally set out using hand held GPS and on completion the collars were surveyed by survey contractors or trained NTU staff using high precision GPS. Down hole surveys were completed either using single shot cameras or down hole gyro. RC samples were collected at one metre intervals by riffle or cone splitter depending on the drilling contractor. Sampling was carried out under NTU protocols and employed QAQC procedures in line with industry best practice. • RC drill holes were sampled at one metre intervals exclusively and split to achieve a target 2-3 kilogram sample weight. RC samples were dried, crushed, split and pulverised by Genalysis Laboratories. Following preparation at Genalysis, samples were analysed by a combination of portable XRF and ICP Mass Spectroscopy (ICP-MS).
Drilling techniques	• *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).*	• RC drill holes account for all of the drill metres within the prospect area with diameters of either 115mm or 140mm. RC drilling was completed using face sampling hammer with hole depths ranging from 50m to 162m.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• RC recovery was assessed by a combination of weight of bulk sample against a nominal recovery mass, and via subjective assessment based on volume recovered. RC recoveries were observed to be generally acceptable with recoveries typically

Criteria	JORC Code explanation	Commentary
	• *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.*	80% or greater. RC recovery information is recorded in the geologist logs and entered into the database. • RC sample recoveries were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned ensuring no material build up. • Assessments on the effect of low recoveries were completed for the RC drilling and found that there was not likely to be any material impact or bias on the reported assay results as a result of the reduced recoveries.
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• RC logging was completed on one metre intervals at the rig by the geologist. Logging was 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 loading into the database. Chip trays were collected for each of the RC intervals. • Logging was of RC chips and qualitative in nature. • . 100% of all recovered intervals were geologically logged. No geotechnical logging was completed.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No diamond core was available for the Mineral Resource Estimate. • RC samples were collected from the full recovered interval at the drill rig by either riffle splitting or using a static cone splitter. All samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples collected in mineralisation were dry. • The sample preparation techniques employed for the RC samples follow industry best practice. Samples are oven dried at 120°C for 8 hours and then pulverised to achieve a grind size of 85% passing 75 micron. • Field QAQC procedures included the field insertion of certified reference materials (standards) having a range of values reflecting the general spread of values observed in the mineralisation. Blanks were also inserted in the field and

Criteria	JORC Code explanation	Commentary
		developed from local host rock following chemical analysis. Field duplicates were collected by a second sample off the splitter and separate submission and analysis at the laboratory. Insertion rates averaged 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones. • Field duplicates were regularly taken from RC samples. 49 duplicates were available, with a relative paired difference of 22% for Y and 12% for Ce. • Sample sizes are in line with industry standard practice. They are appropriate to the size of the material being sampled.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.* • *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.*	• Samples were tested by a combination of portable XRF (pXRF) followed by selective assaying via ICP-MS. • Portable XRF analysis were taken directly from the homogenised sample pulp for the elements Y and Ce, and area total analysis. • Samples assayed by ICP-MS 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. The digestion solution, suitably diluted is analysed by ICP-MS for the determination of the REE (La – Lu) plus Y, Th, U. • Northern Minerals extensively uses portable Xray fluorescence (pXRF) technology. In the field, a series of Niton (XL3T-950 GOLDD+) XRF hand held tools were used to assist with the identification of mineralised zones for sample collection and submission. A reading time of 30 seconds was used, with readings taken for every metre of RC drilling. Intervals for which readings returned Yttrium (Y) of 200ppm or greater were selected for analysis. A selection of sub 200ppm Yttrium samples were also analysed. Field pXRF readings were not incorporated into analytical results for mineral resource estimation. As of 2014, samples submitted for analysis at

Criteria	JORC Code explanation	Commentary
		Genalysis have been analysed by pXRF following the standard laboratory preparation (i.e, drying, splitting, pulverisation). Yttrium was analysed using an Olympus InnovX Delta Premium, 30 second reading time. Cerium was analysed using a Niton (XL3T-950 GOLDD+), 30 second reading time. Only selected samples have then been progressed to full analysis via ICP-MS. For samples not progressed to ICP-MS, the pXRF analysis has been incorporated into the Mineral Resource estimate. Where pXRF analysis were used in the Mineral Resource estimate, the final rare earth element values were assigned from the raw analysis using correlation studies for which both pXRF and ICP-MS were available. • QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. Certified reference materials, using values across the range of mineralisation, were inserted blindly and randomly. Results highlight that the sample assay values are appropriate for use in the mineral resource estimate.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• RC chip tray photographs have been reviewed for the recorded sample intervals. • No drill holes have been completed for the purposes of twinning. • Primary data was collected into a proprietary logging package (OCRIS) with in-built validation. Details were extracted and pre-processed prior to loading. Datashed was used as the database storage and management software and incorporated 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. • Adjustments made to the assay include the conversion of reported elemental assays for a range of elements to the equivalent oxide compound as applicable to rare earth oxides (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,

Criteria	JORC Code explanation	Commentary
		Ho_2O_3,Er_2O_3,Tm_2O_3,Yb_2O_3,Y_2O_3,and Lu_2O_3). In all instances the original elemental data has been stored in the database and the equivalent oxide values loaded into appropriately labelled fields identifying them as calculated values. Oxide calculations are completed by the laboratory and checked by Northern Minerals. No issues were identified. The TREO (Total Rare Earth Oxide) is calculated from addition 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, Y_2O_3, and Lu_2O_3. Note that Y_2O_3 is included in the TREO calculation. Furthermore, when using pXRF analysis in the Mineral Resource estimate yttrium and cerium values were obtained from the pXRF. These values were then calibrated by comparing pXRF results to known ICP-MS results upon identical samples.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Drill collar locations were surveyed using high accuracy GPS by a suitably qualified independent surveying contractor in 2012 and 2013 and by trained NTU staff in 2014. Down hole surveys were completed using single shot or multi shot cameras at the time of drilling with down hole gyroscopic surveys conducted at the completion of drilling. Survey accuracy of both collars and down hole is considered acceptable. • The grid system used is MGA94 Zone 52. All reported coordinates are referenced to this grid. • Topographic control is based on a 25m x 25m gridded survey over the Cyclops prospect, carried out by trained NTU staff in 2014 using a high accuracy RTK GPS. There was no significant discrepancy between this survey and the surveyed collar data.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	• Resource drilling for Cyclops has been completed on a nominal 25m in easting by 25m in northing grid spacing. • The degree of geological and grade continuity demonstrated by the data density is sufficient to support the definition of Mineral Resources and the associated classifications applied to the

Criteria	JORC Code explanation	Commentary
	• *Whether sample compositing has been applied.*	Mineral Resource estimate as defined under the 2012 JORC Code. • No compositing was performed on the samples prior to laboratory analysis.
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.* • *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.*	• Drilling orientations have been designed to intersect mineralisation at appropriate angles. No sampling bias has been identified. • The orientation of drilling with respect to mineralisation 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 a 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 were stored in a secure area until loaded and delivered to the 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.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Internal reviews of the data integrity and consistency of the drill hole database shows sufficient quality to support resource estimation.

Section 2 Reporting of Exploration Results

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

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 deposit is located wholly within Mining Lease 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

Criteria	JORC Code explanation	Commentary
	• *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.*	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. • The tenement is 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 at the Project. PNC completed a limited number of shallow drill holes at Area 5 in the 1980s. Regional exploration for uranium mineralisation was completed in the 1980s by PNC and in the 2000s by Areva.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Project is 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 style of mineralisation is structurally controlled hydrothermal alteration and infill. The main mineral of economic importance, xenotime, is typically associated with varying degrees of veining and brecciation. Mineralogical examination shows the heavy rare earth elements (REE) are hosted by xenotime (YPO_4). The light REEs are also hosted by the florencite $(Nd,Ce,La)Al_3(PO4)_2(OH)_6$ – goyazite $SrAl_3(PO4)_2(OH)_5.H_2O$ series minerals, and are the only other REs minerals recognised to date.
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*	• No exploration results have been reported in this release, therefore there is no drill hole information to report. This section is not relevant to reporting Mineral Resources.

Criteria	JORC Code explanation	Commentary
	○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
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.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No exploration results have been reported in this release, therefore there is no drill hole intercepts to report. This section is not relevant to reporting Mineral Resources.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
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.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
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.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
Other substantive	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.

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Criteria	JORC Code explanation	Commentary
exploration data	*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.*	
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The decision as to the necessity for further exploration at Browns Range is pending completion of further studies.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Logging has been completed directly onto a laptop in the field using a proprietary geological logging package with in-built validation. All data transfer is electronic, with no double handling of data. Sample numbers are unique. Logging and survey information was reviewed by the responsible geologist prior to final load into the database, then printed on paper and checked by two geologists to ensure no transcription or keying errors prior to the geological interpretation. The data is stored in a single database for the Browns Range Project. • The first validation starts at the field logging package during data entry. Data validations are routinely run prior to uploading of data to the database. Many check routines and rules are run to ensure referential integrity, such as overlapping intervals, repeat sample IDs, out of range density measurements, survey azimuth deviations greater than ten degrees, drill hole dip deviations greater than five degrees, and missing samples have been developed firstly using AcQuire (2011-12) and then in

Criteria	JORC Code explanation	Commentary
		Datashed (2013 onwards). Internal validations are completed when data is loaded into spatial software for geological interpretation and resource estimation. This was routinely completed for the Browns Range dataset(s). Outlier assays are routinely checked via QAQC reports automated from the database, and followed up by the responsible geologist. This is done by checking standards, blanks, and duplicate data.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Competent person, Bill Rayson, is a full-time employee of Northern Minerals and visits the Brown Range site regularly.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The Browns Range REE mineralisation is one of only a few hydrothermal xenotime mineralisation styles documented globally. Detailed mapping, structural, alteration and mineralisation studies have been completed by NTU geologists and contracted specialists between 2011 and 2014. These data and close spaced drilling has led to a good understanding of mineralisation controls. The REE mineralisation is hosted by approximately east-west striking structures and veins, within a coarse sedimentary package on the western side of the regionally extensive Browns Range Dome. This is a feature seen within the Browns Range resources at Wolverine, Gambit, Gambit West, Area 5, Cyclops and Banshee localities. Breccia and quartz vein structures are mappable, and can be followed with confidence under transported cover geochemistry and step-out drilling. There is associated sericite-hematite-silica alteration. The observations regarding the geological model are robust. The geological work is continually being refined. • No assumptions are made. • No alternative interpretations were considered. • Geological observation has underpinned the resource estimation and geological model. Rock type, alteration style, degree of brecciation, intensity of alteration, structural

Criteria	JORC Code explanation	Commentary
		measurements and geochemistry (HRE ratios) were used to define the domains. The geological model was developed as an iterative process of checking against logging, photography and relogging core/rock chips as needed during interpretation. The extents of the geological model were constrained by drilling with some extrapolation beyond drilling in line with the resource classification of Inferred Resource. • Key factors that are likely to affect the continuity of grade are: the inherent variability of brecciated rocks (the breccia rock characteristics can change rapidly from centimetre to meter scale); the spatial continuity of veined xenotime; and since the deposit is structurally hosted, then there is also inherent disruption of continuity by faulting at different scales.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• Mineralisation at Cyclops has been modelled within three envelopes which are constrained by favorable geological units that have a shallow dip to the west. Drilling to date has defined the zones along a strike length of 80-100m and to a depth of up to 125m. The units vary in thickness from a few metres to 10s of metres. Mineralisation extends from surface, shallower in the east, extending deeper to the west.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*	• Grade estimation using Ordinary Kriging (OK) was completed for the Mineral Resource, using Surpac software. Potentially economic elements Yttrium, Lanthanum, Cerium, Praseodymium, Neodymium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium and Lutetium were estimated in standard oxide forms. Total rare earth oxide was then estimated as the sum of the estimated values for 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. Additionally, the elements uranium and thorium were estimated as elements of potential interest. The geological interpretation was used to define the mineralisation domains. The mineralisation domains were used as hard boundaries to

Criteria	JORC Code explanation	Commentary
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	select sample populations for data analysis and grade estimation. Drill hole spacing is typically 25m in easting by 25m in northing. Drill hole sample data was flagged with domain codes unique to each mineralisation domain. Sample data was composited to one metre downhole lengths. The influence of extreme sample outliers was reduced by top cutting where required. The Mineral Resource estimate was constrained to blocks within 25m of a sample point. • No previous estimates have been reported. No previous mining activity has taken place in this area. • No assumptions were made regarding recovery of by-products. • Estimates were undertaken for U and Th as potential deleterious elements. • The estimate was into a 12.5mE by 12.5mN by 5mRl parent cell size with variable subcelling. Sampling was via RC holes 25mN by 25mE sampled at 1m downhole intervals. An omnidirectional search was allowed, with 10 samples minimum and 40 samples maximum. The maximum search radius was 100m, with searching constrained by the estimation domain and reporting constrained by only blocks within 25m of a sample being reported. • No selective mining units were assumed in this estimate. Model block sizes were determined primarily by drill hole spacing. • Good corelations exist between Y and Sm Eu Gd Tb Dy Ho Er Tm Yb Lu. Similarly good correlations exist between Ce and La, Pr, Nd. These correlations have been used in the Mineral Resource estimate to assist with variography and to assign a calculated pXRF grade for elements other than Y and Ce (pXRF accounts for 13% of the TREO grade in the reported Mineral Resource). • The geological interpretation is used to define the mineralisation domains. All of the mineralisation domains are used as hard boundaries to select sample populations for variography and grade estimation.

Criteria	JORC Code explanation	Commentary
		• Analysis using log probablity plots and decile plots showed that the dataset included outlier values that required top cut values to be applied. The effect of the top cut reduced the TREO grade by 29%, ie , from 0.35% TREO to 0.27% TREO. • Validation of the block model was carried out via a volumetric comparison of the mineralisation wireframes to the block model volumes. Block model volume was compared to wireframe volume. Block model grades were compared to input composite grades within the wireframe.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• All tonnages are estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A nominal grade cut off at 0.15% TREO has been used to report the Mineral Resource at the deposit. Consideration of mining, metallurgical and pricing assumptions, while not rigorous, suggest that material exceeding 0.15%TREO has a reasonable prospect for eventual economic extraction.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• To date, no technical studies have been completed (to a reportable standard) on suitable mining methods for the deposit. Given the grade and near surface location, it is assumed that the deposit will be mineable using generic open cut methods.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• No metallurgical studies have been completed to date on the mineralisation.The nearby Wolverine and Gambit West Deposits have been extensively tested for metallurgical performance, and it is assumed that Cyclops has reasonable prospects for satisfactory metallurgical extraction using similar processes.

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Environmental studies and approvals for mining similar nearby deposits are well advanced and have not highlighted any environmental issues likely to be detrimental to the prospects for extraction of this mineral resource.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Assignment of bulk density values to the block model were assumed based on measurements obtained at nearby prospects with similar lithology and mineralisation styles. • Bulk density determinations have not been completed and instead uses assigned values from similar mineralisation. Drilling has not identified the presence of any voids nor significant differences between lithologies and alteration zones. • The bulk density values applied to the Banshee deposit are as follows: Background oxide 2.27 t/m^3, Background Fresh 2.36 t/m^3, Mineralisation Oxide 2.4 t/m^3, Mineralisation Fresh 2.45 t/m3.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• Classification for Cyclops is based upon continuity of geology, mineralisation and grade, using drill hole and density data spacing, and quality. • The Mineral Resource is classified entirely as Inferred. This takes into account substantial uncertainty around many relevant factors. • The classification appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Mineral Resource estimate has not been audited.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Mineral Resource classification applied to the deposit implies a confidence level and level of accuracy in the estimates. • These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the deposit. • No production data is available.

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Table 1 Banshee

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• The deposit was sampled using Reverse Circulation (RC) drilling from surface. A total of 27 RC holes for 2,322m were completed at the Banshee prospect. Holes were drilled towards the south (180 degrees) at a dip of -60 degrees and were completed on a nominal 50m x 25m grid (in easting and northing, respectively). • Drill hole collars were originally set out using hand held GPS and on completion the collars were surveyed by survey contractors using high precision GPS. Down hole surveys were completed either using single shot cameras or down hole gyro. RC samples were collected at one metre intervals by riffle splitter. Sampling was carried out under NTU protocols and employed QAQC procedures in line with industry best practice. • RC drill holes were sampled at one metre intervals exclusively and split to achieve a target 2-3kilogram sample weight. RC samples were dried, crushed, split and pulverised by Genalysis Laboratories in Perth prior to analysis of the rare earth element suite using ICP Mass Spectroscopy (ICP-MS).
Drilling techniques	• *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).*	• RC drill holes account for all of the drill metres within the prospect area with diameters of 115mm. RC drilling was completed using face sampling hammer with hole depths ranging from 58m to 124m.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade*	• RC recovery was assessed subjectively based on volume recovered. 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.

Criteria	JORC Code explanation	Commentary
	and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• RC sample recoveries were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned ensuring no material build up. • Assessments on the effect of low recoveries were completed for the RC drilling and found that there was not likely to be any material impact or bias on the reported assay results as a result of the reduced recoveries.
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• RC logging was completed on one metre intervals at the rig by the geologist. Logging was 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. • Logging was generally qualitative in nature. • 100% of all recovered intervals were geologically logged. No geotechnical logging was completed.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No diamond core was available for the Mineral Resource estimate. • RC samples were collected from the full recovered interval at the drill rig by riffle splitting. All samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples collected in mineralisation were dry. • The sample preparation techniques employed for the RC samples follow industry best practice. Samples are oven dried at 120°C for 8 hours and then pulverised to achieve a grind size of 85% passing 75 micron. • Field QAQC procedures included the field insertion of certified reference materials (standards) having a range of values reflecting the general spread of values observed in the mineralisation. Blanks were also inserted in the field and developed from local host rock following chemical analysis. Field duplicates were collected by a second sample off the

Criteria	JORC Code explanation	Commentary
		splitter and separate submission and analysis at the laboratory. Insertion rates averaged 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones. • Field duplicates were regularly taken from RC samples. 105 duplicates were available, with a relative paired difference of 8% for Y and 11% for Ce. • Sample sizes are in line with industry standard practice. They are appropriate to the size of the material being sampled.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.* • *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.*	• 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. 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. • Northern Minerals extensively uses portable Xray fluorescence (pXRF) technology. In the field a series of Niton (XL3T-950 GOLDD+) hand held tools were used to assist with the identification of mineralised zones for sample collection and submission. A reading time of 30 seconds was used, with readings taken for every metre of RC drilling. Intervals for which readings returned Yttrium (Y) of 200ppm or greater were selected for analysis. A selection of sub 200ppm Yttrium samples were also analysed. Field pXRF readings were not incorporated into analytical results for the Mineral Resource estimation. • QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. Umpire laboratory campaigns were initially conducted with two other laboratories in order to independently verify reported results. This has been revised to one laboratory due to the specialised nature of REE analysis. Genalysis-Perth are considered experts in their respective analytical fields and

Criteria	JORC Code explanation	Commentary
		as such the submission of pulps for round robin analysis to other analytical laboratories are not likely to be as reliable (as determined from certification of standards). Results of round robin analysis completed show good precision. Certified reference materials, using values across the range of mineralisation, were inserted blindly and randomly. Results highlight that sample assay values are appropriate for use in the Mineral Resource estimate.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• RC chip tray photographs have been reviewed for the recorded sample intervals. High range values are typically resubmitted for repeat analysis with results comparing within acceptable limits. • No drill holes have been completed for the purposes of twinning. • Primary data was collected into a proprietary logging package (OCRIS) with in-built validation. Details were extracted and pre-processed prior to loading. In 2012 data was managed and stored off site using AcQuire software. In 2013 Datashed was used as the database storage and management software and incorporated 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. • Adjustments made to the assay were limited the conversion of reported elemental assays for a range of elements to the equivalent oxide compound as applicable to rare earth oxides (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, Y_2O_3,and Lu_2O_3). In all instances the original elemental data has been stored in the database and the equivalent oxide values loaded into appropriately labelled fields identifying them as calculated values. Oxide calculations are completed by the laboratory and checked by Northern Minerals. No issues were identified. The TREO (Total Rare Earth Oxide) is calculated from addition of La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O7, Dy_2O_3, Ho2O3, Er_2O_3, Tm_2O_3, Yb_2O_3, Y_2O_3, and Lu_2O_3. Note

Criteria	JORC Code explanation	Commentary
		that Y_2O_3 is included in the TREO calculation.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Drill collar locations were surveyed using high accuracy GPS by a suitably qualified independent surveying contractor. Down hole surveys were completed using single shot or multi shot cameras at the time of drilling with down hole gyroscopic surveys conducted at the completion of drilling. Survey accuracy of both collars and down hole is considered acceptable. • The grid system used is MGA94 Zone 52. All reported coordinates are referenced to this grid. • Topographic control is based on Lidar survey data collected in 2013 with accuracy considered to be better than 20cm.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Resource drilling for Banshee has been completed on a nominal 50m in easting by 25m in northing grid spacing. • The degree of geological and grade continuity demonstrated by the data density is sufficient to support the definition of Mineral Resources and the associated classifications applied to the Mineral Resource estimate as defined under the 2012 JORC Code. • No compositing was performed on the samples prior to laboratory analysis.
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.* • *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.*	• Drilling orientations have been designed to intersect mineralisation at appropriate angles. No sampling bias has been identified. • The orientation of drilling with respect to mineralisation 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 a 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 were stored in a secure area until loaded and delivered to the Genalysis laboratory in Perth.

Criteria	JORC Code explanation	Commentary
		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.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Internal reviews of the data integrity and consistency of the drill hole database shows sufficient quality to support resource estimation.

Section 2 Reporting of Exploration Results

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

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 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 deposit is located wholly within Mining Lease 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 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 tenement is 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 at Banshee. Regional exploration for uranium mineralisation was completed in the 1980s by PNC and in the 2000s by Areva.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Browns Range prospects (including Banshee) 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

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Criteria	JORC Code explanation	Commentary
		orthogneiss and schist unit to the south. The dome and its aureole of metamorphics are surrounded by the Mesoproterozoic Gardiner Sandstone (Birrindudu Group).The style of mineralisation is structurally controlled hydrothermal alteration and infill. The main mineral of economic importance, xenotime is typically associated with varying degrees of veining and brecciation: Mineralogical examination shows the heavy rare earth elements (REE) are hosted by xenotime (YPO4). The light REEs are also hosted by the florencite (Nd,Ce,La)$Al_3(PO_4)_2(OH)_6$ – goyazite $SrAl_3(PO_4)_2(OH)_5.H_2O$ series minerals, and are the only other REs minerals recognised to date.
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.* • *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.*	• No exploration results have been reported in this release, therefore there is no drill hole intercepts to report. This section is not relevant to reporting Mineral Resources.
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.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values*	• No exploration results have been reported in this release, therefore there is no drill hole intercepts to report. This section is not relevant to reporting Mineral Resources.

Criteria	JORC Code explanation	Commentary
	should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
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.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
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.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
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.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The decision as to the necessity for further exploration at Browns Range is pending completion of further studies.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Logging has been completed directly onto a laptop in the field using a proprietary geological logging package with in-built validation. All data transfer is electronic, with no double handling of data. Sample numbers are unique. Logging and survey information was reviewed by the responsible geologist prior to final load into the database, then printed on paper and checked by two geologists to ensure no transcription or keying errors prior to the geological interpretation. The data is stored in a single database for the Browns Range Project. • The first validation starts at the field logging package during data entry. Data validations are routinely run prior to uploading of data to the database. Many check routines and rules are run to ensure referential integrity, such as overlapping intervals, repeat sample IDs, out of range density measurements, survey azimuth deviations greater than ten degrees, drill hole dip deviations greater than five degrees, and missing samples have been developed firstly using AcQuire (2011-12) and then in Datashed (2013 onwards). Internal validations are completed when data is loaded into spatial software for geological interpretation and resource estimation. This was routinely completed for the Browns Range dataset(s). Outlier assays are routinely checked via QAQC reports automated from the database, and followed up by the responsible geologist. This is done by checking standards, blanks, and duplicate data.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	• Competent person, Bill Rayson, is a full-time employee of Northern Minerals and visits the Brown Range site regularly.

Criteria	JORC Code explanation	Commentary
	• *If no site visits have been undertaken indicate why this is the case.*	
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The Browns Range REE mineralisation is one of only a few hydrothermal xenotime mineralisation styles documented globally. Detailed mapping, structural, alteration and mineralisation studies have been completed by NTU geologists and contracted specialists between 2011 and 2014. These data and close spaced drilling, generally <25m, has led to a good understanding of mineralisation controls. The REE mineralisation is hosted by approximately east-west striking structures and veins, within a coarse sedimentary package on the western side of the regionally extensive Browns Range Dome. This is a feature seen within the Browns Range resources at Wolverine, Gambit, Gambit West, Area 5, Cyclops and Banshee localities. Breccia and quartz vein structures are mappable, and can be followed with confidence under transported cover using geochemistry and step-out drilling. There is associated sericite-hematite-silica alteration. The observations regarding the geological model are robust. • No assumptions are made. • No alternative interpretations were considered. • Geological observation has underpinned the resource estimation and geological model. Rock type, alteration style, degree of brecciation, intensity of alteration, structural measurements and geochemistry (HRE ratios) were used to define the domains. The geological model was developed as an iterative process of checking against logging, photography and relogging core/rock chips as needed during interpretation. The extents of the geological model were constrained by drilling with some extrapolation beyond drilling in line with the resource classifications of Inferred Resource. • Key factors that are likely to affect the continuity of grade are: the inherent variability of brecciated rocks (the breccia rock characteristics can change rapidly from centimetre to meter scale); the spatial variability of veined xenotime; and as the

Criteria	JORC Code explanation	Commentary
		deposit is structurally hosted there is also inherent disruption of continuity by faulting at different scales.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• Mineralised lenses dip between 65-85 degrees to the north and strike between 090-110 degrees. Lenses vary in width from a few metres to tens of metres, although average 3-4 metres, and have a strike length of approximately 150 metres. Mineralisation extends to depths between 70 and 110 metres below surface, shallower in the east and extending deeper to the west.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Grade estimation using Ordinary Kriging (OK) was completed for the Mineral Resource, using Surpac software. Potentially economic elements Yttrium, Lanthanum, Cerium, Praseodymium, Neodymium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium and Lutetium were estimated in standard oxide forms. Total rare earth oxide is estimated as the sum of the estimated values for 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. Additionally, the elements uranium and thorium were estimated as elements of potential interest. The geological interpretation was used to define the mineralisation domains. The mineralisation domains were used as hard boundaries to select sample populations for data analysis and grade estimation. Drill hole spacing is typically 50m in easting by 25m in northing. Drill hole sample data was flagged with domain codes unique to each mineralisation domain. Sample data was composited to one metre downhole lengths. The influence of extreme sample outliers was reduced by top cutting where required. The Mineral Resource estimate was constrained to blocks within the hard boundary domain wireframes. • No previous estimates have been reported. No previous mining activity has taken place in this area. • No assumptions were made regarding recovery of by-products.

Criteria	JORC Code explanation	Commentary
		• Estimates were undertaken for U and Th as potential deleterious elements. • The Banshee block model has parent blocks with dimensions 25mE by 12.5mN by 2.5 mRL. This is half the typical drill spacing. Sub blocking was allowed down to 6.25mE by 3.125mN by 0.625 mRL. Search distances were set to 75% of the variogram ranges. Minimum samples were 16 with maximum of 40. • No selective mining units were assumed in this estimate. Model block sizes were determined primarily by drill hole spacing and statistical analysis of the effect of changing block sizes on the final estimates. • No assumptions about the correlation between variables were used in the estimate. • The geological interpretation is used to define the mineralisation domains. All of the mineralisation domains are used as hard boundaries to select sample populations for variography and grade estimation. • Analysis showed that the domains included outlier values that and top cut values were applied. Top cut values were chosen based on the log-probability plot in each domain and a visual check of the location of any possible outlier values. • Validation of the block model was carried out using swath plots.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• All tonnages are estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A nominal grade cut off at 0.15% TREO has been used to report the Mineral Resource at the deposit. Consideration of mining, metallurgical and pricing assumptions, while not rigorous, suggest that material exceeding 0.15%TREO has a reasonable prospect for eventual economic extraction.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• To date, no technical studies have been completed (to a reportable standard) on suitable mining methods for the deposit. Given the grade and near surface location, it is assumed that the deposit will be mineable using generic open cut methods.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• No metallurgical studies have been completed to date on the mineralisation. The nearby Wolverine and Gambit West Deposits have been extensively tested for metallurgical performance, and it is assumed that Banshee has reasonable prospects for satisfactory metallurgical extraction using similar processes.
Environmen-tal factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Environmental studies and approvals for mining similar nearby deposits are well advanced and have not highlighted any environmental issues likely to be detrimental to the prospects for extraction of this mineral resource.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones*	• Assignment of bulk density values to the block model were assumed based on measurements obtained at nearby prospects with similar lithology and mineralisation styles. Bulk densities are assigned based on weathering state and mineralisation. Bulk Densities ranged from 2.27 - 2.45. • Bulk density determinations have not been completed and instead uses assigned values from similar prospects. Drilling

Criteria	JORC Code explanation	Commentary
	within the deposit. • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	has not identified the presence of any voids nor significant differences between lithologies and alteration zones. • The bulk density values applied to the Banshee deposit are as follows: Background oxide 2.27 t/m^3, Background Fresh 2.36 t/m^3, Mineralisation Oxide 2.4 t/m^3, Mineralisation Fresh 2.45 t/m^3.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• Classification for Banshee is based upon continuity of geology, mineralisation and grade, using drill hole data spacing and quality. • The Mineral Resource is classified entirely as Inferred. This takes into account substantial uncertainty around many relevant factors. • The classification appropriately reflects the Competent Persons view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Mineral Resource estimate has not been audited.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Mineral Resource classification applied to the deposit implies a confidence level and level of accuracy in the estimates. • These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the deposit. • No production data is available.