ASX ANNOUNCEMENT
28 SEPTEMBER 2018

MINERAL RESOURCE AND ORE RESERVE UPDATE – POST TRIAL MINING OPERATIONS AT JUNE 30 2018

Highlights:

- 1% increase in Mineral Resources as a result of higher tonnages during mining
- Several deposits were re-estimated during the year, resulting in changes at Wolverine, Gambit and Gambit West
- Ore Reserves were impacted by mining depletion as well as the removal of Gambit and Gambit West following re-estimation
- Company is targeting maiden Mineral Resource estimates for Dazzler and Iceman during 2019

Australian heavy rare earths producer, Northern Minerals (ASX: NTU; the Company) is pleased to announce an update to the Mineral Resources and Ore Reserves for the Browns Range Heavy Rare Earth Project (the **Project**) in northern Western Australia.

The Total Mineral Resource at the Project is estimated at **9.07 Mt @ 0.63% total rare earth oxides (TREO) comprising 57,308,000 kg contained TREO** (classified and reported according to the guidelines of the 2012 JORC Code[1]).

The Total Ore Reserve at the Project is estimated at **3.29 Mt @ 0.68% total rare earth oxides (TREO) comprising 22,339,000 kg contained TREO** (classified and reported according to the guidelines of the 2012 JORC Code[1]).

Compared to the Mineral Resource and Ore Reserve statements as at 30 June 2017, there was a 1% increase in Mineral Resource tonnes, with no change to the dysprosium or terbium grades. Ore Reserves decreased by 457,000 tonnes compared to last year as a result of mining depletion and the decision to remove Gambit and Gambit West from the estimate.

Commenting on the updated statements, Managing Director and CEO, Mr George Bauk, said "*Following the change in status from explorer to producer, it is imperative that we continue to update our knowledge of the deposits and continue to expand our resource base."*

"*The recent high-grade discoveries at Dazzler and Iceman will be a major exploration focus over the coming year."*

"*With the three-year Pilot Plant now operational, the exploration team has been charged with finding and delineating additional resources that can increase the full-scale mine life from eleven years to over twenty."*

[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).

Northern Minerals
Level 1
675 Murray Street
West Perth WA 6005

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

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

Table 1: Browns Range Mineral Resource Estimate, Combined (At 30 June 2018)

Deposit	Classification	Mt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
Wolverine	Indicated	2.88	0.84	0.74	4.89	0.11	89	24,195,000
	Inferred	1.97	0.89	0.76	5.15	0.11	88	17,588,000
	Total[1]	4.85	0.86	0.75	4.99	0.11	89	41,786,000
Gambit West	Indicated	0.12	1.8	1.62	10.98	0.22	94	2,107,000
	Inferred	0.13	0.51	0.4	2.67	0.05	81	674,000
	Total[1]	0.25	1.11	0.97	6.56	0.13	91	2,781,000
Pilot Plant Stockpiles	Indicated	0.21	0.97	0.85	5.63	0.12	89	2,049,000
	Inferred	0.04	0.26	0.2	1.35	0.03	79	92,000
	Total	0.25	0.87	0.75	5.01	0.11	89	2,141,000
Gambit	Indicated							
	Inferred	0.21	0.89	0.83	5.62	0.11	96	1,878,000
	Total[1]	0.21	0.89	0.83	5.62	0.11	96	1,878,000
Area 5	Indicated	1.38	0.29	0.18	1.27	0.03	69	3,953,000
	Inferred	0.14	0.27	0.17	1.17	0.03	70	394,000
	Total[1]	1.52	0.29	0.18	1.26	0.03	69	4,347,000
Cyclops	Indicated							
	Inferred	0.33	0.27	0.18	1.24	0.03	70	891,000
	Total[1]	0.33	0.27	0.18	1.24	0.03	70	891,000
Banshee	Indicated							
	Inferred	1.66	0.21	0.16	1.17	0.02	87	3,484,000
	Total[1]	1.66	0.21	0.16	1.17	0.02	87	3,484,000
Total[1]	**Indicated**	4.59	0.71	0.6	3.99	0.09	86	32,304,000
	Inferred	4.48	0.56	0.46	3.18	0.07	86	25,001,000
	Total[1]	9.07	0.63	0.53	3.59	0.08	86	57,308,000

[1] - Rounding may cause some computational discrepancies
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;
HRE or 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
HREO % = HREO / TREO * 100

Table 2: Browns Range Ore Reserve Estimate, Combined (At 30 June 2018)

Deposit	Class	Mt	TREO kg/t	TREO kg	Dy_2O_3 kg/t	Dy_2O_3 kg	Tb_4O_7 kg/t	Tb_4O_7 kg	Y_2O_3 Kg/t	Y_2O_3 kg
OPEN PIT										
Wolverine	Probable	0.722	6.17	4,458,000	0.55	400,000	0.08	57,000	3.60	2,598,000
Area 5	Probable	0.467	2.24	1,048,000	0.14	65,000	0.02	10,000	0.99	463,000
UNDERGROUND										
Wolverine	Probable	2.104	8.00	16,833,000	0.70	1,483,000	0.10	221,000	4.71	9,908,000
Total Reserve[1]	**Probable**	3.293	6.78	22,339,000	0.59	1,948,000	0.09	288,000	3.94	12,969,000

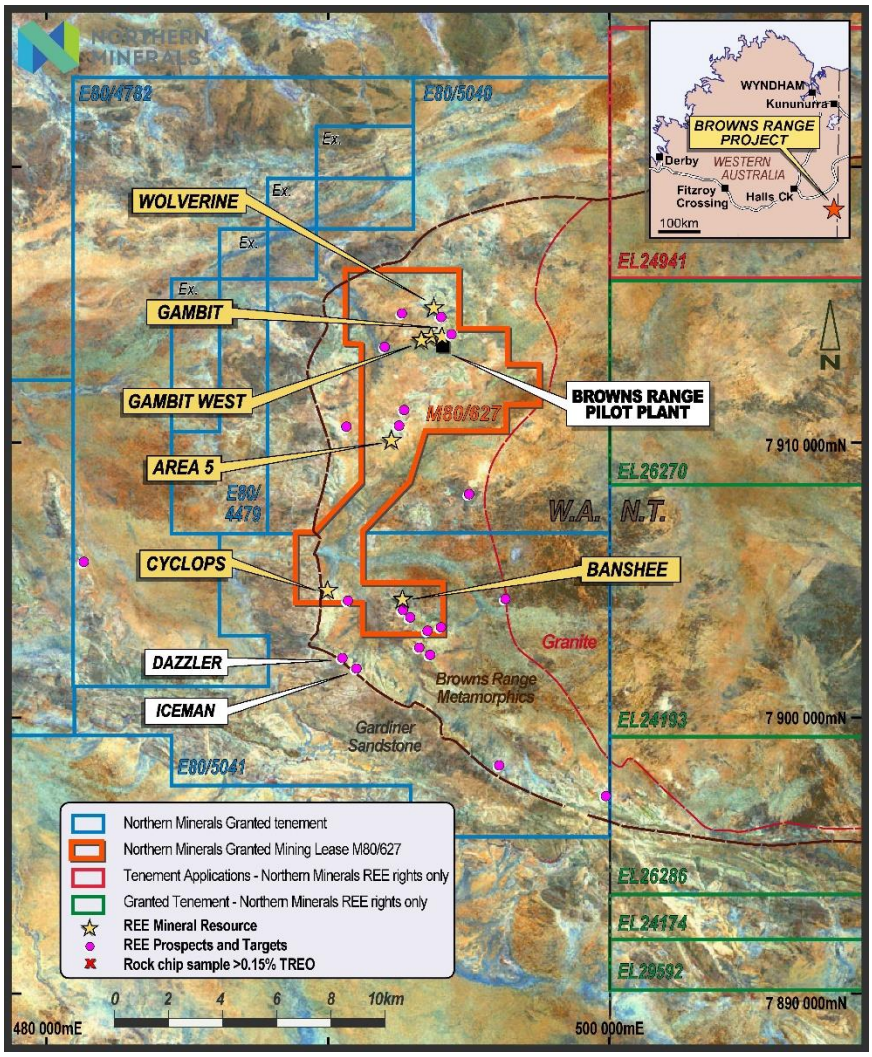


Figure 1 – Location of Browns Range Mineral Resources

Competent Persons Declaration:

The information in this announcement that relates to the Mineral Resource and Ore Reserve Estimates was compiled by Mr Bill Rayson who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Rayson is a consultant to Northern Minerals, employed by Total Earth Science Pty Ltd, and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code). Mr Rayson consents to the inclusion of this information in the form and context in which it appears.

SECTION 1: SUMMARY OF MATERIAL INFORMATION – PILOT PLANT STOCKPILES MINERAL RESOURCE ESTIMATE

Between July 2017 and November 2017 Northern Minerals, through its contractor MACA Limited, operated a small-scale mining operation at Browns Range. The purpose of this mining operation was to generate stockpiles of feed material to support a Pilot Plant (3 year research and development) phase of operation.

Mining was performed using a small scale conventional mining fleet comprising of 40t articulated dump trucks and a 60t excavator in backhoe configuration. All stockpiled material was drilled and blasted.

Table 3: Pilot Plant Stockpiles Mineral Resource Estimate (At 30 June 2018)

Deposit	Category	Mt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
Pilot Plant Stockpiles	Indicated	0.21	0.97	0.85	5.63	0.12	89	2,049,000
	Inferred	0.04	0.26	0.2	1.35	0.03	79	92,000
	Total	0.25	0.87	0.75	5.01	0.11	89	2,141,000

In order to estimate this Mineral Resource, an in-situ grade control dig-block model was made to directly estimate the grade control markout geometries using ordinary kriging.

In-situ block-modelled volumes were then validated against truck movement records and ultimate stockpile volumes. From this reconciliation, dilution and oreloss factors were estimated, which were then added to the insitu block-modelled grade to estimate a final stockpile grade.

The stockpiled material that is the subject of this report is currently stockpiled at the foot of the crushing circuit at the Browns Range Pilot Plant (see Figure 2 below).

As shown below, the stockpiles are as follows:

A) Gambit West High Grade
B) Gambit West Medium Grade
C) Wolverine High Grade
D) Wolverine Medium Grade
E) Low Grade

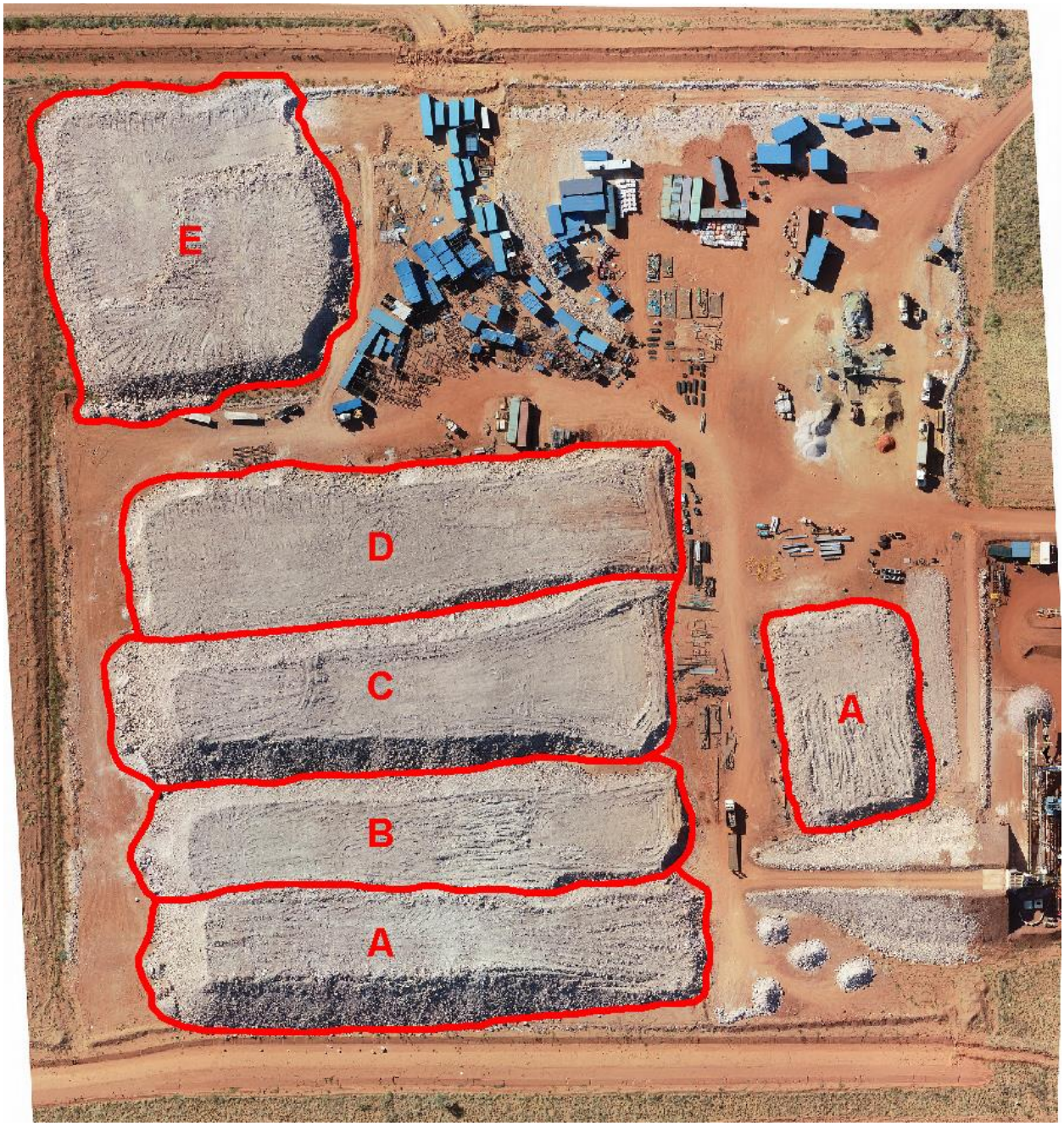


Figure 2 – Browns Range Pilot plant and stockpiles (outlined in red)

Table 4: TRIAL MINE STOCKPILES – Mineral Resource Estimate (At 30 June 2018)

Stockpile Name	Category	Kt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
Gambit West High Grade	Indicated	69	1.30	1.12	7.47	0.15	88	900,000
	Inferred	-	-	-	-	-	-	-
	Total	69	1.30	1.12	7.47	0.15	88	900,000
Gambit West Medium Grade	Indicated	46	0.62	0.49	3.33	0.07	81	289,000
	Inferred	-	-	-	-	-	-	-
	Total	46	0.62	0.49	3.33	0.07	81	289,000
Wolverine High Grade	Indicated	64	1.16	1.07	6.99	0.16	93	740,000
	Inferred	-	-	-	-	-	-	-
	Total	64	1.16	1.07	6.99	0.16	93	740,000
Wolverine Medium Grade	Indicated	31	0.39	0.33	2.18	0.05	87	121,000
	Inferred	-	-	-	-	-	-	-
	Total	31	0.39	0.33	2.18	0.05	87	121,000
Low Grade	Indicated	-	-	-	-	-	-	-
	Inferred	35	0.26	0.2	1.35	0.03	79	92,000
	Total	35	0.26	0.2	1.35	0.03	79	92,000
Total	**Indicated**	211	0.97	0.85	5.63	0.12	89	2,049,000
	Inferred	35	0.26	0.2	1.35	0.03	79	92,000
	Total	246	0.87	0.75	5.01	0.11	89	2,141,000

Table 5: Stockpile Mineral Resource Individual REO proportions.

REO	% of Total REO
La_2O_3	2.1%
CeO_2	5.3%
Pr_6O_{11}	0.8%
Nd_2O_3	3.7%
Sm_2O_3	2.0%
Eu_2O_3	0.4%
Gd_2O_3	5.4%
Tb_4O_7	1.2%
Dy_2O_3	8.7%
Ho_2O_3	1.8%
Er_2O_3	5.4%
Tm_2O_3	0.8%
Yb_2O_3	4.5%
Y_2O_3	57.9%
Lu_2O_3	0.6%

Geology and geological interpretation

This Mineral Resource relates to stockpiled material originally derived from the Gambit West and Wolverine deposits. This material was mined using conventional open cut methods and stockpiled in five individual stockpiles at the same location (Pilot Plant ROM pad – see Figure 1 above).

In all cases, the underlying geology is structurally controlled, fault hosted rare earth enriched mineralisation.

The mining was directed by conventional ore block mark-outs and in-pit geological techniques. The ore block mark-outs reflect the geological final interpretation of the mine geologist at the time of extraction and stockpiling.

Drilling techniques

Samples were obtained by both diamond drilling and Reverse Circulation (RC) drilling. Diamond core drill holes comprises NQ and HQ sized core. RC drill hole sizes were diameters of either 115mm or 140mm.

While mining, open hole samples were taken of the blast holes to assist with ore block delineation. These samples, however, were not included in this Mineral Resource estimate.

Sampling techniques

Diamond core was cut in half using an electric core saw. Sample intervals were selected based on lithological and structural features, together with indicative results from hand held portable X-Ray Fluorescence (pXRF) measurements. Drill core was sampled at a nominal one metre interval although constrained to within geological intervals.

RC samples were sub sampled by either riffle splitting or using a static cone splitter. Both rig mounted and standalone splitters have been used. Most 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 to achieve a target 2-5 kilogram sample weight.

Determinations of bulk density were completed by immersion techniques upon both drill core and grab samples recovered from the open pits.

Sample analysis method

Up to and including the 2013 drilling, the following analytical process occurred: Samples were dried, crushed and 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.

Since 2014, a two-tiered sampling process was employed; samples were dried, crushed/split if required and pulverised prior to preliminary analysis of the sample using a 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. Sample analysis was performed by Intertek Genalysis Laboratories in

Perth. Samples below the threshold, being low grade and not material to the estimate, were assigned a value based upon correlation studies and regression analysis of the pXRF values.

Estimation and modelling techniques

Grade estimation using Ordinary Kriging (OK) was completed for the grade control model, 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 (TREO) 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 + Yb2O3 + Lu_2O_3 +Y_2O_3. Additionally, the elements uranium and thorium were estimated as potentially deleterious elements.

The marked-out ore blocks were considered as the mineralisation domains. The ore blocks were marked out by the mine geologists based on direct geological observation and geophysical field instruments indications. The ore blocks were used as boundaries to select sample populations for data analysis and estimation.

Sample data was composited to one metre downhole lengths.

Once the insitu estimation was performed, dilution and ore loss factors were applied to the in-situ tonnes and grade to estimate a diluted Mineral Resource.

Mineral Resource classification criteria

Due to the nature of stockpiles, which are essentially a mixed and aggregated selection of material, each stockpile needs to be assessed for classification in its entirety. The classification for each stockpile is based qualitatively upon; overall reliability of markups, mineralization continuity, data density and clustering and proportion of metal derived from pXRF regression analysis.

Drill hole spacing for the in situ estimate was not uniform. The overall in situ sample densities per stockpile were:

- Gambit West High Grade – 35BCM of Mineral Resource per 1m of drilling
- Gambit West Medium Grade – 40BCM of Mineral Resource per 1m of drilling
- Wolverine High Grade – 38BCM of Mineral Resource per 1m of drilling
- Wolverine Medium Grade – 25BCM of Mineral Resource per 1m of drilling
- Low Grade – 32 BCM of Mineral Resource per 1m of drilling

Furthermore, observed mining practice was also considered qualitatively, as mining practice ultimately contributes to confidence in stockpiled grade.

Cut-off parameters

No cut-off parameters are applied as no further selectivity is assumed possible. This report is for stockpiled material, and each stockpile has been considered for reporting on the estimated grade of the entire stockpile.

Metallurgical Assumptions

Testwork has confirmed that the project's mineralisation can be processed using a flowsheet consisting of crushing and grinding, followed by Wet High Gradient Magnetic Separation (WHGMS), flotation and hydrometallurgical processes.

Full sequential process recoveries are expected to be variable based on element and feed head grade, however overall they are expected to be approximately 80%.

No allowance has been made for deleterious elements in the sale of product, as the main known potential contaminants are expected to be rejected through the processing train.

Mining Assumptions

No mining assumptions have been made as the material has already been mined. Mining was performed using a small scale conventional mining fleet comprising of 40t articulated dump trucks and a 60t excavator in backhoe configuration. All stockpiled material was drilled and blasted.

In situ block modelled volumes were validated against truck movement records and ultimate destination stockpile volumes. From this reconciliation, dilution and ore loss factors were estimated, which were then added to the in situ block-modelled grade to estimate a final stockpile grade.

The following dilution and ore loss parameters, estimated on the basis of volumetric reconciliation of trucking data, have been applied retrospectively:

- Gambit West High Grade: 2 % Loss , 18% Dilution
- Gambit West Medium Grade: 2% Loss, 15% Dilution
- Wolverine High Grade: 5% Loss, 6% Dilution
- Wolverine Medium Grade: 5% Loss, 5% Dilution
- Low Grade: 9% Loss, 5% Dilution

SECTION 2: SUMMARY OF MATERIAL INFORMATION – GAMBIT WEST MINERAL RESOURCE

Between July 2017 and November 2017 Northern Minerals, through its contractor MACA Limited, operated a small-scale mining operation at Browns Range. As part of this mining campaign, a small open cut mine was developed at the Gambit West deposit down to a depth of around 50m and a strike length of 150m.

As a result of the geological exposure in the trial mine open cut and the resulting better understanding of the geological controls, significant refinements were made to the Gambit West Mineral Resource model, and the entire Mineral Resource was re-estimated.

Table 6: Gambit West Mineral Resource Estimate (At 30 June 2018)

Deposit	Category	Mt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
GAMBIT WEST	Indicated	0.12	1.80	1.62	10.98	0.22	94%	2,107,000
	Inferred	0.13	0.51	0.40	2.67	0.05	81%	674,000
	Total	0.25	1.11	0.97	6.56	0.13	91%	2,781,000

Table 7: Gambit West Mineral Resource individual REO proportions.

REO	% of Total REO
La_2O_3	1.6%
CeO_2	4.1%
Pr_6O_{11}	0.6%
Nd_2O_3	2.8%
Sm_2O_3	1.8%
Eu_2O_3	0.3%
Gd_2O_3	4.8%
Tb_4O_7	1.2%
Dy_2O_3	8.7%
Ho_2O_3	1.9%
Er_2O_3	6.0%
Tm_2O_3	0.9%
Yb_2O_3	5.5%
Y_2O_3	59.0%
Lu_2O_3	0.8%

Geology and geological interpretation

The main host structure is interpreted as a fault breccia and infill characterised by variable sericite, hematite and silica alteration as well as the rare earth elements of economic interest. The host structure, which occurs within a meta-arenite of the Browns Range Metamorphics package, strikes approximately east-west and is approximately vertical.

Hydrothermal xenotime (a rare earth phosphate mineral) is the main mineralogical host of rare earth elements and is predominantly associated with zones of intense hematite alteration.

Drilling techniques

Reverse Circulation (RC) drill holes account for 86% of the drill holes within the deposit area and were completed using a face sampling hammer with diameters of either 115mm or 140mm, with hole depths up to 282m. Manual channel sampling, performed using a geological rock pick on exposure walls, accounts for 8% of the drillholes within the deposit. Diamond drilling (including diamond tail) accounts for the remainder of the drilling, 6%, at HQ and NQ core sizes with hole depths up to 254m.

Sampling techniques

Diamond core was cut in half using an electric core saw. Sample intervals were selected based on lithological and structural features, together with indicative results from hand held portable X-Ray Fluorescence (pXRF) measurements. Drill core was sampled at a nominal one metre interval although constrained to within geological intervals where evident.

RC samples were sub sampled by either riffle splitting or using a static cone splitter. Both rig mounted and standalone splitters have been used. Most 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 to achieve a target 2-5 kilogram sample weight.

Manual channel sampling was performed on the in situ walls of the mine exposure. Sample was collected directly into a sample bag using a rock pick. Sampling was performed on nominal 1m intervals, also broken at geological boundaries where evident.

Determinations of bulk density were completed by immersion techniques upon drill core and grab samples.

Sample analysis method

Up to and including the 2013 drilling, the following analytical process occurred: Samples were dried, crushed and 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.

Since 2014, a two-tiered sampling process was employed; samples were dried, crushed/split if required and pulverised prior to preliminary analysis of the sample using a 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. Sample analysis was performed by Intertek Genalysis Laboratories in Perth. Samples below the threshold, being low grade and not material to the estimate, were assigned a value based upon correlation studies and regression analysis of the pXRF values.

Various other multielement analysis which do not form the basis of this mineral resource were also conducted.

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 (TREO) was then calculated as the sum of the estimated values for La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 + Eu2O3 + Gd2O3 +Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3 +Y2O3. Additionally, the elements uranium and thorium were estimated as elements of potential interest.

Drillhole sample data was flagged with domain codes unique to each mineralisation domain, the mineralised domains being based on the geological understanding of the deposit.

The geological interpretation was used to define the mineralisation domains for high grade structurally controlled, domains. These mineralisation domains were used as boundaries to composite by geological domain for data analysis – that is – one full length composite was typically used per drillhole per domain. The same geological boundaries and compositing strategy were used for estimation.

A domain with no obvious structural control was also estimated. This domain was constrained based on techniques using the yttrium geochemistry database. One metre drillhole composites were then selected within this domain and used to inform the estimate.

Mineral Resource classification criteria

Classification for Gambit West is based upon confidence in geological interpretation; continuity of geology, mineralization and grade; and drill hole spacing.

Parts of the estimate poorly supported by drilling have not been classified as Mineral Resource. Specifically, the Mineral Resource report was constrained such that neither Measured, Indicated or Inferred categories are reported if the distance between an estimated block and the nearest drillhole is greater than 25m.

Drilling of the Gambit West deposit has been completed on a nominal 25m by 25m grid spacing, with variable and selected infill down to as close as 6.25m in easting by 5.0m in Northing.

The Gambit West drillhole spacing was not the primary factor in splitting between classification categories. Total number of drillhole intercepts, conceptual confidence and continuity of individual domains were the determining factors in this decision.

Cut-off parameters

A nominal grade cut off at 0.15% TREO has been used to report the Mineral Resource at the Gambit West 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, Metallurgical and Other Assumptions

Gambit West has been the subject of technical studies which have identified conventional open cut and conventional underground operations as suitable for mining the deposit with sufficient confidence to support the reasonable expectation of eventual economic extraction.

Similarly, suitable processing methods have been identified with sufficient confidence to support the reasonable expectation of eventual economic extraction. In summary, the current consideration of metallurgical and processing methods is as follows: Conventional crushing and Grinding; Wet High Gradient Magnetic Separation (WHGMS); Conventional Flotation; Hydrometallurgical processes including sulphation bake digestion followed by sequential purification and precipitation.

Ore Reserve

Northern Minerals has previously estimated an Ore Reserve at Gambit West.

However, as a result of the geological exposure in the trial mine open cut, significant refinements were made to the Gambit West Mineral Resource model, and the entire Mineral Resource was re-estimated.

As such, the previous Ore Reserve at Gambit West is no longer appropriate for the current Mineral Resource model. The technical studies required to support an Ore Reserve at Gambit West have not yet been completed to suit the updated Mineral Resource estimate.

The previous Gambit West Ore Reserve is withdrawn.

SECTION 3: SUMMARY OF MATERIAL INFORMATION – GAMBIT MINERAL RESOURCE

Since its previous estimate (26 February 2014) a significant amount of additional drilling has been conducted at the Gambit Deposit.

As a result of the additional drilling, changes were made to the Gambit Mineral Resource model, and the entire Mineral Resource was re-estimated.

Table 8: Gambit Mineral Resource Estimate (At 30 June 2018)

Deposit	Category	Mt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
GAMBIT	Indicated	-	-	-	-	-	-	-
	Inferred	0.21	0.89	0.83	5.62	0.11	96%	1,878,000
	Total	0.21	0.89	0.83	5.62	0.11	96%	1,878,000

Table 9: Gambit Mineral Resource individual REO proportions.

REO	% of Total REO
La_2O_3	0.8%
CeO_2	1.8%
Pr_6O_{11}	0.2%
Nd_2O_3	1.4%
Sm_2O_3	1.7%
Eu_2O_3	0.4%
Gd_2O_3	5.3%
Tb_4O_7	1.3%
Dy_2O_3	9.3%
Ho_2O_3	2.0%
Er_2O_3	6.0%
Tm_2O_3	0.9%
Yb_2O_3	5.2%
Y_2O_3	63.2%
Lu_2O_3	0.7%

Geology and geological interpretation

The prospect is contained within an east-west structural corridor, defined by complex structures, alteration, variable silicification and increased fracturing. A number of mineralised 'pods' have been modelled, within this overall east-west corridor.

The 'pods' have been modelled based on rare earth element geochemistry, logged geology and analogous geometries seen at other deposits. The 'pods' are partly associated with fault breccias. As at Gambit West and Wolverine, the fault breccias occur within a meta-arenite or meta-arkose of the Browns Range Metamorphics package.

Mineralisation is presumed to be related to the presence of hydrothermal xenotime, as is the case at other deposits at Browns Range.

Drilling techniques

Samples were obtained by both diamond drilling and Reverse Circulation (RC) drilling. Diamond core drill holes comprises NQ and HQ sized core. RC drill hole sizes were diameters of either 115mm or 140mm.

RC drilling accounts for the majority (98%) of the holes in the deposit, with diamond drilling accounting for the remainder.

Sampling techniques

Diamond core was cut in half using an electric core saw. Sample intervals were selected based on lithological and structural features, together with indicative results from hand held portable X-Ray Fluorescence (pXRF) measurements. Drill core was sampled at a nominal one metre interval although constrained to within geological intervals where evident.

RC samples were sub sampled by either riffle splitting or using a static cone splitter. Both rig mounted and standalone splitters have been used. Most 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 to achieve a target 2-5 kilogram sample weight.

Determinations of bulk density were completed by immersion techniques upon drill core.

Sample analysis method

Up to and including the 2013 drilling, the following analytical process occurred: Samples were dried, crushed and 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.

Since 2014, a two-tiered sampling process was employed; samples were dried, crushed/split if required and pulverised prior to preliminary analysis of the sample using a 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. Sample analysis was performed by Intertek Genalysis Laboratories in Perth. Samples below the threshold, being low grade and not material to the estimate, were assigned a value based upon correlation studies and regression analysis of the pXRF values.

Estimation and modelling techniques

Grade estimation using Ordinary Kriging (OK) was completed for the model, 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 (TREO) 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 + Yb2O3 + Lu_2O_3 +Y_2O_3. Additionally, the elements uranium and thorium were estimated as potentially deleterious elements.

Sample data was composited to one metre downhole lengths.

Wireframes, representing the interpreted geology and mineralisation, were used as the mineralisation domains for modelling purposes. These wireframes were used as boundaries to select sample populations for data analysis and estimation.

Mineral Resource classification criteria

The Gambit Mineral Resource estimate is classified as ‘Inferred’ in its entirety.

The classification is based upon; confidence in the geological model, mineralization continuity, data density and clustering.

Drill hole spacing for the estimate was not uniform. Overall the sample densities for Gambit Inferred Mineral Resource was: 200 BCM. of Mineral Resource per 1m of drilling.

Cut-off parameters

A nominal grade cut off at 0.15% TREO has been used to report the Mineral Resource at the Gambit 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, Metallurgical and Other Assumptions

Testwork at Browns Range has confirmed, in general, that the project’s xenotime hosted mineralisation can be successfully processed using a flowsheet consisting of crushing and grinding, followed by Wet High Gradient Magnetic Separation (WHGMS), flotation and hydrometallurgical processes.

The deposit geometry and grade estimated at Gambit suggest it has potential to support an operation utilizing conventional open cut mining methods.

Ore Reserve

Northern Minerals has previously estimated an Ore Reserve at Gambit.

However, as a result of additional drilling, changes were made to the Gambit Mineral Resource model, and the entire Mineral Resource was re-estimated.

The previous Ore Reserve at Gambit is no longer appropriate for the current Mineral Resource model.

The previous Gambit Ore Reserve is withdrawn.

SECTION 4: SUMMARY OF MATERIAL INFORMATION – WOLVERINE

Between July 2017 and November 2017 trial mining operations were conducted upon the Wolverine deposit.

The scale of these operations were minor compared to the overall Wolverine Mineral Resource and Ore Reserve. Consequently, Northern Minerals has made allowances for depletion against the previously reported Mineral Resources and Ore Reserves, allowing an up-to-date Mineral Resource and Ore Reserve tabulation to be presented.

Table 10: Wolverine Mineral Resource Estimate (Depleted till 30 June 2018)

Deposit	Category	Mt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
Wolverine	Indicated	2.88	0.84	0.74	4.89	0.11	89	24,195,000
	Inferred	1.97	0.89	0.76	5.15	0.11	88	17,588,000
	Total[1]	4.85	0.86	0.75	4.99	0.11	89	41,786,000

Table 11: Wolverine Ore Reserve Estimate (Depleted till 30 June 2018)

Deposit	Class	Mt	TREO kg/t	TREO kg	Dy_2O_3 kg/t	Dy_2O_3 kg	Tb_4O_7 kg/t	Tb_4O_7 kg	Y_2O_3 Kg/t	Y_2O_3 kg
OPEN PIT										
Wolverine	Probable	0.722	6.17	4,458,000	0.55	400,000	0.08	57,000	3.60	2,598,000
UNDERGROUND										
Wolverine	Probable	2.104	8.00	16,833,000	0.70	1,483,000	0.10	221,000	4.71	9,908,000
Total Reserve[1]	**Probable**	2.826	7.53	21,291,000	0.67	1,883,000	0.1	278,000	4.43	12,506,000

Further information that relates to the Mineral Resource Estimates of the Wolverine deposit is available in the report entitled "Increased Mineral Resource Delivers More Good News" dated 23 February 2015 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.

Further information that relates to the Ore Reserve Estimates of the Wolverine deposit is available in the report entitled "Increased Ore Reserve for Browns Range" dated 2 March 2015 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.

SECTION 5: OTHER MINERAL RESOURCES AND ORE RESEVES

In addition to the Mineral Resource updates outlined above, Northern Minerals has reported Mineral Resources estimates at the following deposits:

- Area 5
- Cyclops
- Banshee

Furthermore, Northern Minerals has reported Ore Reserve estimates at the following deposit:

- Area 5

Trial mining at Browns Range did not interact with any of these deposits and the Mineral Resource and Ore Reserves at these deposits remains unchanged since last reported.

The information in this announcement that relates to the Mineral Resource Estimates of the Cyclops and Banshee deposits is extracted from the report entitled "Further Increase in Browns Range Mineral Resource" dated 15 October 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.

The information in this announcement that relates to the Mineral Resource Estimates of the Area 5 deposit 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.

The information in this announcement that relates to the Ore Reserve Estimates of the Area 5 deposit is extracted from the report entitled "Increased Ore Reserve for Browns Range" dated 2 March 2015 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.

Name	Company	Contact
George Bauk	Managing Director / CEO Northern Minerals	+ 61 8 9481 2344
Andrew Rowell	Cannings Purple	+61 400 466 226 +61 8 6314 6314

About Northern Minerals:

Northern Minerals Limited (ASX: NTU; Northern Minerals or the Company) has commenced commissioning of the Browns Range Heavy Rare Earth Pilot Plant Project in northern Western Australia.

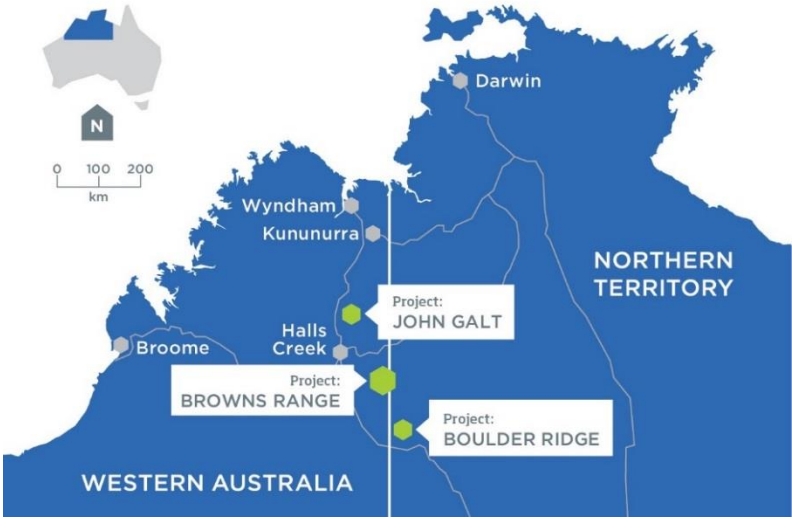
Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals aims to be the first significant world producer of dysprosium outside of China.

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

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

The three-year R&D pilot plant project will commence first production of heavy rare earth carbonate in Q3 2018. The pilot plant development provides the opportunity to gain production experience, surety of supply for our offtake partner and assess the economic and technical feasibility of the larger full-scale development.

For more information: northernminerals.com.au.



JORC TABLE ONE: PILOT PLANT STOCKPILES MINERAL RESOURCE ESTIMATE

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 stockpiles were sampled while in-situ using a combination of Reverse Circulation and diamond drilling, prior to excavation. • Diamond drill holes used in the estimation were NQ and HQ variant sized core. RC drilling was with nominal diameters of either 115mm or 140mm. Diamond core was orientated using the Reflex ACT orientation tool. RC drilling was completed using face sampling hammer. • Diamond core was drilled using either double or triple tube at HQ and NQ sizes. HQ variants were employed for shallower parts of the hole depending on prevailing ground conditions, while the majority of diamond core intercepts within the mineralisation are at NQ size and sampled at a nominal one metre interval (constrained to within geological intervals). RC drill holes were sampled at one metre intervals exclusively and split targeting 2-5 kilogram sample weight. Diamond and RC samples were dried, crushed, split and pulverised by Intertek Genalysis Laboratory in Perth prior to analysis of the rare earth element suite using 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).*	• Diamond drilling utilised triple tube techniques and drilling fluids in order to assist with maximising recoveries. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks .RC sample recoveries were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned ensuring no material build up.
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.*	• Diamond core recovery was not assessed. RC recovery was assessed via subjective assessment based on volume recovered. RC recoveries were observed to be generally acceptable at field inspections. RC and diamond recovery information is recorded in

Northern Minerals
Level 1
675 Murray Street
West Perth WA 6005

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

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

Criteria	JORC Code explanation	Commentary
	• *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.*	the geologist logs and entered into the database. • Diamond drilling utilised triple tube techniques and drilling fluids in order to assist with maximising recoveries. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks. Geologists were based at the RC rig, and inspected regularly to ensure procedures being used. RC samples were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned ensuring no material build up. • No known relationship exists.
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.*	• Diamond core was geologically and geotechnically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric) logging codes. RC logging was completed on one metre intervals at the rig by the geologist. The information collected is sufficient to support mineral resource estimation, mining studies, metallurgical studies. • Logging was generally qualitative in nature except for the determination of core recoveries and geotechnical criteria such as RQD and fracture frequency which was quantitative. Core photos were collected for all diamond drilling. • All recovered intervals were geologically logged.
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*	• Diamond core was cut in half using an electric core saw. Sample intervals were marked on the core by the responsible geologist considering lithological and structural features, together with indicative results from hand held XRF measurements. Core selected for duplicate analysis was further cut to quarter core with both quarters submitted individually for analysis. Where possible, core was sampled to leave the orientation line in the core tray.

Criteria	JORC Code explanation	Commentary
	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.*	• RC samples were collected from the full recovered interval by either riffle splitting or using a static cone splitter. The majority of samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples were split without drying. • The sample preparation techniques employed for the diamond and RC samples follow industry standard practice at Intertek Genalysis Laboratory in Perth. Samples are oven dried, crushed if required and pulverised prior to a pulp packet being removed for analysis. • Duplicates are taken at the following stages and analysed to assess acceptability of sub-sampling;Field Split;Coarse Crush Dup;Pulp Dup. • Field splits were regularly taken from RC samples. Quarter core splits were taken from Diamond samples. Results obtained indicate sampling suitable for Mineral Resource Estimation • Sample sizes are appropriate to the grain size of the mineral 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 Intertek 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, U. The technique is considered total. • Northern Minerals extensively uses portable X-ray 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 mineralized 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

Criteria	JORC Code explanation	Commentary
		or greater were selected for laboratory analysis, as were a selection of sub 200ppm Yttrium samples. As of 2014, samples submitted for analysis at Intertek 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. Only selected samples have then been progressed to full analysis via ICP-MS. Where pXRF analysis were used in the Mineral Resource estimates, the final rare earth element values were assigned from the raw analysis using correlation studies upon samples for which both pXRF and ICP-MS were available. Rare Earth Oxide derived from pXRF instruments contributes 5% of the contained Rare Earth Oxide in this total Mineral Resource estimate. In the Indicated classification material, it represents 4% of the metal. In the Inferred classification material, it represents 22% of the metal. • Certified reference materials, using values across the range of mineralisation, were inserted blindly and randomly. Results highlight that sample assay values are suitably accurate and unbiased. Laboratory 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 are used to routinely conduct round robin analysis. Results of round robin analysis are acceptable.
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.*	• Diamond drill core photographs have been reviewed for the recorded sample intervals. High range values are routinely resubmitted for repeat analysis with results comparing within acceptable limits. • Twinned holes, Diamond to RC, have been conducted with results being comparable and acceptable. • Earlier primary data (2011) was collected using paper logs and transferred into Excel spreadsheets for transfer into the drill hole database. Since early 2012, primary data was collected into a

Criteria	JORC Code explanation	Commentary
		proprietary logging package (OCRIS) with in-built data validation. Details were extracted and pre-processed prior to loading. In 2011 and 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. Since 2013, data is stored on a SQL server subject to electronic backup. • Where ICP-MS analysis were available from the laboratory no modification were made. Low range samples were analysed by pXRF and not by ICP-MS, and in these instances final REE grades were assigned on the basis of regression studies.
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. 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 where practical. 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.*	• Drill spacing, while variable, on average is 35BCM of Mineral Resource per 1m of drilled sample. • 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	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• All mineralisation is interpreted to be a steeply dipping, roughly planar features striking generally east-west and dipping at 75-90 degrees. Resource drilling is exclusively conducted at mainly -60

Criteria	JORC Code explanation	Commentary
geological structure	• *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.*	degrees dips and as such drill holes intersect the mineralisation at acceptable angles. As such the orientation of drilling is not likely to introduce a sampling bias. • 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 bulka bags on site prior to transport by company truck or utility to Halls Creek commercial transport yard. The samples were stored in a secure area until loaded and delivered to Intertek Genalysis Laboratory in Perth. Laboratory dispatch sheets are completed and forwarded electronically as well as being placed within the samples transported. Dispatch sheets are compared against received samples and discrepancies reported and corrected.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• All relevant data was reviewed by the competent person in the course of this Mineral Resource estimation. Review 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.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• This Mineral Resource is not insitu. Not relevant for reporting a stockpile Mineral Resource.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• This Mineral Resource is not insitu. Not relevant for reporting a stockpile Mineral Resource.

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. 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 should be clearly stated.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.
Relationship between mineralisation widths and	• *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*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.

Criteria	JORC Code explanation	Commentary
intercept lengths	*should be a clear statement to this effect (eg 'down hole length, true width not known').*	
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.*	• No exploration results have been reported in this release. This section is not relevant to reporting Mineral Resources.

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.*	• 2011 drilling was logged onto paper and transferred to a digital form for loading into the drill hole database. In an effort to cut validation time and errors, from 2012 logging was 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

Criteria	JORC Code explanation	Commentary
		unique. Logging and survey information was reviewed by the responsible geologist prior to final load into the database. The data is stored in a single database for the Browns Range project. • The first validation starts with the field logging software 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 >10 degrees, drill hole dip deviations >5 degrees, and missing samples have been developed firstly using AcQuire (2011-12) and then in Datashed (2013).Before Resource Estimation commenced, the data was checked for: Excessive survey deviation, missing/overlapping/duplicate sample interval. Holes were visually plotted in SURPAC and reviewed for obvious location errors.
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, has visited Browns Range. No fatal flaws identified.
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.*	• This Mineral Resource is not insitu. Not relevant for reporting a stockpile Mineral Resource.
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.*	• This Mineral Resource is not insitu. Not relevant for reporting a stockpile Mineral Resource.

Criteria	JORC Code explanation	Commentary
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 was then estimated as the sum of the estimated values for La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 + Eu2O3 + Gd2O3 +Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3 +Y2O3. Additionally, the elements uranium and thorium were estimated as elements of potential interest. The ore block markout 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. Sample data was composited to one metre downhole lengths. Maximum search radius was 25m, 5 samples minimum, 25 samples maximum. • No mill reconciled production records exists. • No assumptions were made regarding recovery of by-products. • Estimates were undertaken for U and Th as potential deleterious elements. • This Mineral Resource is not insitu. Block size is not relevant for reporting a stockpile Mineral Resource. • This Mineral Resource is not insitu. Selective mining unit size is not relevant for reporting a stockpile Mineral Resource. • Strong correlation exist (r>0.8) between Y and Sm Eu Gd Tb Dy Ho Er Tm Yb Lu. Similarly, strong 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 where no ICP-MS data is available. • The dig block outlines are used to define the mineralisation domains. The mineralisation domains are used as hard boundaries to select sample populations for variography, statistical analysis and estimation.

Criteria	JORC Code explanation	Commentary
		• Decile/Percentile plots, histograms and cumulative probability curves were plotted. No grade cutting or capping was performed. • Block model grades were compared to input composite grades. No reconciliation data is available yet.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• The density was measured on a mixture of air dried core in the field plus samples checked externally by Genalysis Laboratory(Perth), which were oven dried. Therefore, the tonnages are estimated on a dry basis. The moisture content in mineralisation is considered low.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• No cutoff parameters are applied as no further selectivity is assumed possible. This report is for stockpiled material, and each stockpile has been considered for reporting on the estimated grade of the entire stockpile.
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.*	• This is a stockpiled estimate. It has already been mined. Mining loss and recovery factors were applied retrospectively to the insitu estimate to estimate the stockpiled material grade; Gambit West High Grade, 2% Loss, 18% dilution; Gambit West Medium Grade, 2% Loss, 15% dilution; Gambit West Low Grade, 12% Loss, 5% Dilution; Wolverine High Grade, 5 % Loss, 6% dilution; Wolverine Medium Grade, 5% Loss, 5% Dilution; Wolverine Low Grade, 5% Loss, 5% dilution.
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.*	• Browns Range mineralisation has an extensive history of metallurgical testwork. The majority of testwork has been performed on the Wolverine Deposit, it is reasonable to expect that Gambit West mineralisation will be amenable to similar processing routes. This stockpile estimate contains material from both Gambit West and Wolverine deposits.

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.*	• This material is stockpiled for imminent processing at a fully permitted and operational Pilot Plant Processing facility.
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.*	• Bulk density has been estimated from density measurements carried out on diamond core samples of variable length using the Archimedes method of dry weight versus weight in water. Where diamond core coverage was insufficient, grab samples were taken during mining for similar, Archimedes, analysis. • The water immersion method is appropriate to adequately account for porosity in typical Browns Range rock types. • Density in the mineral resource ranged from 2.4 (waste) to 2.59 (high grade). Densities were set by oreblock type and deposit
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 is based upon overall reliability of markups, mineralization continuity, data density and clustering, proportion of metal derived from pXRF regression analysis and grade modelled insitu during mining. Mining practice has also been considered. • Appropriate account has been taken of 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. • The result 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.

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 stockpiles implies a confidence level and level of accuracy in the estimates. The Indicated portion of the Mineral Resource has medium confidence, the Inferred portion has low confidence. • These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the stockpiles. • No (mill reconciliation) production data is available yet.

JORC TABLE ONE : GAMBIT WEST MINERAL RESOURCE ESTIMATE

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 a combination of Reverse Circulation (RC) drilling, manual channel samples and diamond core. A total of 188 RC drill holes, 18 manual channel samples, 10 diamond holes and 2 RC holes with diamond tails were available for the resource estimate. • RC samples were collected at one metre intervals via a cyclone, then by riffle or cone splitter depending on the drilling contractor. Diamond core was half-core sampled at nominal one-metre intervals and constrained to geological boundaries where appropriate. Sampling was carried out under NTU protocols and employed QAQC procedures in line with industry standard practice. • Diamond core was drilled using either double or triple tube at HQ and NQ sizes. HQ variants were employed for shallower parts of the hole depending on prevailing ground conditions, while the majority of diamond core intercepts within the mineralisation are at NQ size and sampled at a nominal one metre interval (constrained to within geological intervals). RC drill holes were sampled at one metre intervals exclusively and split targeting 2-5 kilogram sample weight. Diamond and RC samples were dried, crushed, split and pulverised by Intertek Genalysis Laboratories in Perth prior to analysis of the rare earth element suite using 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 86% of the drill holes within the prospect area with diameters of either 115mm or 140mm. RC drilling was completed using face sampling hammer with hole depths ranging from 6m to 282m. Manual channel samples (8% of holes) were taken from marked up geological units, using a geological rock pick, as representatively as practically possible. Diamond drilling accounts for the remainder at HQ and NQ core sizes with hole depths up to 254.4m. Diamond core was orientated using the

Criteria	JORC Code explanation	Commentary
		Reflex ACT orientation tool. The quality of orientation marks are recorded in the drill hole database, with orientation lines only marked if two successive orientation marks aligned.
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 and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Diamond core recovery was not assessed. RC recovery was assessed via subjective assessment based on volume recovered. RC recoveries were observed to be generally acceptable at field inspections. RC and diamond recovery information is recorded in the geologist logs and entered into the database. • Diamond drilling utilised triple tube techniques and drilling fluids in order to assist with maximising recoveries. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks. Geologists were based at the RC rig, and inspected regularly to ensure procedures being used. RC samples were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned ensuring no material build up. • No known relationship exists.
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.*	• Diamond core was geologically and geotechnically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric) logging codes. RC logging was completed on one metre intervals at the rig by the geologist. The information collected is sufficient to support mineral resource estimation, mining studies, metallurgical studies. • Logging was generally qualitative in nature except for the determination of core recoveries and geotechnical criteria such as RQD and fracture frequency which was quantitative. Core photos were collected for all diamond drilling.

Criteria	JORC Code explanation	Commentary
		• All recovered intervals were geologically logged.
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.*	• Diamond core was cut in half using an electric core saw. Sample intervals were marked on the core by the responsible geologist considering lithological and structural features, together with indicative results from hand held XRF measurements. Core selected for duplicate analysis had the initial half core cut into quarter core with both quarters submitted individually for analysis. • RC samples were collected from the full recovered interval by either riffle splitting or using a static cone splitter. The majority of samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples were split without drying. • The sample preparation techniques employed for the diamond and RC samples follow industry standard practice at Genalysis Laboratory. Samples are oven dried, crushed if required and pulverised prior to a pulp packet being removed for analysis. • Duplicates are taken at the following stages and analysed to assess acceptability of sub-sampling • Duplicates are taken at the following stages and analysed to assess acceptability of sub-sampling. Field Split.RC RPD = 16%, Dia. RPD = 29% Coarse Crush Dup. RPD = 7% Pulp Dup. RPD = 4% RPD = abs[(yttrium_orig-yttrium_dup)/(yttrium_orig+yttrium_dup)] • Field splits were regularly taken from RC samples. Quarter core splits were taken from Diamond samples.Field Split.RC RPD = 16%, DD RPD = 29% • Sample sizes are appropriate to the grain size of the mineral being sampled.
Quality of assay data and	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• Samples assayed by Intertek Genalysis for rare earth elements were fused with sodium peroxide within a nickel crucible and dissolved with hydrochloric acid for analysis. Fusion digestion

Criteria	JORC Code explanation	Commentary
laboratory tests	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *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.*	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, U.The technique is considered total. • Northern Minerals extensively uses portable X-ray 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 mineralized 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, as were a selection of sub 200ppm Yttrium samples. As of 2014, samples submitted for analysis at 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. Only selected samples have then been progressed to full analysis via ICP-MS. Where pXRF analysis were used in the Mineral Resource estimates, the final rare earth element values were assigned from the raw analysis using correlation studies upon samples for which both pXRF and ICP-MS were available. Less than1% of the metal in the Mineral Resource is derived from pXRF measurements. • Genalysis are experts in their field and NTU has relied upon their internal procedures being to acceptable industry standards. Internal Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. Additionally, inter-laboratory campaigns (umpire checks) are periodically conducted. Results of umpire round robin analysis completed indicate acceptable accuracy and precision. NTU also uses reference materials inserted blindly and randomly. Results indicate acceptable accuracy and precision."

Criteria	JORC Code explanation	Commentary
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.*	• Diamond drill core photographs were reviewed for the recorded sample intervals. High range values are typically resubmitted for repeat analysis with results comparing within acceptable limits. • Two (2012) RC drill holes were twinned with diamond core in 2013. • Earlier primary data (2011) was collected using paper logs and transferred into Excel spreadsheets for transfer into the drill hole database. Since 2012 primary data was collected into a proprietary logging package with in-built validation. Details were extracted and pre-processed prior to loading. In 2011 and 2012 data was managed and stored off site using acQuire software. Since 2013 Datashed is used as the database storage and management software and incorporates numerous data validation and integrity checks using a series of defined data loading tools. Data is stored on a SQL server, managed by external consultants. • Where ICP-MS analysis were available from the laboratory no modifications were made. Low range samples were analysed by pXRF and not by ICP-MS, and in these instances final REE grades were assigned on the basis of regression studies.
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. Down hole surveys were completed using single shot or multi shot cameras at the time of drilling. Additionally, many holes were surveyed 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.Regardless, the topography in the immediate vicinity of this Mineral Resource is flat and topographic survey is not material to the estimate.

Criteria	JORC Code explanation	Commentary
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.*	• Drilling of the Gambit West deposit has been completed on a nominal 25m in easting by 25m in northing grid spacing, with variable and selected infill down to as close as 6.25m by 5.0m. The spacing of down hole intercepts of the mineralisation varies from the nominal collar spacing due to deviation of drill holes. • 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.*	• The main mineralisation is interpreted to be a subvertical structure, roughly planar feature striking approximately east-west, with some variation in dip between 70 degrees north, and 70 degrees south. Resource drilling is conducted at -60 degrees to the south or to the north to intersect the mineralisation at or close to perpendicular. Minor drilling (8 holes) were completed at -50 degree dip near surface. As such the orientation of drilling is not likely to introduce a sampling bias. • 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 Intertek Genalysis Laboratory in Perth. Laboratory despatch sheets are completed and forwarded electronically as well as being placed within the samples transported. Despatch 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.*	• All relevant data was reviewed by the competent person in the course of this Mineral Resource estimation. Review of the data

Criteria	JORC Code explanation	Commentary
		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.*	• Prior to NTU, no previous systematic exploration for rare earth element mineralisation has been completed at Gambit. Regional exploration for uranium mineralisation was completed in the 1980s by PNC and in the 2000s by Areva but without success.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Browns Range prospects (including Gambit West) are located on the western side of the Browns Range Dome, a Paleoproterozoic dome formed by a granitic core intruding the Paleoproterozoic Browns Range Metamorphics (meta-arkoses, feldspathic metasandstones and schists) and an Archaean orthogneiss and schist unit to the south. The dome and its aureole of metamorphics are surrounded by the Mesoproterozoic Gardiner Sandstone (Birrindudu Group). The prospect area is relatively flat, dominated by shallow colluvium and rare low-lying outcrops. The host structure is characterised by the presence of sericite and hematite, variably brecciated, striking approximately east-west and

Criteria	JORC Code explanation	Commentary
		sub-vertical. Locally, the structure separates predominantly arenite to the north and arkosic sandstones to the south. Mineralisation is related to the presence of hydrothermal xenotime.

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 information 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 should be clearly stated.*	• 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.
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, therefore there is no drill hole information to report. This section is not relevant to reporting Mineral Resources.

Criteria	JORC Code explanation	Commentary
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, therefore there is no drill hole information to report. 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, therefore there is no drill hole information to report. 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, therefore there is no drill hole information to report. 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.*	• 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.

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.*	• 2011 drilling was logged onto paper and transferred to a digital form for loading into the drill hole database. In an effort to cut validation time and errors, since 2012 logging was 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 were reviewed by the responsible geologist prior to final load into the database. The data

Criteria	JORC Code explanation	Commentary
		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 >10 degrees, drill hole dip deviations >5 degrees, and missing samples have been developed firstly using AcQuire (2011-12) and then in Datashed (2013). Before Resource Estimation commenced, the data was checked for: Excessive survey deviation, missing/overlapping/duplicate sample interval. Holes were visually plotted in SURPAC and reviewed for obvious location errors.
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, has visited Browns Range. No fatal flaws identified.
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 main mineralised structure has extensive exposure in the trial pit workings and is assumed to extend throughout the remainder of the Mineral Resource. This evidence provides sufficient confidence to support an Indicated classification. Interpretations supporting the subordinate zones of mineralisation are only supported by limited and/or inconclusive geological evidence. There is only sufficient confidence to support an inferred classification for these zones of mineralisation. • No assumptions are made. • No alternative interpretations were considered. • Geological observation in the trial pit has underpinned the resource estimation. Domaining for mineral resource estimation has been largely dependent upon interpreting the main fault structure seen in the pit on the basis of logging and geochemical data. The geological model was developed as an iterative process of

Criteria	JORC Code explanation	Commentary
		checking against structural location, logging and geochemistry as needed during interpretation. • Key factors that are likely to affect the continuity of grade are: The inherent variability of faulted and brecciated rocks. The breccia rock characteristics can change rapidly from centimetre to metre scale, the nugget effect 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.*	• The main zone structure controlling mineralisation is interpreted as pervasively present over a strike length of at least 400m and a vertical extent of at least 200m. This structure varies from knife edge to over 2.5m wide. The high grade portion of this structure varies from 0.5-2.5m, with a strike length of 100-150m and a vertical extent of at least 150m. Other, subordinate, mineralised zones have less continuity and more variability.
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.*	• 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 La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 + Eu2O3 + Gd2O3 +Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3 +Y2O3. Additionally, the elements uranium and thorium were estimated as elements of potential interest. The geological interpretation was used to define the mineralization domains. The mineralization domains were used to select sample populations for data analysis and grade estimation. Drillhole sample data was flagged with domain codes unique to each mineralization domain. Sample data was composited to either one metre downhole lengths, or entire zone width, depending on which domain. The Mineral Resource

Criteria	JORC Code explanation	Commentary
	• *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.*	estimate report was constrained to blocks within 25m of a sample point. • Previous Mineral Resource estimates were completed and reported in 2013 and 2014 for Gambit West. No previous mining activity has taken place in this area. A trial mine campaign has occurred, however the material recovered is still awaiting processing and reconciliation. • No assumptions were made regarding recovery of by-products. • Estimates were undertaken at Gambit West for U and Th as potential deleterious elements. • BLOCK SIZE: The Gambit West block model parent cell size was set to 10m in easting, 2.5m in northing and 5m in RL. Sub-celling was allowed to occur down to 1.25m in easting and 0.3125m in northing and 0.625m in RL. For the main zone mineralisation, the estimate was done in 2-d and merged into the 3-d blockmodel. For all other domains, grade was estimated into parent cells, with all sub-cells receiving the same grade as their relevant parent cell. Sample Spacing: Drillholes collared variably, nominally between 6.25 to 25m spacing between holes. Drilled at 60 degrees dip on North-South sections. Sample Search: Two search passes were used for each estimate in each domain. The first pass search allowed a minimum of 3 to 5 composites and a maximum of 15 to 25 composites, variable by domain. Max search distance 50m long axis, 50m intermediate axis, 30m short axis. The second pass search allowed a minimum of 3 composites and a maximum of 15 composites. Max search distance 150m long axis, 150m intermediate axis, 88m short axis. Search axis aligned to geological wireframes for each zone. • No selective mining units were assumed in this estimate. • A strong correlation exists (r>0.8) between Y and Sm Eu Gd Tb Dy Ho Er Tm Yb Lu. Similarly, strong correlations exist between Ce and La, Pr, Nd. These correlations have been used in the Mineral

Criteria	JORC Code explanation	Commentary
		Resource estimate to assist with variography and to assign a calculated pXRF grade for elements where no ICP-MS is available. • The geological interpretation is used to define the mineralisation domains. For structurally controlled domains, the composites are manually flagged to match mineralisation domains. • Decile/Percentile plots, histograms and cumulative probability curves were plotted. No grade cutting or capping was performed. • Validation of the block model carried out a volumetric comparison of the mineralisation wireframes to the block model volumes. Summary composite statistics and estimation results were compared, by domain. No reconciliation data is available.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• The density assumptions were checked against density analysis performed externally by Genalysis laboratory Perth. These checks were Archimedes following oven drying. Therefore, the 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 Gambit West 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.*	• Gambit West is likely to be amenable to extraction by conventional open pit and 'narrow vein' underground methods.

Criteria	JORC Code explanation	Commentary
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.*	• Browns Range mineralisation has an extensive history of metallurgical testwork. While the majority of testwork has been performed on the Wolverine Deposit, it is reasonable to expect that Gambit West mineralisation will be amenable to similar processing routes.
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 for mining at Browns Range are well advanced and have not highlighted any environmental issues likely to be detrimental to 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.*	• Bulk density has been estimated from density measurements from two principal sources. Density measurement were carried out on diamond core samples of variable length using the Archimedes method of dry weight versus weight in water. Density measurements were also performed on grab samples taken during the trial mining operation. • The Archimedes water immersion method, as performed both onsite at Genalysis, is appropriate for the rock types under consideration. • The bulk density values applied to the Gambit West deposit are as follows: Main Mineralised Domain 2.58 t/m3;Subordinate mineralised domains 2.52 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*	• Classification for Gambit West is based upon consideration of: confidence in geological interpretation; continuity of geology, mineralization and grade; and drill hole spacing.

Criteria	JORC Code explanation	Commentary
	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.*	• The classification takes into account all relevant factors. The maximum confidence achieved, being Indicated, highlights there are some areas of uncertainty and risk left unresolved in the estimate. • 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 each 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 reconciled production data is available

JORC TABLE ONE : GAMBIT MINERAL RESOURCE ESTIMATE

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*	• The deposit was sampled using a combination of Reverse Circulation drilling (RC) and diamond core from surface. A total of 180 RC holes and 4 diamond holes for 12,675m and 568m respectively were completed in the Gambit prospect.

Criteria	JORC Code explanation	Commentary
	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.*	• RC samples were collected at one metre intervals via a cyclone, then by riffle or cone splitter depending on the drilling contractor. Diamond core was half-core sampled at nominal one-metre intervals and constrained to geological boundaries where appropriate. Sampling was carried out under NTU protocols and employed QAQC procedures in line with industry standard practice. • Diamond core was drilled using either double or triple tube at HQ and NQ sizes. HQ variants were employed for shallower parts of the hole depending on prevailing ground conditions, while the majority of diamond core intercepts within the mineralisation are at NQ size and sampled at a nominal one metre interval (constrained to within geological intervals). RC drill holes were sampled at one metre intervals exclusively and split targeting 2-5 kilogram sample weight. Diamond and RC samples were dried, crushed, split and pulverised by Intertek Genalysis Laboratory in Perth prior to analysis of the rare earth element suite using 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 were drilled with diameters of either 115mm or 140mm. Face sampling hammer was used. Hole depths ranging from 15m to 200m. Diamond Drilling: HQ and NQ core sizes. Hole depths ranging from 78m to 183m. Diamond core was orientated using the Reflex ACT orientation tool.
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 and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Diamond core recovery was assessed by comparison of the interval of core presented in the core tray against the driller's core blocks. Analysis showed that core recovery was greater than 95% in modelled ore zones. RC recovery was assessed via subjective assessment based on volume recovered. RC recoveries were observed to be generally acceptable at field inspections. RC and diamond recovery information is recorded in the geologist logs and entered into the database. • Diamond drilling utilised triple tube techniques and drilling fluids in order to assist with maximising recoveries. Diamond core is reconstructed into continuous runs on an angle iron cradle for

Criteria	JORC Code explanation	Commentary
		orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks. Geologists were based at the RC rig, and inspected regularly to ensure procedures being used. RC samples were visually checked for recovery, moisture and contamination. The cyclone and splitter were routinely cleaned ensuring no material build up. • No known relationship exists.
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.*	• Diamond core was geologically and geotechnically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric) logging codes. RC logging was completed on one metre intervals at the rig by the geologist. The information collected is sufficient to support mineral resource estimation, mining studies, metallurgical studies. • Logging was generally qualitative in nature except for the determination of core recoveries and geotechnical criteria such as RQD and fracture frequency which was quantitative. Core photos were collected for all diamond drilling. • All recovered intervals were geologically logged.
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.*	• Diamond core was cut in half using an electric core saw. Sample intervals were marked on the core by the responsible geologist considering lithological and structural features, together with indicative results from hand held XRF measurements. Core selected for duplicate analysis had the initial half core cut into quarter core with both quarters submitted individually for analysis. • RC samples were collected from the full recovered interval by either riffle splitting or using a static cone splitter. The majority of samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples were split without drying.

Criteria	JORC Code explanation	Commentary
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• The sample preparation techniques employed for the diamond and RC samples follow industry standard practice at Genalysis Laboratory. Samples are oven dried, crushed if required and pulverised prior to a pulp packet being removed for analysis. • Duplicates are taken at the following stages and analysed to assess acceptability of sub-sampling. Field Split.RC RPD = 11%, Dia. RPD = 16% Coarse Crush Dup. RPD = 9% Pulp Dup. RPD = 4% RPD = abs[(yttrium_orig-yttrium_dup)/(yttrium_orig+yttrium_dup)] • Field splits were regularly taken from RC samples. Quarter core splits were taken from Diamond samples. RC RPD = 11%, DD RPD = 16% • Sample sizes are appropriate to the grain size of the mineral 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 Intertek 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, U.The technique is considered total. • 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 mineralized 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, as were a selection of sub 200ppm Yttrium samples. As of 2014, samples submitted for analysis at Genalysis have been

Criteria	JORC Code explanation	Commentary
		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. Only selected samples have then been progressed to full analysis via ICP-MS. Where pXRF analysis were used in the Mineral Resource estimates, the final rare earth element values were assigned from the raw analysis using correllation studies upon samples for which both pXRF and ICP-MS were available. Less than 1% of the metal in the Mineral Resource is derived from pXRF measurements. • Intertek Genalysis are experts in their field and NTU has relied upon their internal procedures being to acceptable industry standards. Internal Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. Additionally, inter-laboratory campaigns (umpire checks) are periodically conducted. Results of umpire round robin analysis completed indicate acceptable accuracy and precision. NTU also uses reference materials inserted blindly and randomly. Results indicate acceptable accuracy and precision.
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.*	• Diamond drill core photographs were 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. • Earlier primary data (2011) was collected using paper logs and transferred into Excel spreadsheets for transfer into the drill hole database. Since 2012 primary data was collected into a proprietary logging package with in-built validation. Details were extracted and pre-processed prior to loading. In 2011 and 2012 data was managed and stored off site using acQuire software. Since 2013 Datashed is used as the database storage and management software and incorporates numerous data validation and integrity checks using a series of defined data loading tools. Data is stored

Criteria	JORC Code explanation	Commentary
		on a SQL server, managed by external consultants. • Where ICP-MS analysis were available from the laboratory no modification were made. Low range samples were analysed by pXRF and not by ICP-MS, and in these instances final REE grades were assigned on the basis of regression studies.
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. Down hole surveys were completed using single shot or multi shot cameras at the time of drilling. Additionally, many holes were surveyed 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.*	• Drilling of the Gambit deposit has been completed on a nominal 25m in easting by 25m in northing spacing. Selected portions have been infilled to a nominal 10m in easting by 10m in northing 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.*	• One diamond hole was excluded from the estimate due to suspicion of orientation induced sampling bias. Given the current level of confidence, further bias cannot be ruled out. • The orientation of drilling with respect to mineralisation is not expected to introduce any further sampling bias.

Criteria	JORC Code explanation	Commentary
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.*	• All relevant data was reviewed by the competent person in the course of this Mineral Resource estimation. Review 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.*	• Prior to NTU, no previous systematic exploration for rare earth element mineralisation has been completed at Gambit. Regional exploration for uranium mineralisation was completed in the 1980s by PNC and in the 2000s by Areva but without success.

Criteria	JORC Code explanation	Commentary
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Browns Range prospects (including Gambit) are located on the western side of the Browns Range Dome, a Paleoproterozoic dome formed by a granitic core intruding the Paleoproterozoic Browns Range Metamorphics (meta-arkoses, feldspathic metasandstones and schists) and an Archaean orthogneiss and schist unit to the south. The dome and its aureole of metamorphics are surrounded by the Mesoproterozoic Gardiner Sandstone (Birrindudu Group). The prospect is contained within an east-west corridor, defined by the complex structure, alteration, variable silicification and increased fracturing. A number of mineralized 'pods' have been modelled, and are partly associated with fault breccias, within the overall east-west corridor. The main mineralized pod is interpreted to be sub-vertical, strikes east-west and plunge towards the west. As at Gambit West and Wolverine, the fault breccias occur within a meta-arenite of the Browns Range Metamorphics package. Mineralisation is related to the presence of hydrothermal xenotime.

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 information to report. This section is not relevant to reporting Mineral Resources.

Criteria	JORC Code explanation	Commentary
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 information 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, therefore there is no drill hole information to report. 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, therefore there is no drill hole information to report. 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, therefore there is no drill hole information to report. 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, therefore there is no drill hole information to report. 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,*	• 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
	including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	

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.*	• 2011 drilling was logged onto paper and transferred to a digital form for loading into the drill hole database. In an effort to cut validation time and errors, since 2012 logging was 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 were reviewed by the responsible geologist prior to final load into the database. The data is stored in a single database for the Browns Range project. • The first validation starts at the field logging software 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 >10 degrees, drill hole dip deviations >5 degrees, and missing samples have been developed firstly using AcQuire (2011-12) and then in Datashed (2013). Before Resource Estimation commenced, the data was checked for: Excessive survey deviation, missing/overlapping/duplicate sample interval. Holes were visually plotted in SURPAC and reviewed for obvious location errors.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	• Competent person, Bill Rayson, has visited Browns Range. No fatal flaws identified.

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.*	• Interpretations supporting the zones of mineralisation are only supported by limited and/or inconclusive geological evidence. There is only sufficient confidence to support an 'Inferred' classification. • No assumptions are made. • No alternative interpretations were considered. • Wireframes, representing the interpreted geology and mineralisation, were used as the mineralisation domains for modelling purposes. These wireframes were used as boundaries to select sample populations for data analysis and estimation. • Key factors that are likely to affect the continuity of grade are: The inherent variability of faulted and brecciated rocks. The breccia rock characteristics can change rapidly from centimetre to metre scale, the nugget effect 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.*	• The corridor of mineralisation extends from surface to an approximate depth of 100m, has an approximate strike length of 650m and is around 50m across. Within this zone, mineralisation is modelled within individual lenses. Individual lenses vary between 1 and 10 m thick. Individual lenses vary from 25 to 125m long. Individual lenses vary from 30 to 100m deep.
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.*	• 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 La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 + Eu2O3 + Gd2O3 +Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3 +Y2O3. Additionally, the elements uranium and thorium were estimated as

Criteria	JORC Code explanation	Commentary
	• *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.*	elements of potential interest. The geological interpretation was used to define the mineralization domains. The mineralization domains were used as hard boundaries to select sample populations for data analysis and grade estimation. Drillhole sample data was flagged with domain codes unique to each mineralization domain. Sample data was composited to one metre downhole lengths. The Mineral Resource estimate report was constrained to blocks within 25m of a sample point. • A Mineral Resource estimate for Gambit was reported in February 2014. No previous mining activity, hence no reconciliation, has taken place at Gambit. • No assumptions were made regarding recovery of by-products. • Estimates were undertaken for U and Th as potential deleterious elements. • BLOCK SIZE: The Gambit block model parent cell size was set to 5m in easting, 5m in northing and 2.5m in RL. Sub-celling was allowed to occur down to 0.625m in easting and 0.625m in northing and 0.625m in RL. Grade was estimated into parent cells, with all sub-cells receiving the same grade as their relevant parent cell. Sample Spacing: 373 B.C.M per 1m of sample. Drillholes collared nominally between 10 to 25m spacing between holes. Sample Search: Two search passes were used for each estimate in each domain. The first pass search allowed a minimum of 5 composites and a maximum of 25 composites. Max search distance 50m long axis, 50m intermediate axis, 16.7m short axis. The second pass search allowed a minimum of 5 composites and a maximum of 25 composites. Max search distance 150m long axis, 150m intermediate axis, 50m short axis. Search axis aligned to geological wireframes for each zone. • No selective mining units were assumed in this estimate. • A strong correlation exists (r>0.8) between Y and Sm Eu Gd Tb Dy Ho Er Tm Yb Lu. Similarly, strong correlations exist between Ce and La, Pr, Nd. These correlations have been used in the Mineral

Criteria	JORC Code explanation	Commentary
		Resource estimate to assist with variography and to assign a calculated pXRF grade for elements where no ICP-MS is available. • 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. • Decile/Percentile plots, histograms and cumulative probability curves were plotted. No grade cutting or capping was performed. • Validation of the block model carried out a volumetric comparison of the mineralisation wireframes to the block model volumes. Summary composite statistics and estimation results were compared, by domain. No reconciliation data is available.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis. Core was dried before analysis.
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 Gambit 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.*	• Given the grade and near surface location, it is assumed that the deposit will be mineable using generic open cut methods. No specific modifying factor assumptions have been made.
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*	• No substantial metallurgical studies have been completed to date on the Gambit mineralization. However, the nearby Wolverine and Gambit West Deposits have been extensively tested for

Criteria	JORC Code explanation	Commentary
	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.	metallurgical performance, and therefore it is assumed that Gambit has reasonable prospects for satisfactory metallurgical extraction using similar processes.
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 for mining at Browns Range are well advanced and have not highlighted any environmental issues likely to be detrimental to 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.*	• Bulk density has been estimated from density measurements from diamond core. Density measurement were carried out on diamond core samples of variable length using the Archimedes method of dry weight versus weight in water. • The Archimedes water immersion method, as performed both onsite at Genalysis, is appropriate for the rocktypes under consideration. • All mineralised domains were assumed to have a bulk density of 2.52 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.*	• The Mineral Resource is classified entirely as Inferred in its entirety. There are no varying confidence categories. • The Mineral Resource is classified entirely as Inferred. This takes into account uncertainty around many relevant factors. • The classification appropriately reflects the Competent Persons view of the deposit.

Criteria	JORC Code explanation	Commentary
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 implies a confidence level and level of accuracy in the estimates. The entire Mineral Resource at Gambit is classified as 'Inferred'. • These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the deposit. • No production data is available

ASX ANNOUNCEMENT
28 SEPTEMBER 2018

Northern Minerals
Level 1
675 Murray Street
West Perth WA 6005

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

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