ASX: NST

ASX Announcement
22 June 2020

NORTHERN STAR DIVESTS ASHBURTON PROJECT

Northern Star Resources Limited (ASX: NST) advises that it has agreed to divest the Mt Olympus Project comprising most of the Ashburton Project in Western Australia to Kalamazoo Resources Limited (ASX: KZR) for a deferred contingent cash consideration of A$17.5 million.

The deferred cash consideration is as follows:

- A$5 million on mining of the first 250,000 tonnes of Ore; and
- a 2% Net Smelter Royalty (NSR) on the first 250,000oz of gold produced (worth an estimated A$12.5 million using the current spot gold price of A$2,500/oz), with a 0.75% NSR on any subsequent gold produced from the tenements; and
- the same NSR's will also apply on any other metals produced from the tenements.

Northern Star Executive Chair Bill Beament said: "The Ashburton Project no longer fits in Northern Star's portfolio but still has strong potential on both the exploration and production fronts. The royalty structure also enables Northern Star to retain an exposure to the project."

Completion of the divestment is conditional on Ministerial approval and third party rights being observed.

Authorised for release to ASX by Bill Beament, Executive Chair.

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NORTHERN STAR DIVESTS ASHBURTON PROJECT

Appendix 1:

The Ashburton Project has a JORC Code 2012 Mineral Resources of 20.79Mt @ 2.45gpt gold containing 1.65Moz as per Table 1.

ASHBURTON PROJECT	Measured			Indicated			Inferred			Total Resources		
	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces
Surface	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)
Mt Olympus	-	-	-	6,038	2.3	448	9,138	2.2	632	15,176	2.2	1,080
Peake	-	-	-	113	5.2	19	3,544	3.3	380	3,657	3.4	399
Romulus	-	-	-	-	-	-	329	2.6	27	329	2.6	27
Waugh	-	-	-	347	3.6	40	240	3.6	28	587	3.6	68
Zeus	-	-	-	508	2.1	34	532	2.2	38	1,040	2.2	72
Subtotal - Surface	-	-	-	7,006	2.4	541	13,783	2.5	1,105	20,789	2.5	1,646
Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-
Total Ashburton	**-**	**-**	**-**	**7,006**	**2.4**	**541**	**13,783**	**2.5**	**1,105**	**20,789**	**2.5**	**1,646**

Table 1: Ashburton Gold Project (JORC Code 2012) Mineral Resources

Competent Persons Statement

The information in this announcement that relates to the Northern Star Resources Limited's (NST) mineral resources at the Ashburton Project, is based on information compiled by Mr Brook Ekers, a competent person who is a Member of the Australian Institute of Geoscientists. Mr Ekers is an employee of NST. Mr Ekers 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 Ekers consents to the inclusion in this document of the matters based on his information in the form and context in which it appears.

APPENDIX 1 – TABLE 1s

JORC Code, 2012 Edition – Table 1 Report
Ashburton Mt Olympus Deposit (including Waugh, Zeus & Romulus) - 30 June 2019
Section 1 Sampling Techniques and Data
(Criteria in this section apply to all succeeding sections.)

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.	This deposit is sampled by diamond drilling and RC drilling completed by NSR (Northern Star Resources Limited) and previous operators. NSR – DD. Sampled sections are generally NQ2. Core sample intervals are defined by the geologist to honour geological boundaries ranging from 0.3 to 1.5m in length. NSR - RC - Rig-mounted static cone splitter used with the aperture set to yield a primary sample of approximately 4kg for every metre (representing approximately one eighth of the total sample). Off-split retained. RC and DD sampling by previous operators to industry standard at that time often using 1m samples after initial 4m composites. It is unknown what grade threshold triggers the 1m re-samples.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and surface core drilling completed by previous operators to industry standard at that time (1988 initial discovery, to 2004).
	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 (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g 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 (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.5m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NSR diamond core samples are fire assayed (50g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC – Reverse circulation drilling is carried out using a face sampling hammer and a 5¼ inch diameter bit. NSR surface diamond drilling carried out by using both HQ3 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	NSR diamond drilling practice results in high recovery due to the competent nature of the ground. For RC drilling, efforts are made to ensure good recoveries are achieved by the use of auxiliary compressors and high-pressure booster units supplying compressed air at a high enough pressure to keep water from the hole and the samples dry in most circumstances. Where water is encountered in the pre-collar and wet samples result, more frequent cleaning of the cyclone and splitter is carried out and the hole is thoroughly flushed at the end of each sample. RC and diamond drilling by previous operators to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.

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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.	Core and chip samples have been logged by qualified Geologist to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Percussion holes logging were carried out on a metre by metre basis and at time of drilling. Surface core and RC logging completed by previous operators assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative and all core is photographed both wet and dry (some older core is pre-digital, photos not all reviewed). Visual estimates of sulphide, quartz alteration as percentages. Selected RC chip trays are archived.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD – Core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All major mineralised zones are sampled, plus associated visibly barren material, >5m of mineralised zones. Ideally, sample intervals are to be 1m in length, though range from 0.3m to 4.0m in length. Total weight of each sample generally does not exceed 5kg. Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. All samples are oven-dried overnight (max 1200), jaw crushed to <6mm, and split to <3kg in a static riffle splitter. The coarse reject is then discarded. The remainder is pulverised in an LM5 to >85% passing 75µm (Tyler 200 mesh) and bagged. The analytical sample is further reduced to a 30gm charge weight using a spatula, and the pulp packet is stored awaiting collection by NSR. For older pre- NSR samples, best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC - Rig-mounted static cone splitter used for dry samples. Pre NSR RC sub sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For older pre- NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. For drill core the external labs coarse duplicates are used.

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Criteria	JORC Code explanation	Commentary
		RC drilling by previous operators to industry standard at the time. With new database protocol, older QAQC data is being retrieved but was not reviewed at the time of this report.
	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, i.e. other half of cut core, have not been routinely assayed. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
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 all NSR drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30-gram (or 50g depending on which lab was used) sample charge weight. An AAS finish is used, considered to be total gold. Various multi-element suites are analysed using a four-acid digest with an ICP-OES finish. RC drilling by previous operators to industry standard at the time and not reviewed for this Resource.
	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.	Not applicable to this report.
	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.	The field QAQC protocols used include the following for all drill samples: • Duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples, • Coarse blanks are inserted at an incidence of 1 in 30 samples, • Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 25 samples. The CRM used is not identifiable to the laboratory, • NSR's QAQC data is assessed on import to the database and reported monthly and yearly. The laboratory QAQC protocols used include the following for all drill samples: • Repeat analysis of pulp samples occurs at an incidence of 2 in 50 samples, • Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 100 samples, • The laboratories own standards are loaded to the NST database, • The laboratory reports its own QAQC data on a quarterly basis. • In addition to the above, about 5% of samples are sent to an umpire laboratory. • Failed standards are followed up by re-assaying a second 50g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for Surface RC and diamond drilling by previous operators unknown, assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified.
	The use of twinned holes.	There are no purpose twinned holes.

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Criteria	JORC Code explanation	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NSR data was hard keyed or copied into excel spreadsheets for transfer and storage in an access database, now replaced by SQL database and more automated data entry. Hard copies of NSR core assays and surveys are kept at head office. Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to Access initially, now SQL database.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data. First gold assay is utilised for any Resource estimation. Some minor adjustments have been made to overlapping data.
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.	NSR collar positions were surveyed using DGPS and were set-out and picked-up in MGA 1994 Zone 50 grid. This information is digitally transferred to the geology database. Multi shot cameras and gyro units were used for down-hole survey. Previous drilling has been set-out and picked up in both national and local grids using a combination of GPS and survey instruments and are assumed to be to NST standards.
	Specification of the grid system used.	MGA94 grid, zone 50
	Quality and adequacy of topographic control.	Topographic control is from the Fugro 2002 Aerial photo data and site surveyed pit pickups. Accuracy would be to 10cm within the pits.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing on the order of 20m by 10m in the shallow portions of the deposit. Up to 100m on the down plunge extents.
	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 Resource development drilling over the deposit was generally 20m x 20m or better for the indicated Resource and up to 50m x 50m for the inferred Resource. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites to be replaced by 1 m samples in mineralised zones though it is unknown at what grade threshold the 1m sub-samples were analysed for. Compositing of the data to 1m was used in the estimate.
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 orientation of sampling is generally perpendicular to Zoe shear zone mineralisation and slightly oblique to the main sedimentary beds and mineralisation. Steep topography as also affected the orientation of drilling. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	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 drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Resource estimation. As the opportunity arises better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut, and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory.

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Criteria	JORC Code explanation	Commentary
		All sample submissions are documented, and all assays are returned via email. Sample pulp splits are returned to NSR via return freight and stored in shelved containers at the Paulsens mine site. Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There has been no audit of the sampling techniques, however all recent NST sample data has been extensively QAQC reviewed both internally and externally. Pre NSR data audits found to be light on in regard to QAQC though in line with industry standards of the time.

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.	M52/639 is wholly owned by NSR (Northern Star Resources Limited) and in good standing. There are no heritage issues with the current operation. Relationship with the traditional owners is good, though contact has become very limited. Several heritage surveys have been completed and there are no heritage issues with the current planned pit extents.
	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.	M52/639 was granted in 1996, renewed in 2018, now expiring on 27/05/2039.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to this Resource was predominantly collected by SIPA who operated the Mt Olympus mine from start up to closure, previous to the NSR purchase. Gold mineralisation was discovered in 1988 by BP minerals. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Mount Olympus is a medium grade, structurally controlled, sediment hosted epigenetic gold deposit. Mineralisation is hosted mainly by thick tensional quartz veins cross cutting bedding parallel shears.
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: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many (692) holes to practically summarise all drill information used. (See diagram). The detail is available in the Dec 2012 Resource Report.
	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.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.

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Criteria	JORC Code explanation	Commentary
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results previously released.
	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.	Exploration results previously released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	Exploration results previously released by NSR, do include an estimate of true thickness.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results previously released with downhole depth and estimated true thickness.
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.	See long section in main release and previous ASX releases (18/2/2011, 27/9/11, 2/12/11, 6/3/12, 12/3/12,1/7/12, 26/7/12, 27/8/12, 10/9/12, 7/2/13). Plan view and long section view of Mt Olympus showing drill collars is attached.
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.	When previously reported by NSR, exploration results do include all intersections for the period / area.
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.	Exploration results not being released at this time.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	A program of 13,000m (both RC and Diamond) is currently on hold, primarily due to current gold price and focus on other projects. This drilling would aid a pit optimization, test for free milling (oxide) extensions, test deeper plunge extensions and test high grade underground targets. A Metallurgical test study is also currently on hold.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Part of main announcement.

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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.	NSR (Northern Star Resources Limited) sampling and logging data is digitally entered into OCRISS then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. Pre NSR data considered correct, has been maintained by SIPA company database administrators.
	Data validation procedures used.	Pre NSR data has been partially validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person for this Resource report has visited the site in 2012.
	If no site visits have been undertaken indicate why this is the case.	A site visit has been undertaken by the CP. The originator of this resource worked extensively on site between 2012 and 2013.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral Resource using Vulcan software. The confidence in the geological interpretation is high with all the information and 5 years of open pit operation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging and pit development data used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity of the grade closely follows sedimentary bedding planes, particularly the coarser grained units.
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.	Strike length = 800m (east – west); Width = 200m (North-south); Depth = surface to -90mRl (~500m below surface).
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.	Compositing of drill-hole samples was completed against one mineralised domain at 1m (downhole) intervals. The ordinary kriging interpolation (OK) method was used in the first 2 passes of the estimation. A final nearest neighbor method was used to fill empty blocks. 73% of blocks were estimated in the first 2 passes Maximum distance of extrapolation from data points was statistically determined and varies by domain Vulcan software was used for data compilation, domain wire framing, calculating and coding composite values and reporting. Block model volumes were compared to wireframe volumes to validate sub-blocking.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Reconciled historical production from open pit operations is comparable with new estimate.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.

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Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block size is 10m (Y) x 10m (X) x 10m (Z), with sub-block to 1.25m x 1.25m x 1.25m. Average sample spacing is 20 by 20 or better for the main part of the Resource, up to 20m by 40m on the peripheries.
	Any assumptions behind modelling of selective mining units.	A 3m minimum mining width for both the surface and underground environment is assumed.
	Any assumptions about correlation between variables.	In the fresh material, there is a correlation between the Au grade and the bulk density measurement (see bulk density section).
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by statistical techniques and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades are assessed against drill hole data visually, by using swath plots and de-clustered means.
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. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 0.7gpt. Modelling lower grade cut off = 0.5gpt nominally.
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.	The Resource has been created based on open pit and underground mining methods.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The metallurgical conditions and characteristics of the Mount Olympus mineralisation are generally known with free milling material mined by Sipa from within oxide zones. Fresh mineralisation is refractory in nature with its high pyrite content and fine gold at times locked within this matrix. Local areas of graphite rich mineralisation have in certain cases preg-robbing properties. Initial test work has shown favorable results, more detailed studies are required. No Metallurgical assumptions have been built into the Resource model.
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 green fields 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.	Mt Olympus was a going concern and as such the previous practice have shown to be effective and practical.

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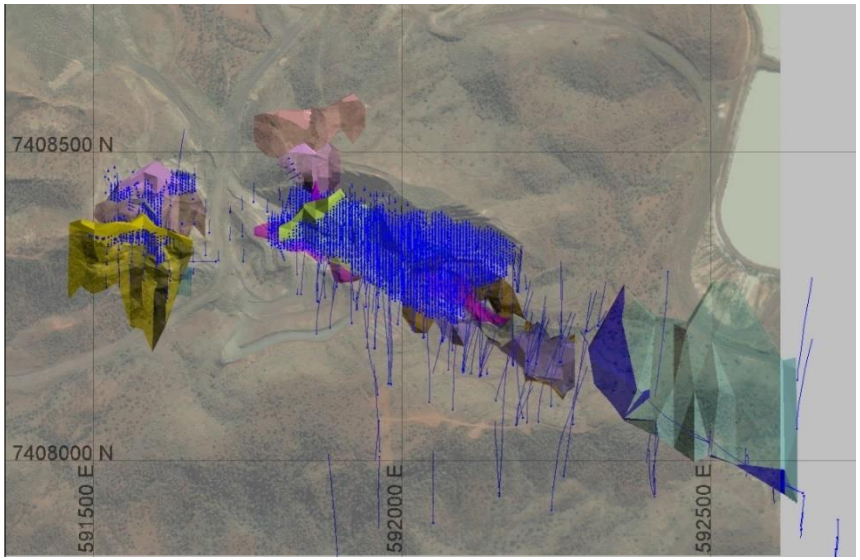
Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk density for oxide and transition material was assumed due to the low number of measurements within these zones.
	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.	A total of 4440 bulk density measurements from 30 diamond drill holes have been taken from mineralised and un-mineralised intervals within the project area.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific geological units and weathering states. In fresh material, a correlation between the bulk density valve and gold assay grade exists and was used to assign bulk density values.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Resource classification is based primarily on the geological and grade continuity as shown by drilling (open pit Grade control data not considered). If a wireframe has been constructed with geological or grade continuity, all block within the wireframe are assigned as inferred. Assignment of the indicated Resource category was done on each ore zone individually using a number of different criteria including: • continuity of both grade and geology; • drill holes' density; • number of passes to fill the blocks; and • Quality of the estimate (kriging efficiency). The halo (non-wireframed material) is assigned a Resource category of inferred if it is within the inferred wireframe and the block is filled in the first pass.
	Whether appropriate account has been taken of all relevant factors (i.e. 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).	Input and geological data is assumed accurate backed up by previous successful mining operations.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource has been subjected to a review by Northern Star Resources' senior technical personal. The process and validation of Mineral Resource estimates was undertaken by an independent consultant from Optiro.
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.	This mineral Resource estimate is considered as robust and representative of the Mount Olympus mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the Resource on a global scale.
	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.	This Resource report relates to the Mt Olympus and West Olympus ore zones and are likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.

APPENDIX 1 – TABLE 1s

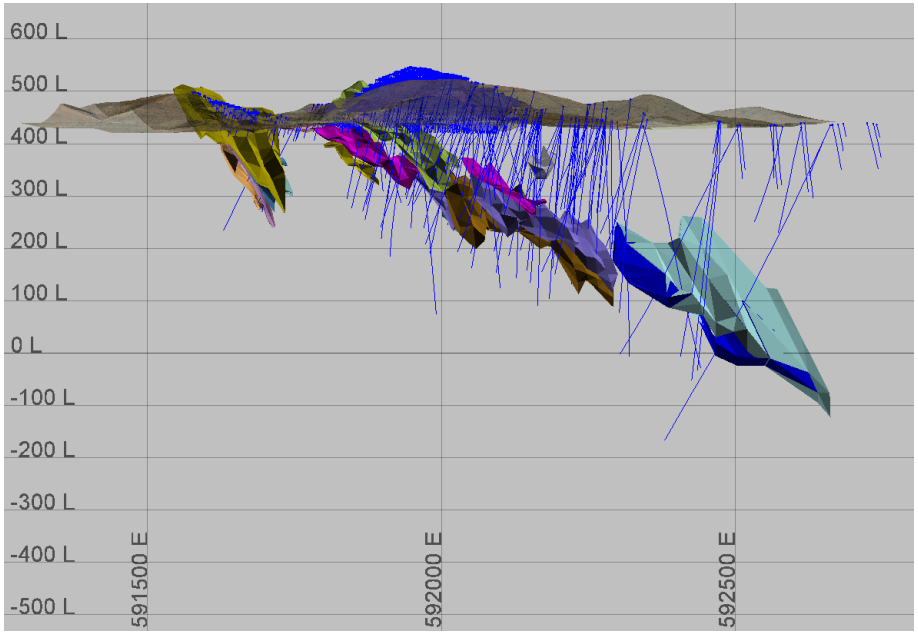
Criteria	JORC Code explanation	Commentary
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation comparison between the previously mined Mount Olympus (including West Olympus) and the MTO_Resource_jan2013 block model is favourable with reported reconciled production of 2.5mt @3gpt for 242koz (Mining cut-off grade is variable but assumed to be 0.7gpt when mined for stockpiling). At 0.7gpt lower cut-off and 92% recovery the block model reports 2.8mt @ 3.0gpt for 243,000koz.

ASHBURTON MT OLYMPUS DEPOSIT - REPRESENTATIVE PLAN & LONG SECTION

Plan View – Mt Olympus deposit



Long Section View – Mt Olympus Deposit



APPENDIX 1 – TABLE 1s

JORC Code, 2012 Edition – Table 1 Report
Ashburton - Peake Deposit - 30 June 2019
Section 1 Sampling Techniques and Data
(Criteria in this section apply to all succeeding sections.)

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.	This deposit is sampled by diamond drilling (DD) and Reverse Circulation (RC) drilling completed by NSR (Northern Star Resources Limited) and previous operators. NSR – DD - Sampled sections are generally NQ2. Core sample intervals are defined by the geologist to honour geological boundaries ranging from 0.3 to 1.5m in length. NSR - RC - Rig-mounted static cone splitter used with the aperture set to yield a primary sample of approximately 4kg for every metre (representing approximately one eighth of the total sample). Off-split retained. RC and DD sampling by previous operators to industry standard at that time often using 1m samples after initial 4m composites. It is unknown what grade threshold triggers the 1m re-samples.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and surface core drilling completed by previous operators to industry standard at that time (1988 initial discovery, to 2004).
	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 (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g 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 (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.5m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NSR diamond core samples are fire assayed (50g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC – Reverse circulation drilling is carried out using a face sampling hammer and a 5¼ inch diameter bit NSR surface diamond drilling carried out by using both HQ3 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	NSR diamond drilling practice results in high recovery due to the competent nature of the ground. For RC drilling, efforts are made to ensure good recoveries are achieved by the use of auxiliary compressors and high-pressure booster units supplying compressed air at a high enough pressure to keep water from the hole and the samples dry in most circumstances. Where water is encountered in the pre-collar and wet samples result, more frequent cleaning of the cyclone and splitter is carried out and the hole is thoroughly flushed at the end of each sample. RC and diamond drilling by previous operators to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.

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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.	Core and chip samples have been logged by qualified Geologist to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies Percussion holes logging were carried out on a metre by metre basis and at time of drilling. Surface core and RC logging completed by previous operators assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative and all core is photographed both wet and dry (some older core is pre-digital, photos not all reviewed). Visual estimates of sulphide, quartz alteration as percentages Selected RC chip trays are archived.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD – Core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All major mineralised zones are sampled, plus associated visibly barren material, >5m of mineralised zones. Ideally, sample intervals are to be 1m in length, though range from 0.3m to 4.0m in length. Total weight of each sample generally does not exceed 5kg. Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. All samples are oven-dried overnight (max 1200), jaw crushed to <6mm, and split to <3kg in a static riffle splitter. The coarse reject is then discarded. The remainder is pulverised in an LM5 to >85% passing 75µm (Tyler 200 mesh) and bagged. The analytical sample is further reduced to a 30gm charge weight using a spatula, and the pulp packet is stored awaiting collection by NSR. For older pre- NSR samples, best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC - Rig-mounted static cone splitter used for dry samples. Pre NSR RC sub sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For older pre- NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. For drill core the external labs coarse duplicates are used.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
		RC drilling by previous operators to industry standard at the time. With new database protocol, older QAQC data is being retrieved but was not reviewed at the time of this report.
	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, i.e. other half of cut core, have not been routinely assayed. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
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 all NSR drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30-gram (or 50g depending on which lab was used) sample charge weight. An AAS finish is used, considered to be total gold. Various multi-element suites are analysed using a four-acid digest with an ICP-OES finish. RC drilling by previous operators to industry standard at the time and not reviewed for this Resource.
	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.	Not applicable to this report.
	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.	The QAQC protocols used include the following for all NSR drill samples: The field QAQC protocols used include the following for all drill samples: • Duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples, • Coarse blanks are inserted at an incidence of 1 in 30 samples, • Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 25 samples. The CRM used is not identifiable to the laboratory, • NSR's QAQC data is assessed on import to the database and reported monthly and yearly. The laboratory QAQC protocols used include the following for all drill samples: • Repeat analysis of pulp samples occurs at an incidence of 2 in 50 samples, • Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 100 samples, • The laboratories own standards are loaded to the NST database, • The laboratory reports its own QAQC data on a quarterly basis. • In addition to the above, about 5% of samples are sent to an umpire laboratory. • Failed standards are followed up by re-assaying a second 50g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for Surface RC and diamond drilling by previous operators unknown, assumed to be industry standard.
	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	The use of twinned holes.	There are no purpose twinned holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NSR data was hard keyed or copied into excel spreadsheets for transfer and storage in an access database, now replaced by SQL database and more automated data entry. Hard copies of NSR core assays and surveys are kept at head office. Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to Access initially, now SQL database.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data. First gold assay is utilised for any Resource estimation. Some minor adjustments have been made to overlapping data.
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.	NSR collar positions were surveyed using DGPS and were set-out and picked-up in MGA 1994 Zone 50 grid. This information is digitally transferred to the geology database. Multi shot cameras and gyro units were used for down-hole survey. Previous drilling has been set-out and picked up in both national and local grids using a combination of GPS and Survey instruments and are assumed to be to NST standards.
	Specification of the grid system used.	MGA94 grid, zone 50.
	Quality and adequacy of topographic control.	Topographic control is from the Fugro 2002 Aerial photo data and site surveyed pit pickups. Accuracy would be to 10cm within the pits.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing on the order of 20m by 20m in the shallow portions of the deposit. Up to 200m by 200m on the down plunge extents.
	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 data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites to be replaced by 1 m samples in mineralised zones though it is unknown at what grade threshold the 1m sub-samples were analysed for. Compositing of the data to 1m was used in the estimate.
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 orientation of sampling is generally perpendicular to mineralisation. Steep topography may also have affected the orientation of drilling. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	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 drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Resource estimation. As the opportunity arises better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory All sample submissions are documented, and all assays are returned via email.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
		Sample pulp splits are returned to NSR via return freight and stored in shelved containers at the Paulsens mine site Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There has been no audit of the sampling techniques, however all recent NST sample data has been extensively QAQC reviewed both internally and externally. Pre NSR data audits found to be light on in regard to QAQC though in line with industry standards of the time

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.	M52/734 is wholly owned by NSR (Northern Star Resources Limited) and in good standing. There are no heritage issues with the current operation. Relationship with the traditional owners is good, though contact has become very limited. A new heritage survey will be required for further deep drilling and pit expansions.
	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.	M52/734 granted 9/5/2001 for 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to this Resource was collected by Sipa who operated the Peake mine from start up to closure, previous to the NSR purchase. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Peake is a medium grade, structurally controlled, sediment hosted epigenetic gold deposit. Mineralisation is hosted mainly within in a vertical, bedding parallel shear zone.
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: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many (408) holes to practically summarise all drill information used. (See diagram). The detail is available in the Dec 2012 Resource Report.
	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.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results previously released.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
	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.	Exploration results previously released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	Exploration results previously released by NSR, do include an estimate of true thickness.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Drill hole angle to orientation of mineralisation is perpendicular to 45 degrees at most.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results previously released with downhole depth and estimated true thickness.
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.	See previous ASX releases (18/2/2011, 27/9/11, 2/12/11, 6/3/12, 12/3/12,1/7/12, 26/7/12, 27/8/12, 10/9/12, 7/2/13). Plan view and long section view of Peake area collars and all drill traces used is attached.
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.	When previously reported by NSR, exploration results do include all intersections for the period / area.
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.	Exploration results not being released at this time.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	A program of 11,000m (both RC and Diamond) is currently on hold, primarily due to current gold price and focus on other projects. This drilling would aid a pit optimization, test for free milling (oxide) extensions and test deeper plunge extensions A Metallurgical test study is also currently on hold.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Part of main announcement.

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.	NSR (Northern Star Resources Limited) sampling and logging data is digitally entered into OCRISS then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
		Pre NSR data considered correct, has been maintained by Sipa company database administrators.
	Data validation procedures used.	Pre NSR data has been partially validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person for this Resource report has visited the site in 2012.
	If no site visits have been undertaken indicate why this is the case.	A site visit has been undertaken by the CP. The originator of this resource worked extensively on site between 2012 and 2013.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral Resource using Vulcan software. The confidence in the geological interpretation is high with all the information and several years of open pit operation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging and pit development data used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Mineralisation is hosted within shallower south dipping siltstones of the Mount McGrath formation. Its true width is approximately 2 to 4 metres and is very continuous along strike. Mineralisation is easily identifiable in the pit as a strongly foliated pale cream siltstone that is carbonate, silica and sericite altered. The siltstone may contain ex-pyrite as well as primary sulphides at depth. Gold is generally found within stringers and veinlets of quartz within this zone. There is a sharp grade cut-off on the hangingwall side of the structure and it is marked by a change into a more hematite-rich siltstone. The grade boundary is more diffuse on the footwall side of mineralisation.
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.	Strike length = 1850m (east – west); Width = 5-10m (North-south); Depth = surface to 50mRL (~450m below surface).
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.	Compositing of drill-hole samples was completed against one mineralised domain at 1m (downhole) intervals. The ordinary kriging interpolation (OK) method was used in the first 2 passes of the estimation. A final nearest neighbor method was used to fill empty blocks. 99.3% of the blocks were filled in the first 2 passes. Maximum distance of extrapolation from data points was statistically determined and varies by domain Vulcan software was used for data compilation, domain wire framing, calculating and coding composite values and reporting. Block model volumes were compared to wireframe volumes to validate sub-blocking.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Reconciled historical production from open pit operations is comparable with new estimate
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block size is 16m (Y) x 8m (X) x 8m (Z), with sub-block to 1m x 0.5m x 0.5m.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
		Drill hole spacing varies from 5m to 200m. Average sample spacing is 40 by 40 or better for the main part of the Resource, up to 40m by 120m on the peripheries.
	Any assumptions behind modelling of selective mining units.	A 3m minimum mining width for both the surface and underground environment is assumed.
	Any assumptions about correlation between variables.	N/A.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by statistical techniques and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Three validation processes were used to compare the block model against drill-hole data, including visual, declustered means and Swath plots.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 0.9gpt. Modelling lower grade cut off = 0.5gpt nominally.
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.	It is assumed that the surface portion of the Resource will be mined via conventional surface mining techniques (diesel excavator and haul truck). Mining of the underground portion of the Resource has been assumed to be via conventional underground mining techniques.
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.	The metallurgical conditions and characteristics of the Peake mineralisation are generally known with free milling material mined by Sipa from within oxide zones. Fresh mineralisation is refractory in nature with its high pyrite content and fine gold at times locked within this matrix. Initial test work has shown favorable results, more detailed studies are required. No Metallurgical assumptions have been built into the Resource model
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 green fields 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.	Peake was a going concern and as such the previous practice have shown to be effective and practical.

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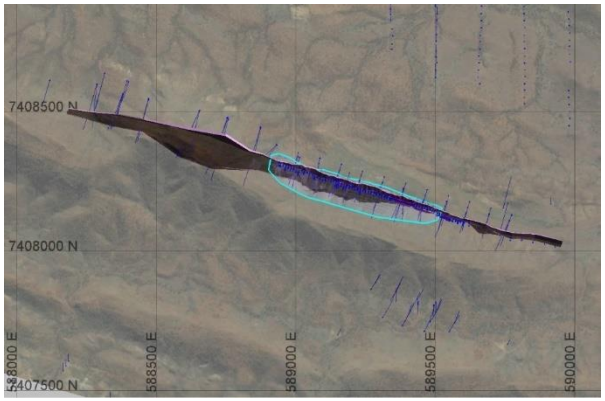
Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Specific Gravity (SG) or Bulk Density measurement data were conducted on diamond core samples from the Peake deposit. A total of 898 Specific gravity measurements were taken from 12 NST drill core. The method used was the submersion technique as stated in procedure IMS-EXP_SWP_XXX Specific Gravity Procedure (see Appendix 4). Most the specific gravity measurements were conducted on fresh material. Fresh un-mineralised material was given SG of 2.95 given as a result of NST SG measurement at Peake and MT Olympus (similar geology). The average SG given to fresh mineralised material (inside ore wireframes) was 3.10. This is due to the increase in heavy sulphide minerals (pyrite). For transitional material, a conservative Specific Gravity measurement of 2.75 was used considering SG's from current data, previous Resource models and Mount Olympus which has similar geology. For oxide material, a conservative SG of 2.65 was given. This considers current data and previous Resource models and reconciled data from mining the open pit.
	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.	A total of 899 bulk density measurements from 12 recent diamond drill holes have been taken from mineralised and un-mineralised intervals within the project area.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific geological units and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Resource classification is based primarily on the geological and grade continuity as shown by drilling (open pit Grade control data not considered). If a wireframe has been constructed with geological or grade continuity, all block within the wireframe are assigned as inferred. Assignment of the indicated Resource category was done on each ore zone individually using several different criteria including. • continuity of both grade and geology. • drill holes' density. • number of passes to fill the blocks and • Quality of the estimate (kriging efficiency). The Halo (non-wire framed material) is assigned a Resource category of inferred if it is within the inferred wireframe and the block is filled in the first pass.
	Whether appropriate account has been taken of all relevant factors (i.e. 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).	Input and geological data is assumed accurate backed up by previous successful mining operations
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource has been subjected to a review by Northern Star Resources' senior technical personal. The process and validation of Mineral Resource estimates was undertaken by an independent consultant from Optiro.
Discussion of relative	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	This mineral Resource estimate is considered as robust and representative of the Peake mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the Resource on a global scale.

APPENDIX 1 – TABLE 1s

Criteria	JORC Code explanation	Commentary
accuracy/ confidence	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.	This Resource report relates to the Peake ore zones and are likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation comparison between the previously mined Peake and this, Peake_Resource_final Mar_2013 block model is favourable with reported reconciled production of 0.08mt @ 7gpt for 15koz (Mining cut-off grade is variable but assumed to be 0.9gpt). At 0.9gpt lower cut-off and 92% recovery the block model reports 0.08mt @ 6.4gpt for 15.8koz.

PEAKE DEPOSIT - REPRESENTATIVE PLAN & LONG SECTION

Plan View – Peake deposit



Long Section View - 7408250N looking north – Peake with drillhole traces and mineralised domains. Grade contol holes shown, but not used for estimation. Current Peake pit extents shown in light blue.