12 December 2013

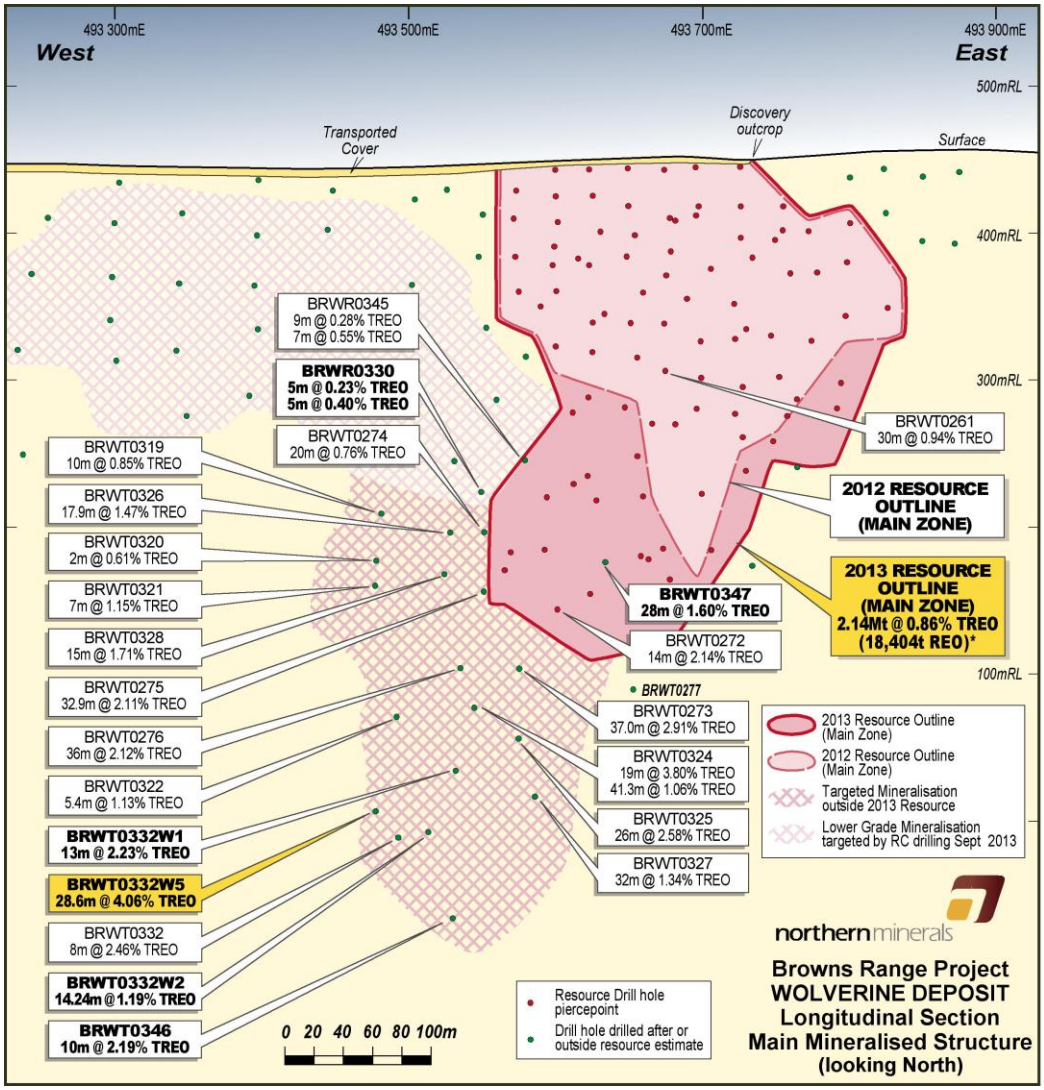
Final assays complete successful 2013 Wolverine drill program down to 500m vertical depth

- Final batch of assays from Wolverine deliver more high grade HRE intersections, including **28.6m @ 4.06% TREO[1] from 482.5m to 511.1m (40.6kg/t TREO[1] including 3.85kg/t Dy_2O_3 and 25.59kg/t Y_2O_3)**

- Completes successful 2013 resource extension drilling program at Wolverine, confirming significant extension of high grade xenotime mineralisation to a vertical depth of 500m, and remains open at depth

- Results build further confidence in new resource target, with additional upgrade planned for March 2014

Figure 1 – Wolverine Prospect Long section (looking north)



pathway to production

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Northern Minerals (ASX:NTU) has received the final assays from recently completed resource extension drilling at its Wolverine deposit, which have delivered some of the best heavy rare earth intersections received to date.

The results include a number of outstanding high grade HRE intersections across significant widths– including **28.6m @ 4.06% TREO –** and further confirms the significant zone of Heavy Rare Earth (HRE) mineralisation below and to the west of the current Wolverine resource, which remains open at depth.

The results also add further confidence in the revised exploration targets at the Browns Range project announced last month, and will contribute to the additional resource upgrade planned for March next year.

The latest assays are from the final four holes of the Wolverine resource extension drilling program which was completed in late October (also includes BRWT0347 which is an infill drill hole). The program targeted the westerly plunging zone of xenotime mineralisation down to vertical depths of 500m. Best results from the latest assay results include:

Hole ID	From (m)	To (m)	Interval (m)	TREO %	TREO (kg/t)	Dy_2O_3 (kg/t)	Y_2O_3 (kg/t)
BRWT0332W5	482.5	511.1	28.6	4.06	40.6	3.85	25.58
BRWT0332W1	472	485	13	2.23	22.3	1.82	13.51
BRWT0332W2	506	520.2	14.24	1.19	11.9	0.98	6.79
BRWT0346	568	578	10	2.19	21.9	2.06	13.3
BRWT0347*	298	326	28	1.6	16.0	1.38	9.62

Mineralised intervals are down hole widths >2m @ 0.15% TREO, or 1m >0.30% TREO, not true widths. Intersections calculated using a 0.15% TREO cut-off and a maximum of 2m continuous internal dilution (cumulative dilution of intersection may be > 2m). No top cut has been applied. Samples were submitted to Genalysis Laboratory for REE analysis using a FP6/OM Sodium Peroxide Fusion Digest and ICP-MS. All significant intersections from the recent assay results and drill hole collar details are listed in the annexure below.

[1] *TREO = Total Rare Earth Oxides - Total of La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3.*

[2] *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*

**Infill drill hole drilled within the current resource outline.*

Northern Minerals Managing Director George Bauk said the assays continued the successful strike rate at Wolverine.

“These intersections include some of the best we have received, and really top off what has been an outstanding follow-up drill campaign at Wolverine,” Mr Bauk said.

“It provides an increasing level of confidence in our resource target, and that we can deliver another significant resource upgrade early next year,” he said.

The final results mark the completion of what has been a defining exploration program across Browns Range in 2013. During the year the Company completed more than 46,000 meters of exploration drilling, with more than 15,000 samples assayed. Results from this program have already delivered a 165% increase in JORC resources in October, with a further upgrade planned for March next year.

“Our exploration success during 2013 has really taken Browns Range a major step forward. We have now established a significant mineral inventory for a start-up mining operation, with a pipeline of additional prospects and targets for future growth,” Mr Bauk said.

Mr Bauk said the Company had also completed some additional in-fill drilling at Wolverine and Gambit West in order to upgrade resources from inferred to indicated.

Detailed results

The Company commenced the current diamond drilling campaign at Wolverine in late August, with the resource extension drilling completed in late October. The diamond drilling program targeted a westerly plunging depth extension to the HRE mineralisation, which remains open at depth and demonstrates high grade xenotime mineralisation.

The Wolverine westerly plunging depth extension to mineralisation was tested by a total of 20 diamond drill holes (see Figures 1, 2 &3). Three of these drill holes were wedge holes from a single parent drill hole (BRWT0332). All other holes were drilled with RC precollars of downhole depths between 119m and 239m. Assay results reported here are for the last four drill holes of this program, plus one infill drill hole completed in the program (BRWT0347). All drill holes reported here, except BRWT0347, were drilled outside of the current mineral resource outline (as announced on 15 October 2013).

An RC drilling program was also completed in October to the west of the Wolverine deposit. The RC drilling program followed previous drilling in 2012 which had identified a near surface, lower-grade (<200m vertical depth) target area to the immediate west of the Wolverine deposit. Results from the RC drilling program were reported in the ASX announcement of 13 November, except for drillholes BRWR0330 and 333. Assay results have now been received for these two drill holes with BRWT0330 returning 5m @ 0.40% TREO while BRWT0333 returned no significant intersections.

Figure 2 – Wolverine Prospect – Drill hole location plan with most recent significant assay results

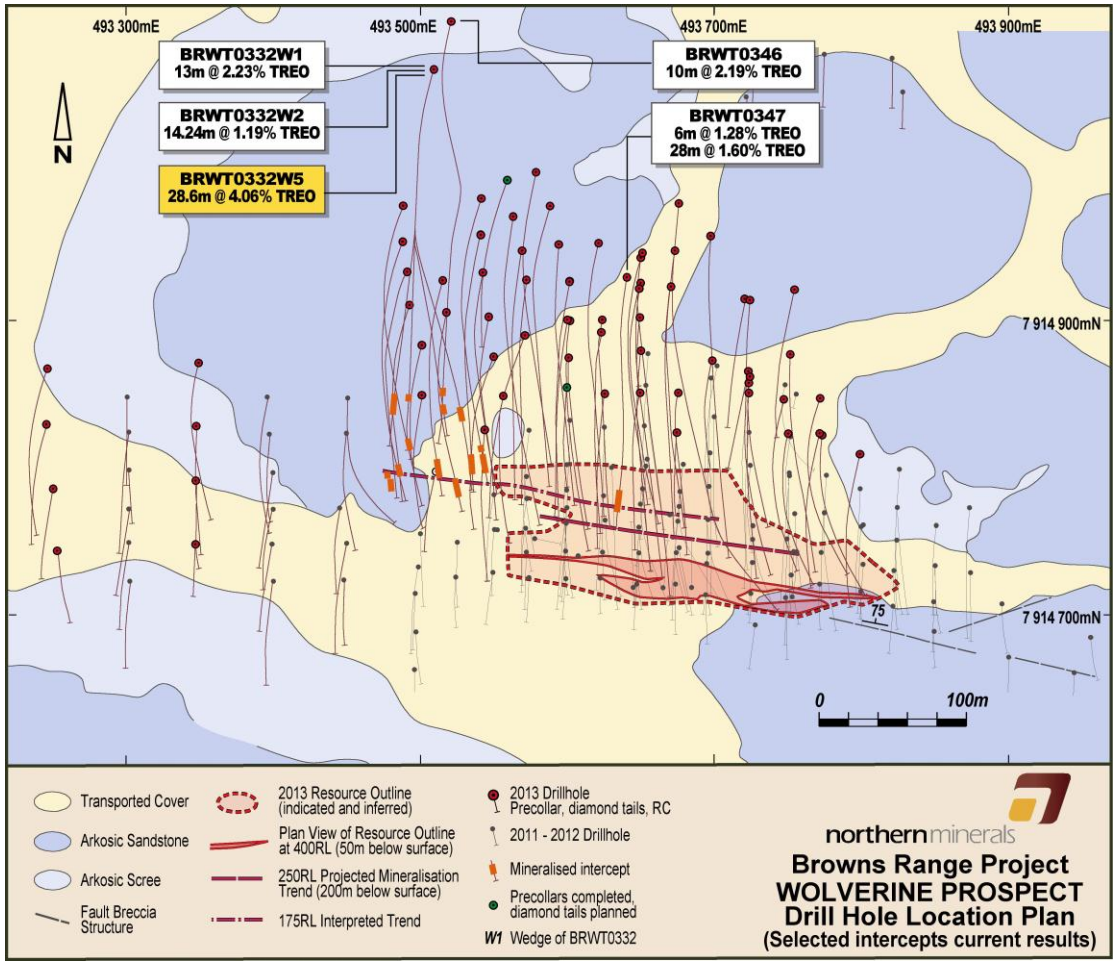
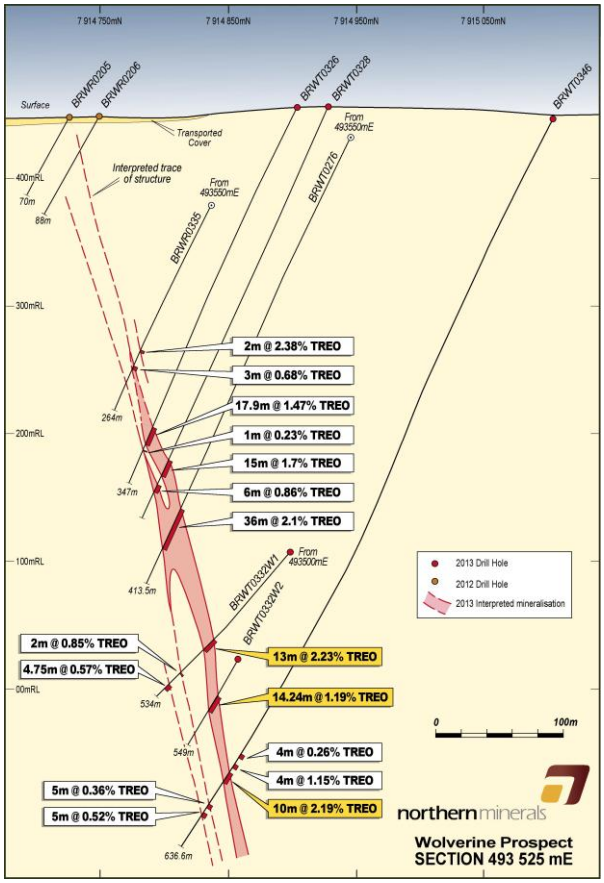
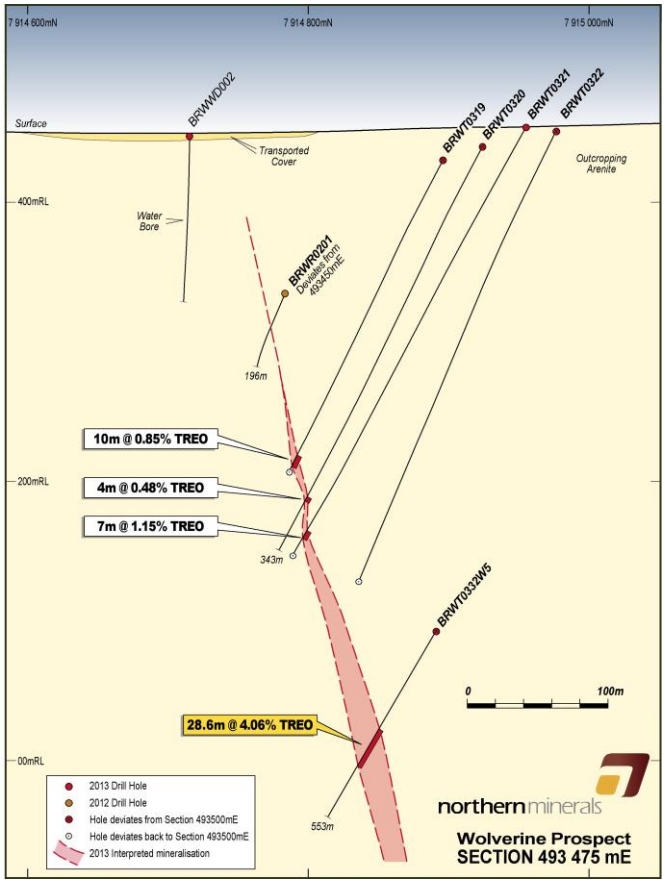


Figure 3 – Wolverine Drill sections 493525E and 493475E





Competent Persons Declaration:

The information in this report that relates to Exploration Targets, Exploration Results or Mineral Resources is based on information compiled by Mr Robin Wilson, a full-time employee of Northern Minerals, a Competent Person, who is a member of the Australasian Institute of Mining and Metallurgy. Robin Wilson has sufficient experience which is 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". Mr Wilson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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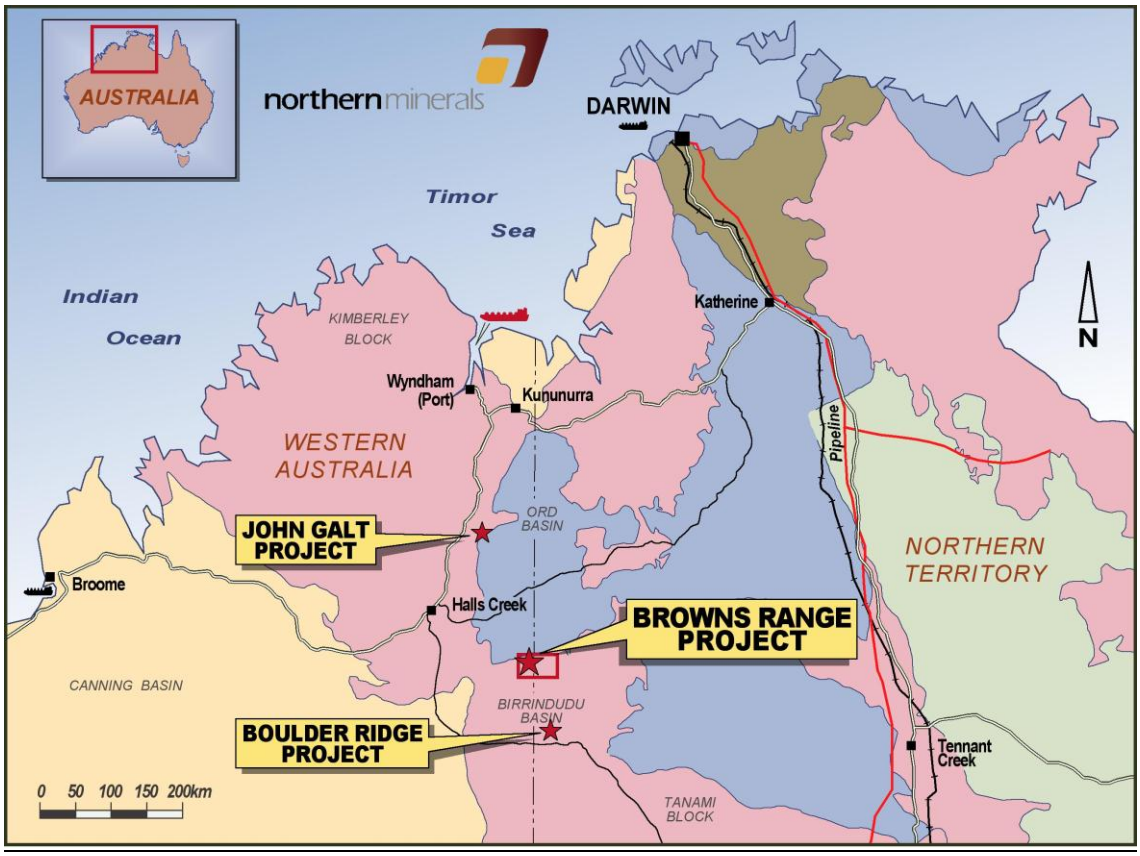
About Northern Minerals:

Northern Minerals Limited (ASX: NTU) is focused on development of rare earth elements (REE), with a large and prospective landholding in Western Australia and the Northern Territory. The Company's flagship project is Browns Range, where it has a number of prospects with high value HRE in xenotime mineralisation. In particular, the mineralisation includes high levels of dysprosium and yttrium, which are in short supply globally and expected to be increasingly sought after as world economies stabilise and recent trends in urbanisation and technology diffusion, particularly in Asia, accelerate. Following outstanding results from its drilling programs the Company has delivered an expanded JORC resource, and is advancing Browns Range toward production using a relatively simple and low cost processing flowsheet to produce a high grade mixed Rare Earth oxide. Northern Minerals also has a HRE exploration program underway at the geologically similar John Galt project and Boulder Ridge Project. For more information www.northernminerals.com.au



Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	The deposit was sampled using a combination of Reverse Circulation (RC) drilling, diamond core from surface and diamond core tails from RC pre-collars. The current drilling is part of the post resource exploration program the now totals: 17 RC holes for 3,318m, 3 diamond wedge holes for 866m, and 20 RC holes with diamond tails for 7,906.76m (3,765.1m of precollars and 4,141.66m of diamond drilling) were drilled in the program (including 2 resource infill holes BRWT0261 and BRWT0347). A total of 242 holes were drilled in the Wolverine area prior to this drilling program (see significant intercept table Section 2 of the 15 October resource estimate). Holes were almost exclusively drilled to UTM grid south at a dip of -60 degrees and were completed on a nominal 25m x 20m to 50m x 20m grid.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Drill hole collars were originally set out using hand held GPS and on completion the collars were surveyed by survey contractors using high precision GPS. Down hole surveys were completed either using single shot cameras or down hole gyro. RC drilling has been typically employed for shallower levels of the resource, with diamond drilling employed to target the deeper resource areas. RC samples were collected at one metre intervals via a standard adjustable 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 best practice.

Criteria	JORC Code explanation	Commentary
	Aspects of the determination of mineralisation that are Material to the Public Report.	Diamond core was drilled using either double or triple tube at HQ and NQ sizes. HQ2 and HQ3 were variably employed for shallower parts of the hole depending on prevailing ground conditions, while the majority of diamond core intercepts within the mineralisation are at NQ3 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 at the rig to achieve a target 2-5 kilogram sample weight. Diamond and RC samples were dried, crushed, split and pulverised by Genalysis Laboratories in Perth prior to analysis of the rare earth element suite using ICP-MS.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Diamond drill holes account for 44% of the drill metres within the mineralisation and comprises NQ and HQ sized core. RC drilling accounts for the remainder with diameters of either 115mm or 140mm. Pre-collar depths range from 119m to 240m with diamond tail hole depths ranging from 204.6m to 561.2m. Diamond core was orientated using the 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. RC drilling was completed using face sampling hammer with hole depths ranging from 114m to 294m.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	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 more than 95% of core intervals had complete recoveries. Core recoveries in the upper 30m were variable and with losses associated with weathered arenites and transported cover. Recoveries in these zones ranged between 70-90%. These reduced recoveries were not associated with mineralisation and as such are not considered material. RC recovery was assessed via subjective assessment based on volume recovered. RC recoveries were observed to be generally acceptable with recoveries typically 80% or greater. RC and diamond recovery information is recorded in the geologist logs and entered into the database.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	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.
	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.	Assessments on the effect of low recoveries were completed for the diamond and RC drilling and found that there was not likely to be any material impact or bias on the reported assay results as a result of the reduced recoveries.

Criteria	JORC Code explanation	Commentary
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.*	Diamond core was geologically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric) logging codes. In addition structural measurements of major features were collected. RC logging was completed on one metre intervals at the rig by the geologist. Logging was completed directly onto a laptop in the field using a proprietary geological logging package with in-built validation. Logging information was reviewed by the responsible geologist prior to final load into the database. Chip trays were collected for each of the RC intervals and core trays were photographed. Geotechnical logging of all diamond core consisted of recording core recovery, RQDs, number of fractures, core state (i.e. whole, broken) and hardness.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	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.
	The total length and percentage of the relevant intersections logged.	100% of 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.*	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 primary half core 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
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	RC samples were collected from the full recovered interval at the drill rig by either riffle splitting or using a static cone splitter. All samples were collected dry with a minor number being moist due to ground conditions or excessive dust suppression. Samples collected in mineralisation were dry.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation techniques employed for the diamond and RC samples follow industry best practice. Samples are oven dried at 120°C for 8 hours before processing through a Boyd jaw crusher reducing the sample to 90% passing 3mm (diamond samples only). The RC and diamond samples are then pulverised to achieve a grind size of 85% passing 75 micron using Hertzog robotic mills.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field QAQC procedures included the field insertion of certified reference materials (standards) having a range of values reflecting the general spread of values observed in the mineralisation. Blanks were also inserted in the field and developed from local host rock following chemical analysis. Field duplicates were collected by either a second sample off the splitter (RC) or by quarter core samples of the original half core sample (diamond) and separate submission and analysis at the laboratory. Insertion rates averaged 1:20 for duplicates, blanks and standards, with increased frequency in mineralised zones.
	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.	Field duplicates from RC samples generally showed an excellent correlation between original and duplicates, however other measures of spread such as Half Absolute Relative Difference (HARD) plots suggested moderate to low repeatability. Analysis of the quarter core duplicate diamond core samples showed similar results suggesting the short scale variability of the mineralisation is quite high, with mineralisation being irregularly distributed within samples.

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Current industry standard sampling is used and deemed appropriate. A study on xenotime grain size and sampling is in progress. Samples have been selected, but results and subsequent analysis are pending.
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.*	Samples assayed by Genalysis for rare earth elements were fused with sodium peroxide within a nickel crucible and dissolved with hydrochloric acid for analysis. Fusion digestion ensures complete dissolution of the refractory minerals such as xenotime, which are only partially dissolved if the pulp is digested in acids. The composition of the flux and the crucible used preclude the analysis of sodium, nickel, cobalt, chromium and molybdenum so these elements are not determined. The digestion solution, suitably diluted, is analysed by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) for the determination of Al, Fe, P, S, Sc and S, while ICP Mass Spectroscopy (ICP-MS) is used for the determination of the REE (La – Lu) plus Y, Th, U, Sr, W and As.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	In the field a series of Niton (XL3T-950 GOLDD+) XRF hand held tools were used to assist with the identification of mineralised zones for sample collection and submission. Tools were operated in soil mode with a count time of 30 seconds, with observations taken at every 0.5m on diamond core and every metre for RC samples. Intervals for which readings returned Yttrium (Y) of 200ppm or greater were selected for analysis, as were adjacent intervals as required for mineralisation continuity. Niton readings were not incorporated into analytical results for mineral resource estimation. Analysis of the XRF results for Y verses the laboratory results showed that in general the Niton value under estimated the Y concentration and, as such, use of the 200ppm Y selection criteria is conservative.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. Samples are currently being selected for an umpire laboratory campaign in line with requirements for resource estimation.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Diamond drill core photographs have been reviewed for the recorded sample intervals. High range values are typically resubmitted for repeat analysis with results comparing within acceptable limits. A total of 40 anomalous and mineralised samples from the resource extension drilling program were repeat assayed to verify results returning within acceptable <10% variation for REE, Y, and U.
	The use of twinned holes.	Two mineralised RC drill holes from 2011 were twinned using diamond core in 2012. While the logging of the margins of the host breccia are similar, the internal assays are variable on a metre scale. The overall metal content of the intervals in the siliceous breccia wireframe show the diamond samples return up to 10% higher assays than the RC drilling. On only two twinned sample points this is not considered a significant bias. No twinned holes were completed in the current program.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collected into a proprietary logging package (OCRIS) with in-built validation. Details were extracted and pre-processed prior to loading. Datashed is used as the database storage and management software and incorporates numerous data validation and integrity checks, using a series of defined data loading tools. Data is stored on a SQL server by Northern Minerals Ltd and electronic backups are completed three times per day.

Criteria	JORC Code explanation	Commentary
	Discuss any adjustment to assay data.	Adjustments made to the assay data were limited to the conversion of reported elemental assays for a range of elements to the equivalent oxide compound as applicable to rare earth oxides. In all instances the original elemental data has been stored in the database and the equivalent oxide values loaded into appropriately labelled fields identifying them as calculated values. Oxide calculations are completed by the laboratory and checked by Northern Minerals. No issues were identified. The oxides were calculated from the element according to the following factors below: CeO_2 – 1.2284, Dy_2O_3 – 1.1477, Er_2O_3 – 1.1435, Eu_2O_3 – 1.1579, Gd_2O_3 – 1.1526, Ho_2O_3 – 1.1455, La_2O_3 – 1.1728, Lu_2O_3 – 1.1371, Nd_2O_3 – 1.1664, Pr_6O_{11} – 1.2082, Sm_2O_3 – 1.1596, Tb_4O_7 – 1.1421, Tm_2O_3 – 1.1421, Y_2O_3 – 1.2699, Yb_2O_3 – 1.1387 Ratios of each oxide to Total Rare Earth Oxides (TREO) are used to determine the percentages of heavy (HRE) and light (LRE) rare earth oxides. The criteria is summarised as: Rare earth oxide is the industry accepted form for reporting rare earths. The **TREO** (Total Rare Earth Oxide) is calculated from addition of La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Y_2O_3, and Lu_2O_3. Note that Y_2O_3 is included in the TREO calculation. Northern Minerals reports HREO% determined by the formula: **HREO%** = $[Sm_2O_3+Eu_2O_3+Gd_2O_3+Tb_4O_7+ Dy_2O_3+ Ho_2O_3+ Er_2O_3+Tm_2O_3+Yb_2O_3, + Y_2O_3,+Lu_2O_3]$ /$[La_2O_3+CeO_2+Pr_6O_{11}+Nd_2O_3+Sm_2O_3+Eu_2O_3+Gd_2O_3+Tb_4O_7+ Dy_2O_3+ Ho_2O_3+ Er_2O_3+Tm_2O_3+Yb_2O_3 +Y_2O_3,+Lu_2O_3$(TREO)]**x 100**
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.*	Most of the 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. Survey accuracy of both collars and down hole is considered acceptable.
	Specification of the grid system used.	The grid system used is MGA94 Zone 52. All reported coordinates are referenced to this grid.

Criteria	JORC Code explanation	Commentary
	Quality and adequacy of topographic control.	Prime permanent control point, NM01 was established by satellite control and AUSPOS processing to centimetre external accuracy. Real Time Kinematic (RTK) GPS was used to establish the prime permanent control point and a secondary control station NM02 at the Wolverine prospect. Bore Hole Geophysical Services (BHGS) established three control points in 2011. A detailed topography survey was undertaken by Whelans Survey in July 2012 at Wolverine. The GPS equipment used were Trimble R6 model RTK GPS receivers. These instruments provide results accurate to around 5 to 15 mm XYZ within 1 km. All records are within a 1 km radius of the NM02 control station.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drilling of the Wolverine deposit has been completed on a nominal 25m in easting by 25m in northing grid spacing although this increases to broader spacing at the lateral extremities of the deposit. Holes were almost exclusively drilled to UTM grid south at a dip of -60 degrees. The spacing of down hole intercepts of the mineralisation varies from the nominal collar spacing due to deviation of drill holes, primarily associated with RC pre-collars penetrating a variable hardness sedimentary package in the hanging wall host rocks.
	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.	The degree of geological and grade continuity demonstrated by the data density is sufficient to support the definition of Mineral Resources.
	Whether sample compositing has been applied.	No compositing was applied to the exploration results.
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.*	The mineralisation is interpreted to be a steeply dipping, roughly planar feature striking approximately east-west and dipping at 75 degrees to the north. Drilling is almost exclusively conducted at -60 degrees to the south and as such drill holes intersect the mineralisation at or close to perpendicular. As such the orientation of drilling is not likely to introduce a sampling bias.

Criteria	JORC Code explanation	Commentary
	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 orientation of drilling with respect to mineralisation is not expected to introduce any sampling bias.
Sample security	*The measures taken to ensure sample security.*	Samples are collected on site under supervision of a responsible geologist and stored in bulk bags on site prior to transport by company truck or utility to Halls Creek commercial transport yard. The samples were stored in a secure area until loaded and delivered to the Genalysis laboratory in Perth. Laboratory dispatch sheets are completed and forwarded electronically as well as being placed within the samples transported. Dispatch sheets are compared against received samples and discrepancies reported and corrected.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	A review of the sampling techniques and data was completed by AMC in the course of preparing the Mineral Resource estimate. Review of the data integrity and consistency of the drill hole database shows sufficient quality to support resource estimation. Reviews of the sampling and data was completed by AMC as part of the December 2012 Resource estimate. Further site and sampling assessments were completed by BMGS in September and October 2013. The variability between diamond primary and duplicate core samples is probably due to inherent mineralisation variation and not a result of field sampling practices. RC sampling completed using a static cone splitter is possibly compromised by the splitter configuration currently in use. Recommendations proposed include replacement of the butterfly valve and to centralise the sample stream over the apex (to reduce preferential sampling to the primary port).

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	The Wolverine deposit is located wholly within Exploration Licence E80/3547. 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 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 tenement is in good standing and no known impediments exist.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	No previous systematic exploration for REE mineralisation has been completed by other parties at Wolverine. Regional exploration for uranium mineralisation was completed in the 1980s by PNC and in the 2000s by Areva.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Browns Range prospects (including Wolverine) are located on the western side of the Browns Range Dome, a Paleoproterozoic dome formed by a granitic core intruding the Paleoproterozoic Browns Range Metamorphics (meta-arkoses, feldspathic meta-sandstones and schists) and an Archaean orthogneiss and schist unit to the south. The dome and its aureole of metamorphics are surrounded by the Mesoproterozoic Gardiner Sandstone (Birrindudu Group). Locally at Wolverine the hosting Browns Range Metamorphics are a variable sequence of meta quartz-lithic and arkosic arenites and conglomerates with minor interbedded schists. The host rocks in the mineralised zone are silicified and brecciated along structures trending between east-west and 290 degrees, and dipping steeply to the north. Hematite and sericite alteration are associated with mineralisation. The style of mineralisation is xenotime hydrothermal breccia. Xenotime is associated with varying degrees of veining and brecciation; from 1mm to 2mm crackle vein selvages to matrix infill in 5m wide zones of chaotic breccia. There are open spaced textures, vugs and minor cross-cutting quartz, pyrite or barite veins that are interpreted to post-date mineralisation. Mineralogical examination shows the heavy rare earth elements (REE) are hosted by xenotime (YPO_4). The light REEs are also hosted by the florencite $(Nd,Ce,La)Al_3(PO_4)_2(OH)_6$ – goyazite $SrAl_3(PO_4)_2(OH)_5.H_2O$ series minerals, and are the only other REEs minerals recognised to date.

Criteria	JORC Code explanation	Commentary
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.*	Refer to separate Annexure – Wolverine Drill collar information and significant intercepts
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.*	All reported assays have been length weighted. No top-cuts have been applied. A nominal lower cut-off grade of 0.15% TREO is applied, with up to a maximum of two metres continuous internal dilution.
	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.	High grade TREO intercepts within broader lower grade TREO intercepts are reported as included intervals.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents values are used for reporting of exploration results.
Relationship between mineralisation widths and intercept lengths	*If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	The mineralisation is interpreted to be a steeply dipping, roughly planar feature striking approximately east-west and dipping at approximately 75 degrees to the north. Resource drilling is almost exclusively conducted at -60 degrees to the south and as such drill holes intersect the mineralisation at or close to perpendicular. Down hole widths are reported in the Annexure.
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.*	Refer to Figures 1 to 3 in body of text.
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.*	All results for the Wolverine deposit are reported.

Criteria	JORC Code explanation	Commentary
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.*	Determinations of bulk density for the 15 October 2013 Mineral Resource estimate were completed by a combination of core immersion techniques and downhole density surveys with values typically in the range 2.10 g/cm^3 to 3.40 g/cm^3. Mineralisation has a density range between 2.53 and 2.7 g/cm^3. The field density water immersion measurements for current drilling are within this range. Assaying for a range of non-REE elements is completed as standard in order to assist with quantification of deleterious elements. Low level uranium and thorium are potential deleterious substances and hence are modelled with the REE mineralisation. Geotechnical logging was completed on all diamond holes and collected details for recovery, RQD, and fracture frequency. In addition information on structure type, dip, dip direction, alpha and beta angle, texture, and roughness were recorded in the drill hole database. A geotechnical assessment is underway to support pit optimisation and mine design work. Studies are underway of rock waste physical and geochemical characteristics. Analysis of water bores at Browns Range shows no deleterious elements.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Infill drilling is proposed to continue at the Wolverine and Gambit West deposits in 2013/2014 to convert the portions of the current mineral resource that are classified as inferred into the indicated category.. . Hydrogeological investigations for water supply and ground water conditions are currently underway.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Refer to Figures 1 to 3 in body of text.

Wolverine Drill hole Collar Details and Significant Intercepts

Hole ID	Easting	Northing	RL	Depth (m)	Azimuth	Dip	From (m)	To (m)	Interval (m)	TREO %	Dy_2O_3 ppm	Y_2O_3 ppm
BRWR0330	493570.68	7914891.17	452.59	294	199.83	-58.69	254	259	5	0.23	156	1,050
						and	267	268	1	0.65	441	3,021
						and	271	276	5	0.40	310	2,088
						and	285	286	1	0.16	108	738
						and	293	294	1	0.40	318	2,219
BRWR0333	493509.89	7914798.45	449.90	114	190.18	-59.06				NSI		
BRWT0332W1	493507.79	7915069.36	448.43	534	193.94	-59.89	250	251	1	0.22	88	596
						and	472	485	13	2.23	1,818	13,514
						and	488	489	1	0.21	132	888
						and	501	502	1	0.15	132	850
						and	507.75	509.75	2	0.85	762	5,373
						and	517	518	1	0.70	622	4,173
						and	522	526.75	4.75	0.57	458	3,071
BRWT0332W2	493507.79	7915069.36	448.43	549.3	193.94	-59.89	386.5	387.5	1	0.50	176	1,186
						and	502	503	1	0.67	636	4,140
						and	506	520.24	14.24	1.19	978	6,794
BRWT0332W3	abandoned											
BRWT0332W4	abandoned											
BRWT0332W5	493507.79	7915069.36	448.43	552.6	196.49	-60.05	482.5	511.1	28.6	4.06	3,853	25,587
						and	515	516.48	1.48	0.34	241	1,593
						and	522.5	526.5	4	0.51	374	2,603
						and	530	531.07	1.07	0.15	25	158
						and	542	543	1	0.50	402	2,715
BRWT0346	493519.47	7915101.89	447.58	636.6	193.82	-62.15	551	555	4	0.26	233	1,461
						and	560	564	4	1.15	1,108	7,120
						and	568	578	10	2.19	2,058	13,300
						and	592	593	1	0.16	43	276
						and	596	601	5	0.36	239	1,610
						and	605	610	5	0.52	368	2,548
						and	621	622.2	1.2	0.62	403	2,569
BRWT0347	493640.40	7914928.60	451.50	377	190.98	-59.2	287	293	6	1.28	1,123	7,762
						and	298	326	28	1.60	1,375	9,620