30 June 2018 EKJV Summary Resource and Reserve Report

ASX ANNOUNCEMENT

6 September 2018

Australian Securities Exchange Code: RND

Rand Mining Ltd (ASX: RND) refers to an earlier release regarding the Resource and Reserve Report for the East Kundana Joint Venture (EKJV) (refer ASX announcement 2 August 2018).

Please find attached the Resource and Reserve Report as received from Northern Star Resources Limited on 3 September 2018. Rand's Attributable Interest in the Resources and Reserves in Appendix 1 and 2 is 25%.

Rand notes that pages 3 and 4 incorrectly refer to "Stockpiles R&T", being Rand and Tribune, of 228,068t at 4.1g/t Au for 29,769oz Au on a 100% attributable basis to Rand/Tribune.

Rand alleges that Northern Star has mined and processed, to its own account, a proportion of the stockpiles, in breach of the joint venture agreements. The issue has been previously raised with Northern Star.

The information contained in the attached Resource and Reserve Report has been prepared by Northern Star and except to the extent, as set out above, Rand makes no comment on its accuracy or completeness.

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Encls:
Memorandum
Appendix 1: East Kundana JV Mineral Resources
Appendix 2: East Kundana JV Ore Reserves, Competent Persons (s) disclosures and JORC Table 1

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NORTHERN STAR
RESOURCES LIMITED

MEMORANDUM

TO:	RAND MINING LIMITED and TRIBUNE RESOURCES LIMITED
FROM:	MICHAEL MULRONEY
DATE:	3 SEPTEMBER 2018
SUBJECT:	**EKJV SUMMARY RESOURCE AND RESERVE REPORT - 30 JUNE 2018**

EXECUTIVE SUMMARY

The full statement of Mineral Resources and Ore Reserves for the East Kundana Joint Venture (EKJV) as at 30 June 2018 has been completed and is summarised in the following pages.

The Mineral Resource and Ore Reserve Statement has been prepared and reported to compile with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 edition) with the relevant Competent Persons Statement noted and attached.

The general assumptions for reporting the Mineral Resource and Ore Reserve Statement as at 30 June 2018 are outlined in the accompanying Table 1 document (Appendix 2).

Mineral Resources, inclusive of assumed modifying factors, have been estimated using a gold price of A$1,750 per ounce. Further technical and economic evaluation will be required for conversion to Ore Reserves in the future. All Mineral Resources reported are inclusive of stated Ore Reserves.

Ore Reserves, inclusive of all technical and economic factors, have been estimated using a gold price of A$1,500 per ounce.

EKJV MINERAL RESOURCES

Total Mineral Resources defined within the EKJV tenements decreased by 448,000 ounces to a total of:

10.54 million tonnes at 6.1 gpt gold for 2.06 million ounces of gold

Deposit	30 June 2018 ('000 ozs)	30 June 2017 ('000 ozs)	Variation ('000 ozs)
Hornet Pit	65	65	-
Drake-Moonbeam	38	38	-
Raleigh U/G	455	266	189
Hornet U/G	293	276	17
Rubicon U/G	362	415	(53)
Pegasus U/G	846	1,434	(588)
Stockpiles	6	19	(13)
TOTAL	**2,066**	**2,513**	**(448)**

1. Numbers are quoted on a 100% basis

Comparison with the Mineral Resource Statement for the year ended 30 June 2017 shows a decrease of approximately 448,000 ounces representing the following variations:

- No change in gold price from A$1,750/oz
- Revised resource estimation methodology from June 2017
- Revised modifying factors used from June 2017
- Mining depletion at Rubicon, Hornet, Pegasus and Raleigh
- Reflects substantial drilling at Rubicon, Pegasus, Hornet, Raleigh South
- Maiden resource for Raleigh South

EKJV ORE RESERVE SUMMARY

Total Ore Reserves defined within the EKJV tenements increased by 64,000 ounces to a total of:

6.15 million tonnes at 6.3 gpt gold for 1.24 million ounces of gold

Deposit	30 June 2018 ('000 ozs)	30 June 2017 ('000 ozs)	Variation ('000 ozs)
Hornet Pit	25	13	12
Raleigh U/G	222	180	42
Hornet U/G	93	66	27
Rubicon U/G	248	296	(48)
Pegasus U/G	644	600	44
Stockpiles	6	19	(13)
TOTAL	**1,237**	**1,174**	**64**

1. Numbers are quoted on a 100% basis

Comparison with the Ore Reserve statement for the year ended 30 June 2017 shows a increase of approximately 64,000 ounces representing the following variations:

- Same gold price A$1,500/ozs
- Mining depletion at Rubicon, Hornet, Pegasus and Raleigh
- Revised cut-off grades to reflect current operations
- Increase in Ore Reserves at Raleigh, Hornet and Pegasus following conversion of mine exploration success
- Decrease in Ore Reserves at Rubicon including conversion of mine exploration success from changed estimation methodology

Attached (Appendix 1) are the summary tables for the Mineral Resource and Ore Reserve Statement for the respective EKJV partner's equity interests for the year ended 30 June 2018.

The applicable Competent Person(s) disclosures and Table 1 compilation under JORC 2012 are appended in Appendix 2.

MICHAEL MULRONEY
Chief Geological Officer
Northern Star Resources Limited

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Competent Persons Statements

The information in this announcement that relates to Mineral Resource estimations, exploration results, data quality and geological interpretations for the Company's Project areas is based on information compiled by Brook Ekers, a Competent Person who is a Member of the Australian Institute of Geoscientists and a full-time employee of Northern Star Resources Limited. Mr Ekers has sufficient experience that is relevant to the styles of mineralisation and type of deposits under consideration and to the activity being undertaken 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" for the Company's Project areas. Mr Ekers consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to Ore Reserve estimations for the Company's Project areas is based on information compiled by Jeff Brown, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and a full-time employee of Northern Star Resources Limited. Mr Brown has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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. Brown consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

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APPENDIX 1

EAST KUNDANA JV MINERAL RESOURCES

As at 30 June 2018		MEASURED			INDICATED			INFERRED			TOTAL RESOURCES		
		Tonnes	Grade	Ounces	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces
Rand Mining & Tribune Attributable	Equity	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)
EAST KUNDANA JOINT VENTURE													
Surface													
Hornet	49%	-	-	-	142	4.8	22	193	1.6	10	335	3.0	32
Subtotal - Surface		*-*	*-*	*-*	*142*	*4.83*	*22*	*193*	*1.6*	*10*	*335*	*3.0*	*32*
Underground													
Drake	49%	-	-	-	76	3	8	142	2.3	10	218	2.7	19
Hornet	49%	329	4.5	48	564	4	77	97	5.9	18	991	4.5	144
Pegasus	49%	397	6.6	84	1,309	7	292	232	5.2	39	1,937	6.7	415
Raleigh	50%	206	14.7	97	251	10	81	164	9.4	50	621	11.4	228
Rubicon	49%	335	5.7	61	614	5	102	110	4.0	14	1,058	5.2	177
Subtotal - Underground		*1,267*	*7.1*	*290*	*2,814*	*6.2*	*561*	*745*	*5.5*	*131*	*4,826*	*6.3*	*982*
Stockpiles EKJV	49%	17	5.3	3							17	5.3	3
Stockpiles R&T *	100%*	228	4.1	30							228	4.1	30
Gold in Circuit	49%												
Sub-Total East Kundana JV		1,512	6.6	323	2,956	6.1	583	938	4.7	141	5,406	6.0	1,047

* Refer to covering announcement,

APPENDIX 2

EAST KUNDANA JV ORE RESERVES As at 30 June 2018		PROVED			PROBABLE			TOTAL RESERVES		
		Tonnes	Grade	Ounces	Tonnes	Grade	Ounces	Tonnes	Grade	Ounces
Rand Mining & Tribune Resources Attributable	Equity	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)	(000's)	(gpt)	(000's)
EAST KUNDANA JOINT VENTURE										
Surface										
Hornet	49%	-	-	-	65,660	5.8	12,250	65,660	5.8	12,250
Subtotal - Surface		*-*	*-*	*-*	*65,660*	*5.8*	*12,250*	*65,660*	*5.8*	*12,250*
Underground										
Drake	49%	-	-	-	-	-	-	-	-	-
Hornet	49%	134,618	5.3	22,888	166,607	4.2	22,447	301,225	4.7	45,335
Pegasus	49%	303,914	6.8	66,895	1,180,732	6.5	248,638	1,484,647	6.6	315,534
Raleigh	50%	206,604	10.2	67,958	191,622	7.0	43,015	398,225	8.7	110,973
Rubicon	49%	246,435	6.2	48,759	510,694	4.4	72,749	757,129	5.0	121,508
Subtotal - Underground		*891,571*	*7.2*	*206,500*	*2,049,654*	*5.9*	*386,849*	*2,941,226*	*6.3*	*593,349*
Stockpiles EKJV	49%	17,158	5.0	2,930				17,158	5.3	2,930
Stockpile R&T *	100%*	228,068	4.1	29,769				228,068	4.1	29,769
Gold in Circuit										
Sub-Total East Kundana JV		1,136,797	6.5	239,199	2,115,314	5.9	399,099	3,252,111	6.1	638,298

* Refer to covering announcement

NORTHERN STAR
RESOURCES LIMITED

COMPETENT PERSON'S CONSENT FORM

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and Clause 9 of the JORC Code 2012 Edition (Written Consent Statement)

REPORT DESCRIPTION

Report:	Mineral Resource & Reserve Update for the East Kundana Joint Venture
Company:	Northern Star Resources Limited; on behalf of East Kundana JV Management
Project(s):	Hornet Pit, Hornet Underground, Rubicon Underground, Pegasus Underground, Drake-Moonbeam, Raleigh Underground
Dated:	10 August 2018

STATEMENT

I, Jeff Brown, confirm that:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code, 2012 Edition").
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member of the Australasian Institute of Mining and Metallurgy (AusIMM).
- I have reviewed the Report to which this Consent Statement applies.
- I am a fulltime employee of Northern Star Resources Limited.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to ore reserve estimations for the Hornet, Rubicon, Pegasus, Drake and Raleigh Projects.

CONSENT

I consent to the release of the Report and this Consent Statement by the directors of Northern Star Resources Limited.

In addition, I consent to the release of the Report and this Consent Statement by the directors of Rand Mining Ltd and Tribune Resources Ltd.

Signature of Jeff Brown
10 August 2018
AusIMM Membership No: 210720

ROSELYN TRIMBOLI
Name & Signature of Witness

NORTHERN STAR
RESOURCES LIMITED

COMPETENT PERSON'S CONSENT FORM

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and Clause 9 of the JORC Code 2012 Edition (Written Consent Statement)

REPORT DESCRIPTION

Report:	Mineral Resource & Reserve Update for the East Kundana Joint Venture
Company:	Northern Star Resources Limited; on behalf of East Kundana JV Management
Project(s):	Hornet Pit, Hornet Underground, Rubicon Underground, Pegasus Underground, Drake-Moonbeam, Raleigh Underground
Dated:	10 August 2018

STATEMENT

I, Brook Ekers, confirm that:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code, 2012 Edition").
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member of the Australian Institute of Geoscientists.
- I have reviewed the Report to which this Consent Statement applies.
- I am a fulltime employee of Northern Star Resources Limited.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to mineral resource estimations, exploration results, data quality and geological interpretations for the Hornet, Rubicon, Pegasus, Drake and Raleigh Projects.

CONSENT

I consent to the release of the Report and this Consent Statement by the directors of Northern Star Resources Limited.

In addition, I consent to the release of the Report and this Consent Statement by the directors of Rand Mining Ltd and Tribune Resources Ltd.

Signature of Brook Ekers
10 August 2018
AIG Membership No: 3630

ROSELYN TRIMBULL
Name & Signature of Witness

JORC Code, 2012 Edition – Table 1
EKJV Hornet Open Pit – 30 June 2018
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.	Sampling was completed using a combination of Reverse Circulation (RC) and Diamond Drilling (DD). RC drilling was used to drill pre-collars for many of the Resource definition holes with diamond tails. Diamond drilling constitutes the remainder of the drilling.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist from both NQ2 and HQ diamond core, with a minimum sample width of either 20cm (HQ) or 30cm (NQ2). RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. 4m Composite spear samples were collected for most of each hole, with 1m samples submitted for areas of known mineralization or anomalism.
	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.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g Pulps splits were then dispatched to Genalysis Perth for 50g Fire assay charge and AAS analysis.
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, face sampling, grade control and Diamond Drilling techniques were used at the K2 deposits. Diamond drill holes completed pre-2011 were predominantly NQ2 (50.5mm). All Resource definition holes completed post 2011 were drilled using HQ (63.5mm) diameter core. Core was orientated using the Reflex ACT Core orientation system. RC Drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth. 2 RC pre-collars were drilled followed by diamond tails. Pre-collar depth was to 160m or less if approaching known mineralization.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified in the RC drilling.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	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.	Recovery was excellent for diamond core and no relationship between grade and recovery was observed. For RC drilling, pre-collars were ended before known zones of mineralization and recovery was very good through any anomalous zones, so no issues occurred.
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.	All diamond core is logged for Regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded.
	If core, whether cut or sawn and whether quarter, half or all core taken.	All Diamond core is cut and half the core is taken for sampling. The remaining half is stored for later use.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-4kg in size. These samples were submitted to the lab from any zones approaching known mineralization and from any areas identified as having anomalous gold. Outside of mineralized zones spear samples were taken over a 4m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sampling quality is deemed appropriate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field duplicates were taken for RC samples at a rate of 1 in 20.
	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.	Sample preparation was conducted at Genalysis Kalgoorlie, commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
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.	A 50g Fire assay charge is used with a lead flux, dissolved in the furnace. The prill is totally digested by HCl and HNO3 acids before Atomic absorption spectroscopy (AAS) determination for gold analysis.
	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.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. blanks are inserted into the sample sequence at a rate of 1 per 20 samples, This is random, except where high grade mineralisation is expected where blanks are inserted after the high grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. Field Duplicates are taken for all RC samples (1 in 20 sample). No Field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by a Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off.
	The use of twinned holes.	No known twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is captured using a wireless remote Acquire database if there network is available. If network is unavailable, data is entered via a remote licence set up into an offline Acquire database then transferred later into the live database. Both a hardcopy and electronic copy of these are stored, as well as being loaded in to the database using automatic acquire loaders. Assay files are received in csv format and loaded directly into the database by the Database administrator (DBA). A geologist then checks that the results have inserted correctly. Hardcopy and electronic copies of these are stored. No adjustments are made to this assay data.
	Discuss any adjustment to assay 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.	Planned hole locations are pegged using a Differential GPS by the field assistants. The collar positions for underground diamond holes are located by the mine surveyors, During drilling, single-shot surveys are every 30m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system. Upon hole completion, a gyroscopic survey is conducted by ABIMS taking readings every 5m for improved accuracy. Measurements are taken with reference to true north.
	Specification of the grid system used.	All data is collected using the local mine grid.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Lidar data and survey pickups of holes over the last 15 years.

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the area varies. For Resource definition drilling, spacing was typically 20m x 20m to allow the Resource to be upgraded to an Indicated Resource.
	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 is considered appropriate for Resource and Ore Reserve classification.
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.
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 majority of the structures in the Kundana camp dip steeply (80°) to WSW. The Mary Fault structure has a shallow dip but orients to the NW, approximately 60°. To target these orientations the drill hole dips of 60-70° towards ~060° achieve high angle intersections on all structures.
	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.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have recently been conducted on sampling techniques.

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.	All holes mentioned in this report are located within the Mining Lease M16/309 held by The East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited (51%). The minority holding in the EKJV is held by Tribune Resources Ltd (36.75%) and Rand Mining Ltd (12.25%). Mining Lease M16/309 is subject to two royalty agreements. The agreements that are on M16/309 are the Kundana-Hornet Central Royalty and the Kundana Pope John Agreement No. 2602-13.
	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.	No known impediments exist and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Since the late 1990's the Hornet area has been drilled heavily, initially by Gilt Edge Mining (GEM) then by Goldfields Exploration Pty Limited who drilled extensively from Hornet all the way to Drake prospects. By 2001-2002, Aurion Gold Pty Limited had undertaken two infill programs totalling 43 DD and 63 RC holes. In 2003, Placer Dome Asia Pacific (PDAP) acquired 100% ownership and undertook infill drilling programmes for the K2, K2A, K2B and the Mary fault mineralisation. By mid-2003, PDAP drilled a grade control program to cover the K2 mineralisation to a depth of 35m below surface. Since 2003 the drilling campaigns around the Hornet project area has ceased until late 2000's when Barrick Gold drilled a few holes around the Mary Fault area.
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by the Zuleika shear zone, which separates the Coolgardie domain from the Ora Banda domain. K2-style mineralisation (Hornet) consists of narrow vein deposits hosted by shear zones located along steeply-dipping overturned lithological contacts. The K2 structure is present along the contact between a black shale unit (Centenary shale) and intermediate volcanoclastics (Spargoville formation). Minor mineralization, termed K2B, also occurs further west, on the contact between the Victorious Basalt and Bent Tree Basalt (both part of the regional upper Basalt Sequence). A shallow dipping fault, offsets the K2 structure at the south end of Hornet. This contact exists as a brecciated material hosting within the intermediate volcanoclastic tuff.

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: 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 holes to practically list the complete dataset however a summary report has been collated to reflect the hole positions used for estimation.
	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.	The exclusion of this data will not adversely impact on the understanding of this release.
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.	No exploration drill hole data is being 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.	No exploration drill hole data is being released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration drill hole data is being released.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	No exploration drill hole data is being released.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration drill hole data is being released.
	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').	No exploration drill hole data is being released.
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.	Appropriate plans and section have been included in the body of this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration drill hole data is being released.
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.	Metallurgical test work was conducted on 7 hornet holes in 2011 with gold recoveries following cyanidation above 95%. Lime consumption was high and cyanide consumption was low.
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).	Further work will continue soon to further attempt to extend the shallow Hornet mineralisation further north towards Rubicon. The drilling extents between Hornet and Rubicon is very sparse.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Future work may be conducted to test the continuity of mineralisation between Hornet and Rubicon.

Section 3 Estimation and Reporting of Mineral Resources

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

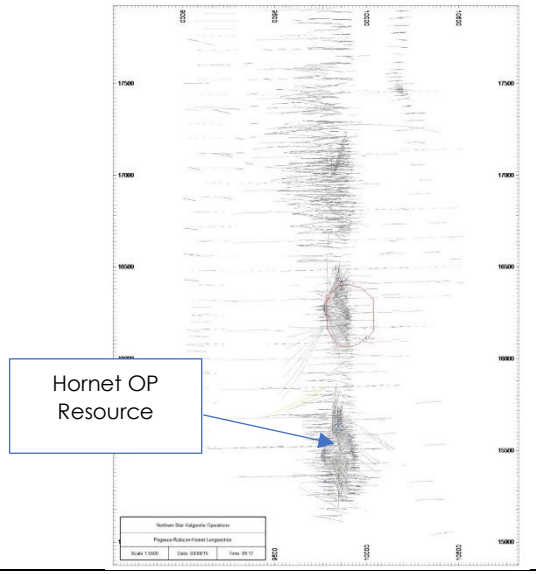
Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data are either recorded on paper and manually entered into to an Acquire database or transferred from a logging laptop into Acquire via an offline database. There are checks in place to avoid duplicate holes and sample numbers.
	Data validation procedures used.	Where possible, raw data is loaded directly to the database from laboratory and survey derived files.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The CP has visited this site once in 2014
	If no site visits have been undertaken indicate why this is the case.	This Resource estimate has been conducted by geologists working in the exploration department and in direct, daily contact with the ore body data used in this Resource estimate.
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. The confidence in the geological interpretation is high with the information gained from ore development and underground drilling.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, 3D photogrammetry, structures.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the main K2 structure is based on the presence of quartz veining and continuity between sections on the K2 structure. Drill core logging and face development mapping is used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity is affected by the orientation of the K2 structure, and several dextral offset fault structures
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 = > 600m; Width = ~1-2m average; Depth = from surface to ~500m maximum 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.	The K2 domain mineralisation was subdivided into three zones to separate the main high-grade core and the low grade Hanging wall and footwall alteration halos. The K2 core was defined by the presence of quartz, the alteration zones were constrained based on grade. 3 dimensional wireframes were created in Datamine Studio to define the volumes for the mineralised domains. Simple Kriging was used to estimate the Hornet Resource. Drill holes were composited into 1m intervals down hole except for the supergene domains which were composited to 2m. The composite lengths could vary between 0.5m and 1.5m to ensure that no sampling was lost during the compositing process. The average grade and total length of the composite data was compared against the average grade and total length of the un-composited data to check the compositing process. The distribution of composite lengths was checked to ensure that most the composites were close to the targeted length. The local mean value used for Simple Kriging was calculated from the declustered mean of the top-cut composited sample data. Search distances used for estimation based on variogram ranges and vary by domain. Drill spacing is generally around 20m x 20m for the Indicated Resource and around 40m x 40m for the Inferred Resource. Top-cuts were applied to the sample data based on a statistical analysis of the data and vary by domain. The Kriging neighbourhood was refined using statistical measures of Kriging quality. The estimated grades were assessed against sample grades and against declustered mean values
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Post estimation, Resource estimations do not have tonnage or grade factors applied.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.

Criteria	JORC Code explanation	Commentary
	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.	Parent cell size is 10m x 10m x 10m. Sub-cell to 2.5m x 2.5m to suit the narrow north-south orientation of the majority of the domains. Search ellipsoids vary for each domain but are typically around 50 – 100m down plunge, 50m across plunge and 5m perpendicular to plunge.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill logging, face samples, and grade. Low grades can form part of an ore wireframe.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts were selected based on a statistical analysis of the data with a general aim of not impacting the cut mean by more than 5%. Values selected range from 5gpt to 150gpt 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.	Validation is through swath plots comparing composites to block model grades, along 20m eastings and RL. Visual checks were also made comparing model grades against the supporting sample data.
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.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Cut-off grades for reporting the Resource were developed using a gold price of A$1,700 per ounce and budgeted mining costs for 2015/16.
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.	Historical mining and reconciliation data does not affect wire frame interpretation.
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.	Metallurgical recovery factors have been developed based on extensive experience processing similar material from the Kundana area.
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.	A "Licence to Operate" is held by the operation which is issued under the requirement of the "Environmental Protection Act 1986", administered by the Department of Environment (DoE). The licence stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater licenses are held for water abstraction, including production bore field water use for mineral processing, and mine dewatering, in accordance with the Rights in Water and Irrigation Act 1914. These licenses are also regulated by DoE and are renewable on a regular basis. Kanowna Operations conduct extensive environmental monitoring and management programs to ensure compliance with the requirements of the licences and lease conditions. An Environmental Management System is in place to ensure that Northern Star employees and contractors exceed environmental compliance requirements. The Kalgoorlie operations are fully permitted including groundwater extraction and dewatering, removal of vegetation, mineral processing, and open pits. Kalgoorlie Operations have been compliant with the International Cyanide Management Code since 2008.
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.	Bulk density was determined from surface diamond drill holes with intervals taken from mineralized and non-mineralised zones within the project area. The bulk densities are derived from wet and dry weighting of core no greater than 30cm total length with core samples selected by changes in lithology/alteration or every 30-40m where no change is evident.

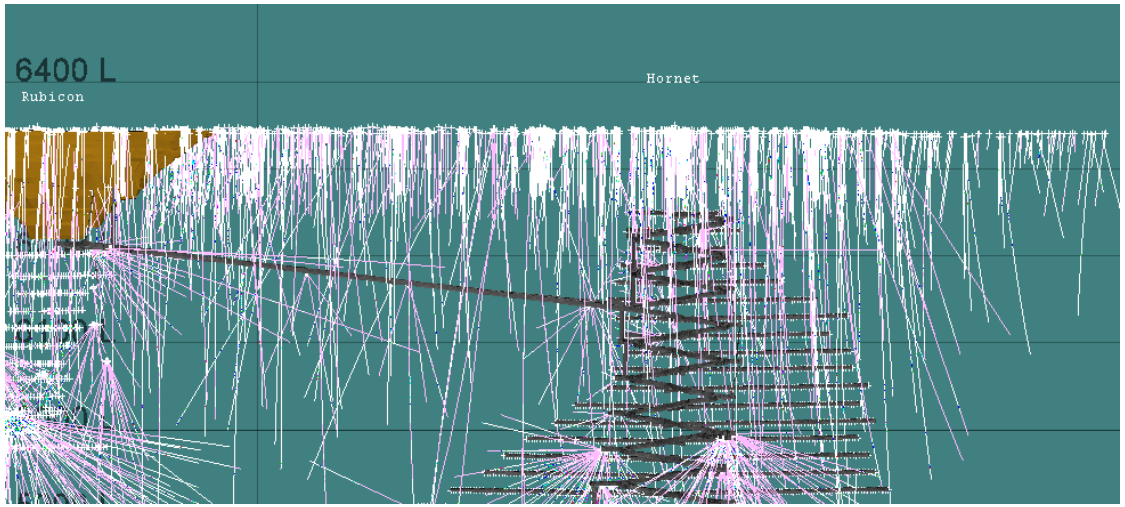
Criteria	JORC Code explanation	Commentary
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	No/minimal voids are encountered in the ore zones.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk densities are applied to domains for the ore zone and interpreted weathering domains
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: Geologic grade continuity Density of available drilling Statistical evaluation of the quality of the kriging estimate
	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).	All considered
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral Resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This Resource has not been audited externally. Previous estimates of this area utilising the same, or very similar variables, have been reviewed by internal parties with protocols deemed appropriate.
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 Kundana style of mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the Resource.
	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 entirety of the K2 ore zone and surrounding dilution skins. Each of these will show local variability even though the global estimate reflects the total average tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No comparison with production data has been made.

HORNET - REPRESENTATIVE PLAN AND CROSS SECTION

Plan view: Hornet O/P Resource drill collars and Traces



Long Section: Hornet surface Resource area with drill traces



Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported Ore Reserve is based on updated or depleted Resource models for all areas of Rubicon/Hornet.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of Ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	A site visit has been conducted by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	The Competent Person is satisfied that the descriptions of the planned infrastructure and locality provided by NST along with the surveyed 3D topography are sufficient information to carry out the mine design and classify the Ore Reserves.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Pre-Feasibility.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	As above.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Cut-off grades were determined based on unit costs from the "pre-feasibility level" mining cost model. Costs have been sourced from contractor quotes based on a mine of similar size.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pit. All open pit mining shapes include planned and unplanned dilution, being waste material that is located within the minable shape. Open pit unplanned dilution has been modelled within the mining shapes as a skin of material likely to be taken additional to material considered to be the smallest mining unit (SMU). This method is considered to be appropriate given the expected ground conditions, orebody width and proposed mining style.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining methods for the Hornet deposit are of a bench mining open pit method. The proposed open pit is to be mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 120 t class excavators and 90 t trucks. This method is used widely in mines across Western Australia and is deemed appropriate given the mature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Pit wall slopes are based on recommendations provided by Barrick geotechnical reviews and based upon expected rock type, weathering profile and depth below surface.
	The major assumptions made, and Mineral Resource model used for pit and stope optimisation (if appropriate).	The mineral Resource supplied by NST has been used for the open pit optimisation. To generate a series of 'nested' pit shells, a series of inputs are required to sufficiently estimate the value of the material being mined and the cost of extraction. The optimisation requires an economic value for each block in the model, as well as mining and milling costs. The cost of each block is derived from mining and processing costs, with the mining cost related to the block depth and the milling cost only being used if the block can be economically mined. Mining costs were based on quoted rates from a surface mining contractor for similar scaled operations.
	The mining dilution factors used.	Physicals are reported within the generated mining shapes for the open pit Ore Reserve. SMU shapes have been generated for the reporting of Ore Reserve physicals. Dilution accounted for within the SMU is 18%; that is waste material carried within the mining shape. Mining recovery is 100% of the SMU.
	The mining recovery factors used.	No recovery factors were applied.
	Any minimum mining widths used.	The SMU dimensions for the Ore Reserve Estimate are 2.0 m Wide x 5.0 m High x 5.0 m Long.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Ore Reserve estimate (treated as waste) but has been considered in LOM planning. The amount of inferred material has no impact on the sensitivity of the project.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Hornet Open Pit have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. As there is currently infrastructure in place for the Rubicon/Hornet underground operations and the life of the project is limited planned infrastructure includes: • Offices, workshops and associated facilities; • Dewatering pipeline; • Access Road; • Waste Dump; and • RoM Pad. Processing will be conducted offsite at NST Konawa Bell operation; hence no processing infrastructure is required.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Ore from the Hornet Open Pit operations is treated at the NST owned Kanowna Belle processing facility located adjacent to the Kanowna Belle mine. The plant is designed to handle approximately 1.8 million tonnes of feed per annum and has the capability to treat both refractory and free milling ores through the flotation circuit and associated concentrate roaster circuit, including carbon-in-leach (CIL) gold recovery, or bypassing the flotation circuit and going directly to a CIL circuit that is designed to treat flotation tails. Ore from the Rubicon/Hornet underground operations is currently processed at the Kanowna Bell facility.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for surface and underground ore.

Criteria	JORC Code explanation	Commentary
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Metallurgical test work was carried out by ALS Ammtec on representative samples for the Hornet deposit. Based on current information provided by NST from Kanowna Bell metallurgical recovery factors are as follows: • Oxide – 94%; • Transitional – 94%; • Fresh – 94%.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Metallurgical test work was carried out by ALS Ammtec on representative samples for the Hornet deposit.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Environmental impacts and hazards are being considered as part of the DOIR application process. Waste rock characterisation and hydrogeological investigations indicates the rock mass is considered non-acid forming. Tailings from the open pit operation are proposed to be stored within the existing Tailings Storage Facility (TSF) at Kanowna Bell. A previously granted clearing permit has expired. This will be re-applied for and expected to be granted closer to expected start of the pit.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	There is currently infrastructure in place for the Rubicon/Hornet underground operations. Additional infrastructure is planned for the planned Hornet operations. TSF facilities are located Kanowna Belle processing facility located adjacent to the Kanowna Belle mine. It has been assumed that all development of surface infrastructure will be completed to enable to development of the Hornet Open Pit Resource. It has been assumed that there will be sufficient water available to develop the Project.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital and operating costs have been sourced from supplier and contractor quotes as well as a consultants cost database through the "pre-feasibility study" process.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed and has been used to complete a life of mine cash flow estimate.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Single commodity pricing for gold only, using a long-term gold price of A$1,500 per ounce as per NST corporate guidance.
	The source of exchange rates used in the study.	NST report in Australian dollars. Therefore, no exchange rate is used or required.
	Derivation of transportation charges.	All transportation charges are based supplier and contractor quotes. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on data supplied by NST. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Revenue has been based on the commodity price and exchange data provided by NST. Single commodity pricing for gold only, using a long-term gold price of A$1,500 per ounce. 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.

Criteria	JORC Code explanation	Commentary
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold doré from the mine is to be sold at the Perth Mint.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not applicable.
	Price and volume forecasts and the basis for these forecasts.	Not applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model for that has been prepared at a "pre-feasibility study" level of accuracy economic modelling. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model. Economic inputs have been sourced from suppliers or generated from database information relating to the relevant area of discipline. A discount rate of 0% has been applied. The NPV of the project is strongly positive at the assumed commodity prices.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,500 ± $200 per ounce. Due to the current short life, the project is not seen as highly sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	None.
	Any identified material naturally occurring risks.	None.
	The status of material legal agreements and marketing arrangements.	None.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	All permitting was in place but the clearing permit has expired. This will be re-applied for and expected to be granted closer to expected start of the pit.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves are reported as Probable classification which is made up of only Indicated Resource material. The Ore Reserve shapes have been generated using practical mining constraints.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserves reporting processes has been subjected to an internal review by Entech's senior technical personnel in July 2016.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The design, schedule and financial model on which the Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	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	All modifying factors have been applied to design mining shapes on a global scale.

Criteria	JORC Code explanation	Commentary
	economic evaluation. Documentation should include assumptions made and the procedures used.	
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	The Ore Reserve is quoted to a "pre-feasibility' level. There is high confidence in the modifying factors and quoted Ore Reserve as physicals have been reported within minable shapes optimised to the SMU within the final pit design.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

JORC Code, 2012 Edition – Table 1
EKJV Hornet, Rubicon, Pegasus, Pode: Resources and Reserves – 30 June 2018
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td rowspan="3">Sampling techniques</td><td>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.</td><td>A combination of sample types was used to collect material for analysis including underground diamond drilling (DD), surface diamond drilling (RC) and face channel (FC) sampling. RAB holes were excluded from the estimate and where sufficient diamond drill holes were present, RC holes were also excluded.
<table>
<tr><th></th><th colspan="3">Pegasus</th><th colspan="3">Pode</th><th colspan="3">Rubicon</th><th colspan="3">Hornet</th></tr>
<tr><th>Type</th><th># of Holes</th><th>Total m's</th><th># Samples</th><th># of Holes</th><th>Total m's</th><th># Samples</th><th># of Holes</th><th>Total m's</th><th># Samples</th><th># of Holes</th><th>Total m's</th><th># Samples</th></tr>
<tr><td>DD</td><td>1,324</td><td>251,449</td><td>222,955</td><td>1,070</td><td>216,772</td><td>202,462</td><td>940</td><td>181,550</td><td>127,280</td><td>1,489</td><td>272,213</td><td>253,371</td></tr>
<tr><td>FS</td><td>5,620</td><td>25,125</td><td>43,016</td><td>2,337</td><td>11,263</td><td>19,079</td><td>2,568</td><td>11,917</td><td>20,439</td><td>4,621</td><td>21,565</td><td>36,314</td></tr>
<tr><td>RC</td><td>77</td><td>6,642</td><td>5,202</td><td>79</td><td>6,816</td><td>5,249</td><td>25</td><td>2,010</td><td>1,083</td><td></td><td></td><td></td></tr>
<tr><td>RC_DD</td><td>58</td><td>19,091</td><td>15,593</td><td>55</td><td>18,298</td><td>15,369</td><td>22</td><td>6,548</td><td>5,083</td><td>6</td><td>1,546</td><td>926</td></tr>
<tr><td>Total</td><td>7,513</td><td>338,420</td><td>313,296</td><td>3,645</td><td>276,558</td><td>242,480</td><td>3,573</td><td>204,012</td><td>153,913</td><td>6,134</td><td>297,311</td><td>290,639</td></tr>
</table></td></tr>
<tr><td>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</td><td>DD drilling is sampled within geological boundaries with a minimum (0.3 m) and maximum (1.0 m) sample length. Face channel sampling is constrained within geological and mineralised boundaries with a minimum (0.2 m) and maximum (1.0 m) channel sample length. In some cases, smaller samples (0.1 m – 0.2 m) have been taken to account for smaller structures in the face.</td></tr>
<tr><td>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.</td><td>DD drill core was nominated for either half core or full core sampling. Core designated for half core was cut in half using an automated core saw. The mass of material collected will depend on the drill hole diameter and sampling interval selected. Core designated for full core was broken with a rock hammer if sample segments were too large to fit into sample bags.
A sample size of at least 3 kg of material was targeted for each face sample interval
All samples were delivered to a commercial laboratory where they were dried, crushed to 95% passing 3 mm if required, at this point large samples may be split using a rotary splitter, pulverisation to 95% passing 75 µm, a 40 g charge was selected for fire assay</td></tr>
<tr><td>Drilling techniques</td><td>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.).</td><td>Both RC and Diamond Drilling techniques were used to drill the Kundana deposits.
Surface diamond drill holes were completed using HQ2 (63.5 mm) coring whilst underground diamond drill holes where completed using NQ2 (50.5mm) coring.
Historically, core was orientated using the Reflex ACT Core orientation system. Currently, core is orientated using the Boart Longyear Trucore Core Orientation system.
RC Drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth.
In many cases RC pre-collars were drilled followed by diamond tails. Pre-collar depth was determined in the drill design phase depending on the target being drilled and production constraints.</td></tr>
<tr><td rowspan="3">Drill sample recovery</td><td>Method of recording and assessing core and chip sample recoveries and results assessed.</td><td>For DD drilling, any core loss is recorded on the core block by the driller. This is then captured by the logging geologist and entered as an interval into the hole log.</td></tr>
<tr><td>Measures taken to maximise sample recovery and ensure representative nature of the samples.</td><td>For DD the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.</td></tr>
<tr><td>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.</td><td>Recovery was excellent for diamond core and no relationship between grade and recovery was observed. Average recovery across the Kundana camp is at 99%.</td></tr>
</table>

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.	All diamond core is logged for lithology, veining, alteration, mineralisation and structural data. Structural measurements of specific features are also taken through oriented zones. Logging is entered in AcQuire using a series of drop down menus which contain the appropriate codes for description of the rock. All underground faces are logged for lithology and mineralisation. Logging is captured on a face sample sheet underground which is then transferred to Acquire. Faces are then input into Acquire using a series of drop down menus which contain appropriate codes for description of the rock.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All core logging is qualitative with mineralised zones assayed for quantitative measurements. Every core tray is photographed wet. All underground faces are logged and sampled to provide both qualitative and quantitative data. All faces are washed down and photographed before sampling is completed.
	The total length and percentage of the relevant intersections logged.	For all drill holes, the entire length of the hole was logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond core is cut using an automated core saw. Depending on the type of drilling, determines the type of sampling/cutting completed. Half core is taken for Resource targeting (RT) drilling and Resource Definition drilling (RSD). However, some RSD hole have been whole core sampled due to production pressures. Grade Control drilling (GC) is whole core sampled. In the case of half core sampling, half the core is taken with the remaining half being stored for later reference.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	For previous RC drilling, all RC samples are split using a rig-mounted cone splitter to collect a sample 3-4 kg in size from each 1m interval. These samples were utilised for any zones approaching known mineralization and from any areas identified as having anomalous gold. Outside known mineralized zones spear samples were taken over a 4 m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Preparation of NSR samples was conducted at Bureau Veritas Kalgoorlie and Perth preparation facilities, commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6 mm particle size. If the sample is greater than 3 kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3 kg (typically 1.5 kg) at a nominal <3 mm particle size. The entire crushed sample (if less than 3 kg) or sub-sample is then pulverized to 90% passing 75 µm, using a Labtechnics LM5 bowl pulveriser. 300 g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets. The sample preparation is considered appropriate for the deposit.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Procedures are utilised to guide the selection of sample material in the field. Standard procedures are used for all processes within the laboratory. Grind checks are performed at both the crushing stage (3 mm) and pulverising stage (75 µm), requiring 90% of material to pass through the relevant size.
	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.	Umpire sampling is performed monthly, where 3% of the samples are sent to the umpire lab for processing.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material been sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40-gm fire assay charge is used with a lead flux in the furnace. The prill is totally digested by HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis.
	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.	No geophysical tools were used to determine any element concentrations

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples. The insertion points are selected at random, except where high grade mineralisation is expected. In these cases, a Blank is inserted after the high-grade sample to test for contamination. Results greater than 0.2 g/t if received are investigated, and re-assayed if appropriate. New pulps are prepared if anomalous results cannot be resolved. Barren flushes are regularly inserted after anticipated high gold grades at the pulverising stage. No field duplicates were submitted for diamond core. Pulp duplicates are requested after any ore zone. These are indicated on the sample sheet and the submission sheet. When visible gold is observed in core, a quartz flush is requested after the sample. Laboratory performance was monitored using the results from the QA samples mentioned above. This was supplemented by the internal QA samples used by the laboratories, which included pulp duplicates and CRMs The QA studies indicate that accuracy and precision are within industry accepted limits.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off.
	The use of twinned holes.	No twinned holes were drilled at RHP-Pode. Re-drilling of some drill holes has occurred due to issues downhole (e.g. bogged rods). These have been captured in the database as an 'A'. Re-drilled holes are sampled whilst the original drill hole is logged but not sampled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging and sampling are directly recorded into AcQuire. Assay files are received in csv format and loaded directly into the database using an AcQuire importer object. Assays are then processed through a form in AcQuire for QAQC checks. Hardcopy and noneditable electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments have been made to this assay 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.	Planned holes are marked up by the mine survey department using a total station survey instrument in mine grid (Kundana 10). The actual hole position is then located by the mine survey department once drilling is completed. In some cases, drill hole collar points are measured off survey stations if a mark-up cannot be completed. This is only used for Grade Control drilling due to their frequent occurrence. Holes are lined up on the collar point using the DHS Azimuth Aligner. Planned azimuths and dips of the holes are downloaded to the aligner which is then placed on the rod string to align the hole for drilling. During drilling, single shot surveys are conducted every 30 m to track the deviation of the hole and to ensure it stays close to design. This is performed using the Devishot camera which measures the gravitational dip and magnetic azimuth. Results are uploaded from the Devishot software into a csv format which is then imported into the Acquire database. At the completion of the hole, a Multishot (using the Devishot) survey is completed taking measurements every 3 m to ensure accuracy of the hole. This is also converted to csv format and imported into the Acquire database.
	Specification of the grid system used.	Collar coordinates are recorded in mine grid (Kundana 10) and transformed into MGA94_51.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Lidar data and survey pickups of holes over the last 15 years.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing varies across the deposit. For resource targeting drill spacing was typically 80 m x 80 m. This allowed for infill drilling at 40 m x 40 m spacing known as resource definition. Grade control drilling was drilled on a level by level basis with drill spacing between 10 m to 15 m.
	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 considered sufficient to support the resource and reserve estimates.
	Whether sample compositing has been applied.	No sample compositing has been applied.

Criteria	JORC Code explanation	Commentary
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.	Majority of the structures in the Kundana area dip steeply (80°) to the W (local grid). Diamond drilling was designed to target the orebodies perpendicular to this orientation to allow for an ideal intersection angle. Instances where this was not achievable (primarily due to drill platform location), drilling was not completed or re-designed once a suitable platform became available. The Pode structure has a shallower dip to the west, approximately 60°. To target these orientations the drill hole dips of 60-70° towards ~060° achieve high angle intersections on all structures. Drill holes with low intersection angles will be excluded from resource estimation where more suitable data is available.
	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.	No sampling bias is considered to have been introduced by the drilling orientation. Where drill holes have been particularly oblique, they have been flagged as unsuitable for resource estimation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits have been undertaken of the data and sampling practices at this stage.

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.	All holes mentioned in this report are located within the M16/309 and M16/326 Mining leases and are held by The East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited (51%). The minority holding in the EKJV is held by Tribune Resources Ltd (36.75%) and Rand Mining Ltd (12.25%). The tenement on which the Rubicon, Hornet, Pegasus and Pode deposits are hosted (M16/309) is subject to three royalty agreements. The agreements that are on M16/309 are the Kundana- Hornet Central Royalty, the Lake Grace Royalty and the Kundana Pope John Agreement No. 2602-13.
	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.	No known impediments exist, and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first reference to the mineralization style encountered at the Kundana project was the mines department report on the area produced by Dr. I. Martin (1987). He reviewed work completed in 1983 – 1984 by a company called Southern Resources, who identified two geochemical anomalies, creatively named Kundana #1 and Kundana #2. The Kundana #2 prospect was subdivided into a further two prospects, dubbed K2 and K2A. Between 1987 and 1997, limited work was completed. Between 1997 and 2006 Tern Resources (subsequently Rand Mining and Tribune Resources), and Gilt-edged mining focused on shallow open pit potential which was not considered viable for Pegasus, however the Rubicon open pit was considered economic and production commenced in 2002. In 2011, Pegasus was highlighted by an operational review team and follow-up drilling was planned through 2012.

Criteria	JORC Code explanation	Commentary
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by the Zuleika shear zone, which separates the Coolgardie domain from the Ora Banda domain. K2-style mineralisation (Pegasus, Rubicon, Hornet) consists of narrow vein deposits hosted by shear zones located along steeply-dipping overturned lithological contacts. The K2 structure is present along the contact between a black shale unit (Centenary Shale) and intermediate volcaniclastics (Black Flag Group). Minor mineralisation, termed K2B, also occurs further west, on the contact between the Victorious basalt and Bent Tree Basalt (both part of the regional upper Basalt Sequence). As well as additional mineralisation including the K2E and K2A veins, Polaris/Rubicon Breccia (Silicified and mineralised Shale) and several other HW lodes adjacent to the main K2 structure. A 60° W dipping fault, offsets this contact and exists as a zone of vein-filled brecciated material hosting the Pode-style mineralisation at Pegasus and the Nugget lode at Rubicon.
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.	A summary of the data present in the RHP-Pode deposits can be found above. The collar locations are presented in plots contained in the NSR 2018 resource report. Drill holes vary in survey dip from +46 to -88 degrees, with hole depths ranging from 6 m to 1000 m, with an average depth of 190 m. The assay data acquired from these holes are described in the NSR 2018 resource report. All validated drill hole data were used directly or indirectly for the preparation of the resource estimates described in the 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.	
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.	All reported assay results have been length weighted to provide an intersection width. A maximum of 2 m of barren material (considered < 2 g/t) between mineralized samples has been permitted in the calculation of these widths. Typically grades over 1.0 g/t are considered significant, however, where low grades are intersected in areas of known mineralisation these will be reported. No top-cutting is applied when reporting intersection results.
	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.	Where an intersection incorporates short lengths of high grade results these intersections will be reported in addition to the aggregate value. These will typically take the form of ##.#m @ ##.##g/t including ##.#m @ ##.##g/t.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	True widths have been calculated for intersections of the known ore zones, based on existing knowledge of the nature of these structures.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Both the downhole width and true width have been clearly specified when used.
	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').	
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.	Appropriate plans and section have been included at the end of this table and in the NSR 2018 resource report.
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.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths.

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.	No other material exploration data has been collected for this area. Three geotechnical holes were drilled targeting several different areas through lower Pegasus. Holes have been designed for seismic monitoring. Holes were geologically logged to ensure no mineralization was intersected. Where mineralisation was intersected, appropriate sampling was completed.
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).	Drilling will continue in various parts of the mine with the intention of extending areas of known mineralisation. Areas of focus will be to extend the K2 structure both down dip and along strike to the north. Drilling will also focus on infilling areas of the resource to improve confidence.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams accompany this release and are detailed in the NSR 2018 resource report.

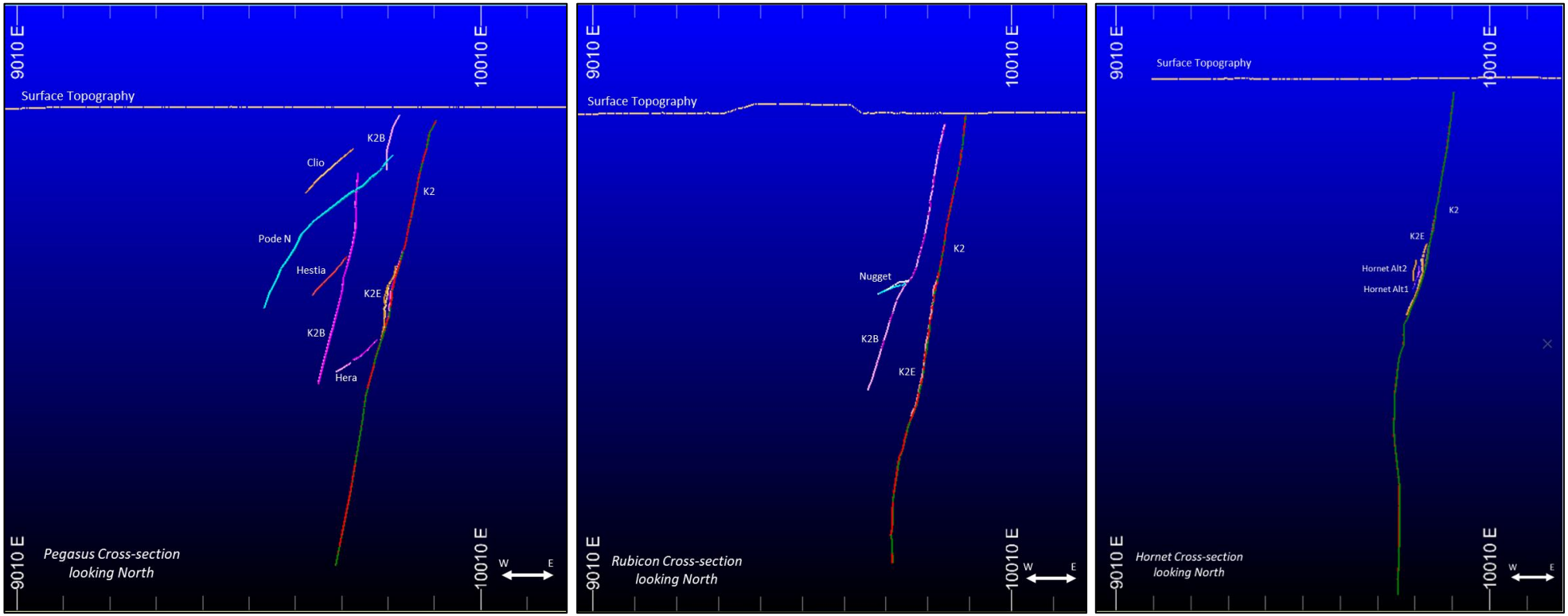


Figure 1. Cross section views of Pegasus/Pode, Rubicon and Hornet ore lodes

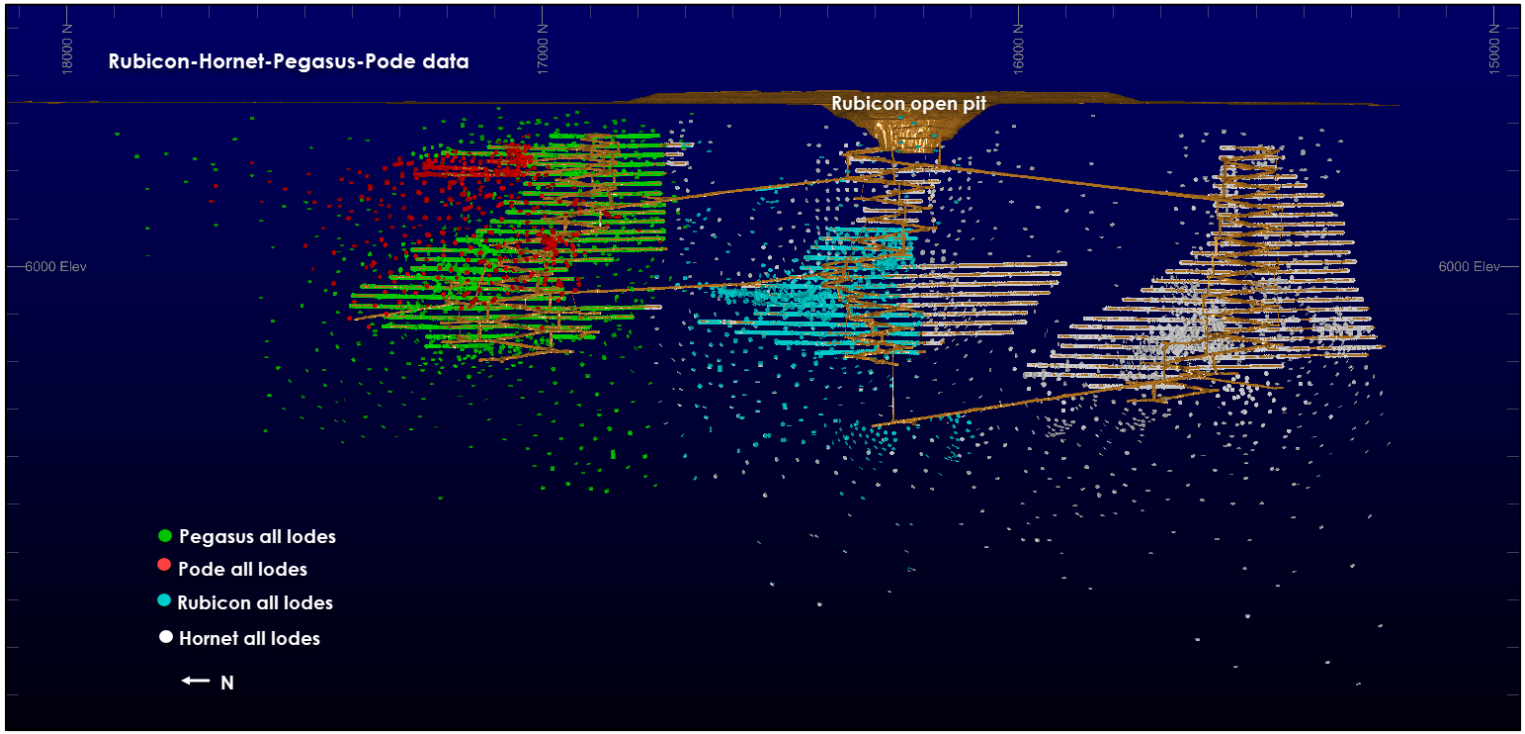


Figure 2. Long section views of Pegasus/Pode, Rubicon and Hornet ore lodes and data used in resource estimations

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.	Sampling and logging data is either recorded on paper and manually entered into a database system or is captured digitally via a logging laptop and directly loaded into the database system. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly into the database from laboratory and survey derived files.
	Data validation procedures used.	The database has further checks performed to back -up those performed in section 2. The complete exported data base including drill and face samples is brought into Datamine and checked visually for any apparent errors i.e. holes or faces sitting between levels or not on surface DTM's. Multiple checks are then made on numerical data. This includes: • Empty table checks to ensure all relevant fields are populated; • Unique collar location check; • Distances between consecutive surveys is no more than 60m for drill-holes; • Differences in azimuth and dip between consecutive surveys of no more than 0.3 degrees; • The end of hole extrapolation from the last surveyed shot is no more than 30 m; • Underground face sample lines are not greater than +\- 5 degrees from horizontal Errors are corrected where possible. When not possible the data is resource flagged as "No" in the database and the database is re-exported. This data will not be used in the estimation process. Several drilling programs completed between 2014 and 2016 had erroneous meter depths recorded by the drillers. This resulted in multiple drill holes recording the intersection of the K2 several meters earlier than expected. Until underground development had progressed to these elevations, this was not possible to determine. Unfortunately, there is not a uniform translation that can be applied, therefore these drill holes have been omitted from the ore wireframe interpretations and flagged as invalid. However, where there were no QAQC issue with the assays, the correct intervals have been recorded, the translation in the easting direction required for them to be in the 'correct' location (based on development above and below) applied and these intervals were appended to the data set before compositing
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The CP has not visited this site
	If no site visits have been undertaken indicate why this is the case.	The geological interpretations underpinning these resource models were prepared by geologists working in the mine and in direct, daily contact with the ore body. The estimation of grades was undertaken by personnel familiar with the ore body and the general style of mineralisation encountered. The Resource process has been closely overseen by the Senior Resource Geologists and maintained a site presence throughout the process. The CP has reviewed the inputs and outcomes of this work.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the Rubicon/Hornet/Pegasus (RHP) and Pode deposits were carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation is high and is supported with information acquired during ore development as well as from underground and surface diamond drilling. The interpretation of all RHP-Pode mineralisation wireframes was conducted using the sectional interpretation method in Datamine RM software. Where development levels were present sectional interpretation was completed in plan view at approximately 5 m spacing to allow for a better constrained and geologically realistic wireframe. Where only drilling data was present sectional interpretation was completed in cross-section at approximately 10-20 m spacing. Wireframes were checked for unrealistic volumes and updated where appropriate.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, underground face channel data, 3D photogrammetry and structural models.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the RHP and Pode mineralisation is based on the presence of quartz veining, shearing and continuity between sections on the RHP and Pode K2 and adjacent mineralised structures.

Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Within the Century Main Vein (CMV) lithology at RHP grade continuity is affected when the percentage of quartz decreases and only a sheared structure remains. This results in lower grade in areas where only shear is present and higher grade where quartz is evident. Significant dextral offsetting fault structures affect the continuity of the K2 structure within the RHP zones (Mary fault, Whitefoil Fault and Poseidon fault). These faults are interpreted to be post mineralisation and offset the ore between 1 and 10 m. The dilation and silicification in the mineralised shale zone in the hanging-wall of the cmv structure controls grade immediately next to the cmv (Polaris ore lode). The presence of quartz at the contact between the shale and Porphyritic basalt also controls grade in this mineralised zone. These mineralised zones can also be affected by the dextral offsetting faults in some cases. Lower angled (dipping between 50 and 60 degrees to the west) hanging wall mineralised zones within the Porphyritic Basalt are constrained within that unit and are cut-off at the contacts between shale/porphyritic basalt and porphyritic basalt /basalt. There are fault structures between these lithological boundaries and grade in these hangingwall lodes is constrained by the dilation of the fault both down-dip and along strike. Pode mineralisation is similar in nature to the hangingwall mineralised structures in the porphyritic basalt. These occur in fine grained, barren basalt and are terminated up-dip by the basalt/porphyritic basalt contact.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The strike length of the different ore systems varies from ~100 m to 600 m, with CMV being the longest along strike. The individual ore bodies occur in a major regional shear system extending over 10s of kilometres. Ore body widths are typically in the range of 0.2 - 3 m. The widest orebody is Rubicon Nugget at approximately 7 m. The narrowest is the RHP K2B at approximately 0.5 m. The main CMV structure has an average thickness of 0.65 m. Mineralisation is known to occur from the base of cover to ~900 m below surface but is open in all directions.

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.	RHP and Pode mineralisation zones with high data density used direct grade estimation by Ordinary Kriging (unless otherwise stated) supported by composited sample data. Typically, composite lengths of 0.5 m or 1 m were used, determined from statistical analysis of all sample lengths in the domain dataset. Full length composites were also used for the K2 (CMV) mineralised zone due to its narrowness. In mineralised zones of lower density data, Inverse Distance Squared estimation was used. All estimation was completed using Datamine RM software. Details on the estimation by ore lode is summarised below: CMV (RHP)- divided into two grade subdomains based on data density; high density around development levels and lower density distant to development. Each domain was analysed for top cuts and had variography completed separately. Both domains indicate grade continuity in the NNW plunge direction. The high-density domain has search ranges between 100-170 m in direction 1 and 60-120 m in direction 2. The low-density domain has search ranges between 150 – 200 m for direction 1 and 65 – 150 m for direction 2, Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 5 - 7 samples and a maximum of 7 - 10 samples for both the high and low-density domains. Estimation was completed using a soft boundary between the high and low-density domains and between adjacent CMV domains e.g. Rubicon CMV/Pegasus CMV boundary. Polaris (RHP)- Rubicon Polaris is divided into two subdomains based on data density; high density around development levels and lower density distant to development. Pegasus Polaris is divided into two subdomains along strike based on grade. Hornet Polaris comprises one domain only. Each domain was analysed for top cuts and had variography completed separately. All domains indicate grade continuity plunging to the NNW. Rubicon Polaris has search distances of ~150 m for direction 1 and ~100 m for direction 2 for both domains. Pegasus Polaris has search distances of ~120 m for direction 1 and ~80 m for direction 2 in the high-grade domain and search distances of ~60 m for direction 1 and ~30 m for direction 2 in the low-grade domain. Hornet Polaris has search distances of ~40 m for direction 1 and ~20 m for direction 2. Three passes were used in all domains. Rubicon Polaris domains used a minimum of 10 samples and a maximum of 20. Pegasus Polaris domains used a minimum of 4 samples and a maximum of 7. Hornet Polaris domains used a minimum of 10 samples and a maximum of 14. K2E (RHP)- Rubicon K2E is divided into two subdomains based on data density; high density around development levels and lower density distant to development. Pegasus K2E is divided into two domains (K2E and K2E Lower) based on two separate areas of similar data density. Hornet K2E comprises one domain only. Each domain was analysed for top cuts and had variography completed separately. Pegasus and Hornet Polaris indicate grade continuity plunges to the NNW. Rubicon K2E has search distances of ~100 m for direction 1 and ~100 m for direction 2 for both domains using a generic variogram direction of 90 degrees. Pegasus K2E and K2E lower has search distances of ~100 m for direction 1 and ~75 m for direction 2. Hornet K2E has search distances of ~80 m for direction 1 and ~60 m for direction 2. Three passes were used in all domains. All domains used a minimum of 7 samples and a maximum of 10 in the first pass. Estimation was completed using a soft boundary for only the Rubicon K2E high and low-density subdomains. K2B (RHP)- K2B is divided into two subdomains based on data density. Each domain was analysed for top cuts and had variography completed separately. All domains indicate grade continuity plunges to the NNW. All domains have search distances of 100 - 150 m for direction 1 and 50 – 100 m for direction 2 for the high-density subdomain and search distances of 100 - 150 m for direction 1 and 65 - 100 m for direction 2 for the low-density subdomain. Three passes were used in all domains. All domains used a minimum of 5 - 7 samples and a maximum of 7 - 10 samples in the high and low-density subdomains for the first pass. Estimation was completed using a soft boundary between the high and low-density subdomains. Nugget (Rubicon)- includes one domain which was top cut and had variography analysis completed which indicates a shallow plunge to the west and ranges of 100 m in direction 1 and 2. Rubicon footwall (Rubicon) - is divided into two subdomains based on data density; high density around development levels and lower density distant to development. Each domain was analysed for top cuts and had variography completed separately. All domains indicate grade continuity plunging to the NNW. The high-density domain has a search distance of ~100 m for direction 1 and ~50 m for direction 2 and the low-density domain has search distances of ~150 m for direction 1 and ~65 m for direction 2. Three passes were used in both domains. Both subdomains used a minimum of 7 samples and a maximum of 10 samples for the first pass. Estimation was completed using a soft boundary between the high and low-density subdomains. Hera (Pegasus) – includes one domain which was top cut and had variography analysis completed which indicates a shallow plunge to the west and has ranges of ~70 m in direction 1 and ~30 m in direction 2. A minimum of 3 and a maximum of 10 samples were used in the first pass. Three passes were used. Hera Halo (Pegasus) – includes one domain which was top cut and had insufficient data for variography analysis. ID^2 was used for estimation with ranges of ~70 m in search distance 1 and ~30 m in search distance 2, rotation angles

Criteria	JORC Code explanation	Commentary
		were based on the variography. A minimum of 4 and a maximum of 7 samples were used in the first pass. Three passes were used. Bell (Pegasus) – includes one domain which was top cut and had variography analysis completed which indicates no plunge and has ranges of ~60 m in direction 1 and ~30 m in direction 2. A minimum of 4 and a maximum of 7 samples were used in the first pass. Three passes were used. Hestia (Pegasus) – includes one domain which was top cut and had insufficient data for variography analysis. ID^2 was used with ranges of ~50 m in search distance 1 and ~30 m in search distance 2, rotation angles were based on variography. HORVQ, ALT1, ALT2, ALT3, LEAF, HONEY (Hornet) – all comprised of one domain and had variography analysis completed which indicates a moderate plunge to the NNW, except for HORVQ which shows a moderate plunge to the SSE. There was insufficient data for variography analysis of ALT2, therefore ID^2 was used rather than OK for estimation. All domains used ranges of 40 – 80 m in direction 1 and 20 – 50 m in direction 2. All domains had a minimum of between 6 - 10 samples and a maximum of between 10 - 15 samples in the first pass. Three passes were used. Pode – Comprised of six ore lodes which were top cut individually. PodeN and PodeF were subdomained into two by data density.; Variography analysis was completed for all domains except for Ceto and PodeS. For ore lodes PodeN, and PodeF estimation was tested using variography however an ID^2 estimate that used rotation angles obtained from dynamic anisotropy analysis produced a better result. For ore lodes Ceto and PodeS variography analysis was completed and shows a shallow plunge SSE. ID^2 estimation was used for Eris and Clio due to lack of data. The high-density subdomains within PodeN and PodeF used isotropic search distances of ~30 m. The low-density subdomains within PodeN and PodeF used isotropic search distances of ~80 m. Ceto and PodeS used ranges of 75 – 100 m in direction 1 and 50-~60 m in direction 2. Eris and Clio used ~50 m and ~80 m ranges in direction 1 respectively and used ~15 m and ~40 m ranges in direction 2, respectively. For all domains, a minimum of between 4 - 12 samples and a maximum of between 8 - 17 samples were used for the first pass. Three passes were used. Soft boundaries were implemented between the high and low-density subdomains of PodeN and PodeF.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	In all estimates Inverse Distance squared was implemented with an isotropic search as a check and used as a guide to corroborate variogram search angles. An indirect estimation method was also performed which produces a gold value back calculated from estimated true thickness and accumulated gold. This indirect method was utilised historically in conjunction with the point cloud wireframing technique and 2D volume models, and following thorough test work over the last year, was decided to be used as a comparison only. All mineralised zones at RHP and Pode for the current estimate were compared with previous grade and resource models. This allowed a comparison of tonnes and gold grade for each zone and an overall global comparison.
	The assumptions made regarding recovery of by-products.	No assumptions have been made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements were estimated in these models.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block sizes varied depending on sample density. In areas of high data density (underground face samples with average spacing of 3 – 4 m) a 5 x 5 x 5 m block size was chosen. Medium density drill spacing is defined as approximately 30 -40 m and a 10 x 10 x 10 m block size was chosen. For low density drilling with larger spacing greater than 40 x 40 m a block size of 10 x 20 x 10 m was chosen. Estimates were completed with soft boundaries between varying block size estimates, unless a geological feature and contact analysis indicated a hard boundary was required, and added together following individual estimation for final validations Search ellipse dimensions were derived from the variogram model ranges, or isotropic ranges based on data density where insufficient data was present for variography analysis.
	Any assumptions behind modelling of selective mining units.	Selective mining units were not used during the estimation process.
	Any assumptions about correlation between variables.	All variables were estimated independently of each other. Density has used estimation parameters based on the equivalent gold estimation for that domain.

Criteria	JORC Code explanation	Commentary
	Description of how the geological interpretation was used to control the resource estimates.	Hanging-wall and foot-wall wireframe surfaces were created using sectional interpretation. These were used to define the RHP and Pode mineralised zones based on the geology (usually a quartz vein) and gold grade. CMV (RHP) Steeply dipping structure with quartz veining evident from drilling and development. Polaris (RHP)- Steeply dipping silicified shale structure in the hanging-wall of the CMV with quartz stringers evident from drilling and underground development. K2E (RHP)- Steeply dipping hanging-wall structure with quartz veining evident from drilling and underground development. K2B (RHP)- Steeply dipping hanging-wall structure with quartz veining evident from drilling and underground development. Hera, Hestia, Bell/Nugget (Pegasus/Rubicon)– Low angled dilational fault zones with quartz veining evident from drilling and underground development. Honey, Alteration 1/2/3, HORVQ (Hornet hangingwall mineralised zones)- Sheared and silicified shale with quartz stringers evident from drilling and underground development. PodeN, PodeS, PodeF, Clio, Ceto, Eris (Pode mineralised zones) predominantly low angled dilational fault zones with quartz veining evident from drilling (all lodes) and development (PodeN, PodeS, PodeF only) For mine planning purposes a waste model is created by projecting the hanging wall and footwall surfaces 5 m either side. A default grade of 0.1 g/t is assigned and the same resource classification as the adjacent ore lode is applied.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts were selected based on a statistical analysis of the data with a general aim of not impacting the mean by more than 5% and reducing the coefficient of variation to around 1.2 and vary by domain (ranging from 7 to 250 g/t for individual domains and deposits). The top cut values are applied in several steps, using a technique called influence limitation top capping. A top cut (AU) and non-top cut (*_NC) variable is created, as well as a spatial variable (*_BC) which only has values where the top cut values appear; this applies to both gold and true thickness (TT) top cutting. For example, where gold requires a top cut, the following variables will be created and estimated: • AU (top cut gold) • AU_NC (non- top-cut gold) • AU_BC (spatial variable; values present where AU data is top-cut) The top-cut and non-top cut values are estimated using search ranges based on the modelled gold variogram, and the *_BC values estimated using very small ranges (e.g. 5 x 5 x 5m). Where the *_BC values produce estimated blocks within these restricted ranges, the *_NC estimated values replace the original top cut estimated values (AU).
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Statistical measures of Kriging error, such as Kriging Efficiency and Slope of Regression, are used to assess the quality of the estimation for each domain. Differences between the declustered composite data set and the average model grade must be within 10%. Swath plots comparing composites to block model grades are created and visual plots are prepared summarising the critical model parameters. Visually, block grades are assessed against drill hole and face data.
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
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The mineral resource estimate has been reported at a 2.48 g/t cut off within 2.5 m minimum mining width including +/- 0.5 m dilution MSO's using a $Aus1750/oz gold price.
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.	No mining assumptions have been made during the resource wireframing or estimation process.

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical test work results show that the mineralisation is amendable to processing through the Kanowna Belle treatment plant. Ore processing throughput and recovery parameters were estimated based on historic performance and potential improvements available using current technologies and practices.
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.	A "Licence to Operate" is held by the operation which is issued under the requirement of the "Environmental Protection Act 1986", administered by the Department of Environment (DoE). The licence stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater licenses are held for water abstraction, including production bore field water use for mineral processing, and mine dewatering, in accordance with the Rights in Water and Irrigation Act 1914. These licenses are also regulated by DoE and are renewable on a regular basis. Kanowna Operations conduct extensive environmental monitoring and management programs to ensure compliance with the requirements of the licences and lease conditions. An Environmental Management System is in place to ensure that Northern Star employees and contractors exceed environmental compliance requirements. The Kalgoorlie operations are fully permitted including groundwater extraction and dewatering, removal of vegetation, mineral processing, and open pits. Kalgoorlie Operations have been compliant with the International Cyanide Management Code since 2008. Compliance with air quality permits is particularly important at Kanowna because of the roaster operation and because there are three facilities in the Kalgoorlie region emitting SO2 gas. Kanowna has a management program in place to minimize the impact of SO2 on regional air quality and ensure compliance with regulatory limits.
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.	A thorough investigation into average density values for the various lithological units at RHP-Pode was completed and the mean densities by lithology were coded into the database. Where there were no measurements for a specific lithology and default of 2.8 was applied. Density was then estimated by Ordinary Kriging using the associated gold estimation parameters for that domain. Post estimation, default density values for the oxide and transition zones were applied, based on regional averages.
	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.	No/minimal voids are encountered in the ore zones and underground environment
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Assumptions on the average bulk density of individual lithologies, based on 7,543 bulk density measurements at RHP-Pode. Assumptions were also made based on regional averages, on the default densities applied to oxide (1.9) and transition (2.3) material, due to a lack of data in these zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: • Geologic grade continuity • Density of available drilling • Statistical evaluation of the quality of the kriged estimate • Confidence in historical data
	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).	All relevant factors have been given due weighting during the classification process.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The resource estimation methodology is considered appropriate and the estimated grades reflect the Competent Persons view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	All resource models have been subjected to internal peer review

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	These mineral resource estimates are considered as robust and representative of the RHP-Pode styles of mineralisation. The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code.
	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.	The statement relates to global estimates of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No reconciliation factors are applied to the resource post-modelling.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Northern Star 2018MY resource
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources are reported inclusive of the Ore Reserve
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken by the competent person.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Feasibility Study
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Upgrade of previous Ore Reserve
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Budget costs and physicals form the basis for Cut Off Grade calculations. Mill recovery is calculated based on historical recoveries achieved Various cut off grades are calculated including a break-even cut-off grade (BCOG), variable cut-off grade (VCOG) and Mill cut-off grade (MCOG). The VCOG is used as the basis for stope design, with areas requiring significant development assessed by detailed financial analysis to confirm their profitability.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Mineral Resource is converted to Ore Reserve after completing a detailed mine design and associated financial assessment.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Selected mining method deemed appropriate as it has been used at Raleigh since 2005 & Rubicon / Hornet / Pegasus since 2011.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Design parameters include a 20 metre level spacing with a stope strike length of 15m for dilution control purposes. This correlates to a Hydraulic Radius of 4.3m
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Not applicable - this table one applies to underground mining only.

Criteria	JORC Code explanation	Commentary
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 5% Rock and 10% Paste dilution (15% total) for stoping additional to minimum mining width is applied as well as 10% dilution for Ore development.
	The mining recovery factors used.	Mining recovery factor of 98.5% is applied based on historical data
	Any minimum mining widths used.	At Rubicon, Hornet, Pegasus, and Pode: Minimum stope width of 3.0m where the vein is less than 2m wide. 1m additional to vein width when greater than 2m wide.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Designed stopes with greater than 50% inferred blocks are excluded from the reported reserve
	The infrastructure requirements of the selected mining methods.	Infrastructure in place, currently an operating mine
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	All EKJV ore is treated at the Kanowna Belle milling facilities. These facilities are designed to handle approximately 1.8 million tonnes of feed per annum. The plant has the capability to treat both refractory and free milling ores, through either using the flotation circuit and associated concentrate roaster circuit (including carbon-in-leach (CIL) gold recovery) or bypassing the flotation circuit and going directly to a CIL circuit designed to treat flotation tails. The plant campaigns both refractory and free milling ores every month. Between campaigns, the circuit is "cleaned out" using mineralised waste. The plant is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained over plus 10 years operation
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Milling experience gained over plus 10 years operation
	Any assumptions or allowances made for deleterious elements.	No assumption made
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Milling experience gained over plus 10 years operation
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Rubicon, Hornet, Pegasus operations are currently compliant with all legal and regulatory requirements. All government permits, and licenses and statutory approvals are granted.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	All current site infrastructure is suitable to the proposed mining plan
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Mine development capital cost based on historical performance on site and life-of-mine forward planning. Plant and equipment capital are based on site experience and the LOM plan
	The methodology used to estimate operating costs.	All overhead costs and operational costs are projected forward on a first principals modelling basis
	Allowances made for the content of deleterious elements.	No allowances made
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Corporate guidance
	The source of exchange rates used in the study.	Corporate guidance
	Derivation of transportation charges.	Historic performance
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Historic performance

Criteria	JORC Code explanation	Commentary
	The allowances made for royalties payable, both Government and private.	All royalties are built into the cost model
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	AUD$ 1,500/oz gold
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	It is assumed all gold is sold directly to market at the Corporate gold price guidance of AUD$1,500/oz
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not Applicable
	Price and volume forecasts and the basis for these forecasts.	Corporate guidance
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on historical performance from the mine and current economic forecast seen as representative of current market conditions
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities have been used with gold price ranges of A$1,300 to A$1,700 per ounce.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	No Issues
	Any identified material naturally occurring risks.	No Issues
	The status of material legal agreements and marketing arrangements.	No Issues
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	No Issues
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Ore Reserves classifications are derived from the underlying resource model classifications – i.e. Measure Resource material is converted to either Proved or Probable Reserves, with Indicated Resource material converting to Probable Reserve.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results accurately reflect the competent persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Nil
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Reserve has been internally reviewed in line with Northern Star Resource governance standard for Reserves and Resources. There have been no external reviews of this Ore reserve estimate
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the model and Ore Reserve Estimate is considered high based on current mine and reconciliation performance

Criteria	JORC Code explanation	Commentary
	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.	Estimates are global but will be reasonably accurate on a local scale
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	Not applicable
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical reconciliation of Rubicon, Hornet and Pegasus mine production has been used in the generation both the underlying Resource estimate and subsequent modifying factors applied to develop a Reserve.

JORC Code, 2012 Edition – Table 1
Raleigh: Resources and Reserves – 30 June 2018
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.	A combination of sample types was used to collect material for analysis, including underground diamond drilling (DD), surface drilling (RC) and face channel (FC) sampling. RAB holes were excluded from the estimate and where sufficient diamond drill holes were present, RC holes were also excluded. Raleigh Type / # of Holes / Total m's / # Samples DD: 605 / 108,235 / 50,390 FS: 7,359 / 28,204 / 43,899 RC_DD: 19 / 6,624 / 3,291 **Total: 7,983 / 143,063 / 97,580**
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	DD drilling is sampled within geological boundaries with a minimum (0.3 m) and maximum (1.0 m) sample length. Face channel sampling is constrained within geological and mineralised boundaries with a minimum (0.2 m) and maximum (1.0 m) channel sample length. In some cases, smaller samples (0.1 m – 0. 2 m) have been taken to account for smaller structures in the face.
	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.	DD drill core was nominated for either half core or full core sampling. Core designated for half core was cut in half using an automated core saw. The mass of material collected will depend on the drill hole diameter and sampling interval selected. Core designated for full core was broken with a rock hammer if sample segments were too large to fit into sample bags. The mass of material collected will depend on the drill hole diameter and sampling interval selected. A sample size of at least 3 kg of material was targeted for each face sample interval All samples were delivered to a commercial laboratory where they were dried, crushed to 95% passing 3 mm if required, at this point large samples may be split using a rotary splitter, pulverisation to 95% passing 75 µm, a 40 g charge was selected for fire assay
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.).	Both RC and DD techniques were used to drill the Kundana deposits. Surface diamond drill holes were completed using HQ2 (63.5 mm) coring whilst underground diamond drill holes where completed using both NQ2 (50.5 mm) and NQ3 (43 mm) coring. Historically, core was orientated using the Reflex ACT Core orientation system. Currently, core is orientated using the Boart Longyear Trucore Core Orientation system. RC Drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth. In many cases RC pre-collars were drilled followed by diamond tails. Pre-collar depth was determined in the drill design phase, depending on the area been drilled. A combination of RC pre-collar, rock rolling and full diamond core from surface have been used.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD drilling, any core loss is recorded on the core block by the driller. This is then captured by the logging geologist and entered as interval into the hole log.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.

Criteria	JORC Code explanation	Commentary
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery was excellent for diamond core and no relationship between grade and recovery was observed. Average recovery across the Kundana camp is at 99%. As rock competency at Raleigh is consistent through the ore zones, triple tubing has been employed to allow recovery to remain at an acceptable level.
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.	All diamond core is logged for Lithology, veining, alteration, mineralisation and structural. Structural measurements of specific features are also taken through oriented zones. Logging is entered in Acquire using a series of drop down menus which contain the appropriate codes for description of the rock. All underground faces are logged for lithology and mineralisation. Logging is captured on a face sample sheet underground which is then transferred to AcQuire. Faces are then entered into AcQuire using a series of drop down menus which contain appropriate codes for description of the rock.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All core logging is qualitative with mineralised zones assayed for quantitative measurements. Every core tray is photographed wet. All underground faces are logged and sampled to provide both qualitative and quantitative data. All faces are washed down and photographed before sampling is completed.
	The total length and percentage of the relevant intersections logged.	For all drill holes, the entire length of the hole was logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond core is whole core sampled due to the ore zone having broken round and the lack of representativity if cut.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a sample 3 - 4 kg in size from each 1 m interval. These samples were utilised for any zones approaching known mineralization and from any areas identified as having anomalous gold. Outside known mineralized zones spear samples were taken over a 4 m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Preparation of NSR samples was conducted at Bureau Veritas Kalgoorlie and Perth preparation facilities, while surface drilling samples were send to MinAnalytical. Sample preparation commenced with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6 mm particle size. If the sample is greater than 3 kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3 kg (typically 1.5 kg) at a nominal <3 mm particle size. The entire crushed sample (if less than 3 kg) or sub-sample is then pulverized to 90% passing 75 µm, using a Labtechnics LM5 bowl pulveriser. 300 g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets. The sample preparation is considered appropriate for the deposit.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Procedures are utilised to guide the selection of sample material in the field. Standard procedures are used for all processes within the laboratory. Grind checks are performed at both the crushing stage (3 mm) and pulverising stage (75 µm), requiring 90% of material to pass through the relevant size.
	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.	Umpire sampling is performed monthly, where 3% of the samples are sent to the umpire lab for processing.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material been sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40gm fire assay charge is used with a lead flux in the furnace. The prill is totally digested by HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis.
	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.	No geophysical tools were used to determine any element concentrations.

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples. The insertion points are selected at random, except where high grade mineralisation is expected. In these cases, a Blank is inserted after the high-grade sample to test for contamination. Results greater than 0.2 g/t are investigated, and re-assayed if appropriate. New pulps are prepared if anomalous results cannot be resolved. Barren flushes are regularly inserted after anticipated high gold grades at the pulverising stage. No field duplicates were submitted for diamond core. Pulp duplicates are requested after any ore zone. These are indicated on the sample sheet and the submission sheet. When visible gold is observed in core, a quartz flush is requested after the sample. Laboratory performance was monitored using the results from the QA samples mentioned above. This was supplemented by the internal QA samples used by the laboratories, which included pulp duplicates and CRMs The QA studies indicate that accuracy and precision are within industry accepted limits.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off
	The use of twinned holes.	No twinned holes were drilled for this data set. Re-drilling of some drill holes has occurred due to issues downhole (e.g. bogged rods). These have been captured in the database as an 'A'. Re-drilled holes are sampled whilst the original drill hole is logged but not sampled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging and sampling are directly recorded into AcQuire. Assay files are received in csv format and loaded directly into the database using an Acquire importer object. Assays are then processed through a form in AcQuire for QAQC checks. Hardcopy and noneditable electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments are made to this assay 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.	Planned holes are marked up by the mine survey department using a total station survey instrument in mine grid (Kundana 10). The actual hole position is then located by the mine survey department once drilling is completed. In some cases, drill hole collar points are measured off survey stations if a mark-up cannot be completed. This is only used for Grade Control drilling due to their frequent occurrence. Holes are lined up on the collar point using the DHS Azimuth Aligner. Planned azimuths and dips of the holes are downloaded to the aligner which is then placed on the rod string to align the hole for drilling. During drilling, single shot surveys are conducted every 30 m to track the deviation of the hole and to ensure it stays close to design. This is performed using the Devishot camera which measures the gravitational dip and magnetic azimuth. Results are uploaded from the Devishot software into a csv format which is then imported into the Acquire database. At the completion of the hole, a Multishot survey is completed using the Downhole Surveys Deviflex Rapid tool. This tool reads the downhole position every metre on both the in-run and the out-run, with final data compiled as an average. QAQC is performed on the speed of running, and on the misclose rate for each survey. Where issues are identified, a single survey run can be chosen as preferred with the remaining data ignored. This data is converted to csv format and imported into the AcQuire database where it is validated by the project geologist. This tool is not used on Grade Control drill holes due to their short length. Grade control surveys are captured by the Devishot tool.
	Specification of the grid system used.	Collar coordinates are recorded in mine grid (Kundana 10) and transformed into MGA94_51.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Lidar data and survey pickups of holes over the last 15 years.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing varies across the deposit. For resource targeting drilling spacing was typically 60 m x 60 m. This allowed for infill drilling at 30 m x 30 m spacing known as resource definition. Grade control drilling was drilled on a level by level basis with drill spacing between 10 m to 15 m.
	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 considered sufficient to support the resource and reserve estimates

Criteria	JORC Code explanation	Commentary
	Whether sample compositing has been applied.	No sample compositing has been applied.
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.	Majority of the structures in the Kundana area dip steeply (80°) to the WSW. Diamond drilling was designed to target the orebodies perpendicular to this orientation to allow for an ideal intersection angle. Instances where this was not achievable (mostly due to drill platform location), drilling was not completed or re-designed once a suitable platform became available. Drill holes with low intersection angles are excluded from resource estimation where more suitable data is available.
	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.	No sampling bias is considered to have been introduced by the drilling orientation. Where drill holes have been particularly oblique, they have been flagged as unsuitable for resource estimation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits have been undertaken of the data and sampling practices at this stage.

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.	All holes mentioned in this report are located within the M15/993 Mining lease which is held by The East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited (51%). The minority holding in the EKJV is held by Tribune Resources Ltd (36.75%) and Rand Mining Ltd (12.25%). The tenement on which the Raleigh deposit is hosted is subject to three royalty agreements. The agreements are the Kundana- Hornet Central Royalty, the Lake Grace Royalty and the Kundana Pope John Agreement No. 2602-13.
	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.	No known impediments exist, and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	No other parties performed exploration work at Raleigh during the reporting period. All previous exploration by other parties is summarised in open file annual reports which are available from the DMIRS.
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana gold camp is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by the Zuleika shear zone, which separates the Coolgardie domain from the Ora Banda domain. Within the Kundana area the Raleigh ore lodes are located along the Strzelecki structure, with mining commencing in 2000. Most of the mineralisation consists of narrow, laminated quartz veining between the contact of the volcanogenic sedimentary rock unit and andesite/gabbro (RMV).
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.	A summary of the data present in the Raleigh deposit can be found above. The collar locations are presented in plots contained in the NSR 2018 resource report. Drill holes vary in survey dip from +48 to -83, with hole depths ranging from 15 m to 950 m, and having an average depth of 180 m. The assay data acquired from these holes are described in the NSR 2018 resource report. All the drill hole data were used directly or indirectly for the preparation of the resource estimates described in the 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.	

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.	All reported assay results have been length weighted to provide an intersection width. A maximum of 2 m of low grade material (considered < 2 g/t) between mineralised samples has been permitted in the calculation of these widths. Typically grades over 2.0 g/t are considered significant, however, where wide zones of low grade are intersected in areas of known mineralisation these will be reported. No top-cutting is applied when reporting intersection results.
	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.	Where an intersection incorporates short lengths of high grade results these intersections will be reported in addition to the aggregate value. These will typically take the form of ##.#m @ ##.##g/t including ##.#m @ ##.##g/t.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	True widths have been calculated for intersections of the known ore zones, based on existing knowledge of the nature of these structures.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Both the downhole width and true width have been clearly specified when used.
	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').	
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.	Appropriate plans and section have been included at the end of this Table and in the body of the NSR 2018 resource report.
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.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other material exploration data has been collected for this area. Four geotechnical holes were drilled from a lower platform (5718 Stockpile) in Raleigh. These holes were drilled to gather rock properties of the hanging wall of Raleigh Main Vein and Skinners Vein.
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).	Drilling will continue to target the Raleigh Main Vein to the south both up plunge and down plunge. Where results are positive, infill drilling will be completed to improve confidence of the resource.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams accompany this release.

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.	Sampling and logging data is either recorded on paper and manually entered into a database system or is captured digitally via a logging laptop and directly loaded into the database system. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly into the database from laboratory and survey derived files.

Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	The database has further checks performed to back -up those performed in section 2. The complete exported data base including drill and face samples is brought into Datamine and checked visually for any apparent errors i.e. holes or faces sitting between levels or not on surface DTM's. Multiple checks are then made on numerical data. This includes: • Empty table checks to ensure all relevant fields are populated • Unique collar location check, • Distances between consecutive surveys is no more than 60 m for drill-holes • Differences in azimuth and dip between consecutive surveys of no more than 0.3 degrees • The end of hole extrapolation from the last surveyed shot is no more than 30 m • Underground face sample lines are not greater than +\- 5 degrees from horizontal Errors are corrected where possible. When not possible the data is resource flagged as "No" in the database and the database is re-exported. This data will not be used in the estimation process. Several drilling programs completed between 2015 and 2016 had erroneous meter depths recorded by the drillers. This resulted in multiple drill-holes recording the intersection of the main Raleigh structures several meters earlier than expected. Until underground development had progressed to these elevations, this was not possible to determine. Unfortunately, there is not a uniform translation that can be applied, therefore these drill-holes have been omitted from the ore wireframe interpretations and flagged as invalid. However, where there were no QAQC issue with the assays, the correct intervals have been recorded, the translation in the easting direction required for them to be in the 'correct' location (based on development above and below) applied, and these intervals were appended to the data set before compositing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The CP has not visited this site
	If no site visits have been undertaken indicate why this is the case.	The geological interpretations underpinning these resource models were prepared by geologists working in the mine and in direct, daily contact with the ore body. The estimation of grades was undertaken by personnel familiar with the ore body and the general style of mineralisation encountered. The Resource process has been closely overseen by the Senior Resource Geologists and maintained a site presence throughout the process. The CP has reviewed the inputs and outcomes of this work.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the Raleigh deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation is high and is supported with information acquired during ore development as well as from drilling. The interpretation of all Raleigh mineralisation wireframes were conducted using the sectional interpretation method. Where development levels were present sectional interpretation was completed in plan view at approximately 5 m spacing to allow for a better constrained and geologically realistic wireframe. Where only drilling data was present sectional interpretation was completed in cross-section view at approximately 10 – 20 m spacing. Wireframes were checked for unrealistic volumes and updated where appropriate.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, underground face channel data, 3D photogrammetry and structural models.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the Raleigh Main Vein (RMV) is based on the presence of quartz veining and continuity between sections on the main Raleigh structure. The Raleigh shear (RMS) is located adjacent to the RMV and alternates between the hangingwall to the footwall location. The Skinners lode is located in the hangingwall of the RMV and is geologically present as a vein. The ZZ lodes are two small hangingwall lodes characterised as stockwork veining which dips shallowly to the west and is truncated by the RMV. In the south where development faces are not present, it is difficult to discern which vein is the RMV within the shear zone. Therefore, the ore lode is interpreted as Raleigh Shear Vein and is estimated together.
	The factors affecting continuity both of grade and geology.	Grade continuity is affected when the percentage of quartz decreases within the main Raleigh structure and only a sheared structure remains. This results in lower grade in areas where only shear is present and higher grade where quartz is evident.

Criteria	JORC Code explanation	Commentary
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The strike length of the different ore systems varies from ~100 m to 600 m, the Raleigh Main Vein (RMV) being the most extensive. The individual ore bodies occur in a major regional shear system extending over 10s of kilometres. Ore body widths are typically in the range of 0.1 - 1.1 m. RMV records the narrowest at 0.1 m and SKV the widest at 1.1 m. RMV has an average width of 0.3 m Mineralisation is known to occur from the base of cover to around 900 m 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.	All Raleigh mineralisation zones except for the Raleigh Main Shear (RMS) used direct grade estimation by Ordinary Kriging, unless otherwise stated. RMS was estimated using Categorical Indicator Kriging. Typically, full length composites were used, determined from statistical analysis of all sample lengths in the domain dataset. All estimation was completed using Datamine RM software. Details on the estimation by ore lode is summarised below: RMV- includes one domain which was top cut and had variography analysis completed, which indicates grade continuity plunges steeply to the NNW. Search distances of ~100 m for direction 1 and ~70 m for direction 2 exist. Three passes were used with a minimum of 6 and a maximum of 10 samples used in the first pass. RMVN – constitutes the predominately mined out northern extent of the RMV (see Figure 1 below). It is divided into two grade subdomains based on data density; high density around development levels and lower density distant to development. Each subdomain was analysed for top cuts and had variography completed separately. Both subdomains indicate grade continuity in the SW plunge direction. The high-density subdomain has a search range of ~100 m in direction 1 and 50 m in direction 2. The low-density subdomain has a search range of ~190 m for direction 1 and 140 m for direction 2, Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 4 - 6 samples and maximum of 6 - 10 samples for both the high and low-density subdomains. Estimation was completed using a soft boundary between the high and low-density subdomains and between adjacent Raleigh domains e.g. RMV, RMS and RMVS. RMS - divided into two grade subdomains; a high-grade domain (>0.45 g/t) and low-grade domain (<0.45 g/t). These domains were ascertained by Categorical estimation of the binary indicators; geology (quartz vein) and grade (> 2.5 g/t). Each subdomain was analysed for top cuts and had variography completed separately. Both subdomains indicate grade continuity with a moderate plunge to the SW. The high-grade subdomain has a search range of ~60 m in direction 1 and 50 m in direction 2. The low-grade subdomain has a search range of ~100 m for direction 1 and 55 m for direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 5 samples and a maximum of 7 samples for both the high and low-grade subdomains. Estimation was completed using a soft boundary between the high and low-grade subdomains. RMVS - divided into two grade subdomains based on data density; high density around development levels and lower density distant to development. Each subdomain was analysed for top cuts and had variography completed separately. Both subdomains indicate grade continuity in the NW plunge direction. The high-density subdomain has a search range of ~100 m in direction 1 and 60 m in direction 2. The low-density subdomain has a search range of ~200 m for direction 1 and 100 m for direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 4 - 5 samples and a maximum of 6 - 7 samples for both the high and low-density subdomains. Estimation was completed using a semi soft boundary between the high and low-density subdomains and a soft boundary between adjacent Raleigh domains e.g. RMV and RMS. RMV/RMS Halo- located between the RMV and RMS it includes one domain which was top cut and had variography analysis completed which indicates grade continuity plunges steeply to the NW. Search distances of ~100 m for direction 1 and ~70 m for direction 2. Three passes were used with a minimum of 3 and a maximum of 8 samples used in the first pass. SKV - divided into two grade subdomains based on data density; high density around development levels and lower density distant to development. Each subdomain was analysed for top cuts and had variography completed separately. Both domains indicate grade continuity in the NW plunge direction. Both subdomains have a search range of ~100 m in direction 1 and 60 m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 4 - 7 samples and a maximum of 7 - 10 samples for both the high and low-density subdomains. Estimation was completed using a semi soft boundary between the high and low-density subdomains. ZZ/ZZ2 - both ore lodes include one domain each which was top cut and had variography analysis completed which indicates grade continuity plunges shallowly to the SE. Search distances of ~30 m for direction 1 and ~20 m for direction 2. Three passes were used with a minimum of 6 and a maximum of 10 samples used in the first pass.

Criteria	JORC Code explanation	Commentary
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	In all estimates Inverse Distance squared was run with an isotropic search as a check and used as a guide to corroborate variogram search angles. An indirect estimation method was also performed which produces a gold value back calculated from estimated sample true thickness and accumulated gold. This indirect method was used historically and was used as a comparison only, following extensive trials which indicated it was not producing optimal estimations. All mineralised zones at Raleigh for the current estimate were compared with previous models. This allowed a comparison of tonnes and gold grade for each zone and an overall global comparison.
	The assumptions made regarding recovery of by-products.	No assumptions are made and gold is the only metal 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 were 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.	Block sizes varied depending on sample density. In areas of high density underground face samples with average spacing of 3 – 4 m a 5 x 5 x 5 m block size was chosen. Medium density drill spacing is approximately 30 m with a 15 x15 x 15 m block size was chosen. For low density drilling with larger spacing greater than 30 m a block size of 10 x 20 x 10 m was chosen. All the varying block sizes are added together after being estimated individually. Search ellipse dimensions were derived from the variogram model ranges.
	Any assumptions behind modelling of selective mining units.	Selective mining units were not used during the estimation process.
	Any assumptions about correlation between variables.	All variables were estimated independently of each other. Density has used estimation parameters based on gold
	Description of how the geological interpretation was used to control the resource estimates.	Hanging-wall and foot-wall wireframe surfaces were created using sectional interpretation. These were used to define the Raleigh mineralised zones based on the geology (usually a quartz vein) and gold grade. Raleigh Main Vein (RMV)- Steeply dipping structure with quartz veining evident from drilling and development Raleigh Main Vein South (RMVS)- Steeply dipping structure with quartz veining and shearing evident from drilling and development Raleigh Main Vein North (RMVN)- Steeply dipping structure with quartz veining evident from drilling and development Raleigh Main Shear (RMS)- Steeply dipping shear structure sitting in the footwall of the RMV with occasional quartz vein strings, evident from development. Skinners Vein (SKV)- Steeply dipping structure with quartz veining sitting in the hanging wall of the RMV. ZZ/ZZ2 - Low angled narrow stacked quartz veining, sitting between the RMV and SKV, evident from drilling and development in the 5880 level. For mine planning purposes a waste model is created by projecting the hanging wall and footwall surfaces 5 m either side. A default grade of 0.1 g/t is assigned and the same resource classification as the adjacent ore lode is applied.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts were selected based on a statistical analysis of the data with a general aim of not impacting the mean by more than 5% and reducing the coefficient of variation to around 1.2, and vary by domain (ranging from 30 to 1000 g/t for individual domains and deposits) The top cut values are applied in several steps, using a technique called influence limitation top capping. A top cut (AU) and non-top cut (*_NC) variable is created, as well as a spatial variable (*_BC) which only has values where the top cut values appear; this applies to both gold and true thickness (TT) top cutting. For example, where gold requires a top cut, the following variables will be created and estimated: • AU (top cut gold) • AU_NC (non- top-cut gold) • AU_BC (spatial variable; values present where AU data is top-cut) The top-cut and non-top cut values are estimated using search ranges based on the modelled gold variogram, and the *_BC values estimated using very small ranges (e.g. 5 x 5 x 5m). Where the *_BC values produce estimated blocks within these restricted ranges, the *_NC estimated values replace the original top cut estimated values (AU).

Criteria	JORC Code explanation	Commentary
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Statistical measures of Kriging error, such as Kriging Efficiency and Slope of Regression, are used to assess the quality of the estimation for each domain. Differences between the declustered composite data set and the average model grade must be within 10%. Swath plots comparing declustered composites to block model grades are prepared and visual checks summarising the critical model parameters. Visually, block grades are assessed against drill hole and face data.
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
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The mineral resource estimate has been reported at a 3.5 g/t cut off within 2.5 m minimum mining width including +/- 0.5 m dilution MSO's using a $AU1750/oz gold price.
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.	No mining assumptions have been made during the resource wireframing or estimation process.
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.	Metallurgical test work results show that the mineralisation is amendable to processing through the Kanowna Belle treatment plant. Ore processing throughput and recovery parameters were estimated based on historic performance and potential improvements available using current technologies and practices.
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.	A "Licence to Operate" is held by the operation which is issued under the requirement of the "Environmental Protection Act 1986", administered by the Department of Environment (DoE). The licence stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater licenses are held for water abstraction, including production bore field water use for mineral processing, and mine dewatering, in accordance with the Rights in Water and Irrigation Act 1914. These licenses are also regulated by DoE and are renewable on a regular basis. Kanowna Operations conduct extensive environmental monitoring and management programs to ensure compliance with the requirements of the licences and lease conditions. An Environmental Management System is in place to ensure that Northern Star employees and contractors exceed environmental compliance requirements. The Kalgoorlie operations are fully permitted including groundwater extraction and dewatering, removal of vegetation, mineral processing, and open pits. Kalgoorlie Operations have been compliant with the International Cyanide Management Code since 2008. Compliance with air quality permits is particularly important at Kanowna because of the roaster operation and because there are three facilities in the Kalgoorlie region emitting SO_2 gas. Kanowna has a management program in place to minimize the impact of SO_2 on regional air quality and ensure compliance with regulatory limits.
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.	A thorough investigation into average density values for the various lithological units at Raleigh was completed and the mean densities by lithology were coded into the database. Where there were no measurements for a specific lithology and default of 2.8 was applied. Density was then estimated by Ordinary Kriging using the associated gold estimation parameters for that domain. Post estimation, default density values for the oxide and transition zones were applied, based on regional averages.
	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.	No/minimal voids are encountered in the ore zones and underground environment.

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Assumptions on the average bulk density of individual lithologies, based on 2920 bulk density measurements at Raleigh. Assumptions were also made based on regional averages, on the default densities applied to oxide (1.8) and transition (2.3) material, due to lack of measurements in these zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: • Geologic grade continuity • Density of available drilling • Statistical evaluation of the quality of the kriging estimate • Confidence in historical data
	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).	All relevant factors have been given due weighting during the classification process.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The resource model methodology is appropriate, and the estimated grades reflect the Competent Persons' view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	All resource models have been subjected to internal peer reviews.
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.	These mineral resource estimates are considered robust and representative of the Raleigh style of mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource.
	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.	The Raleigh model is a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No reconciliation factors are applied to the resource post-modelling.

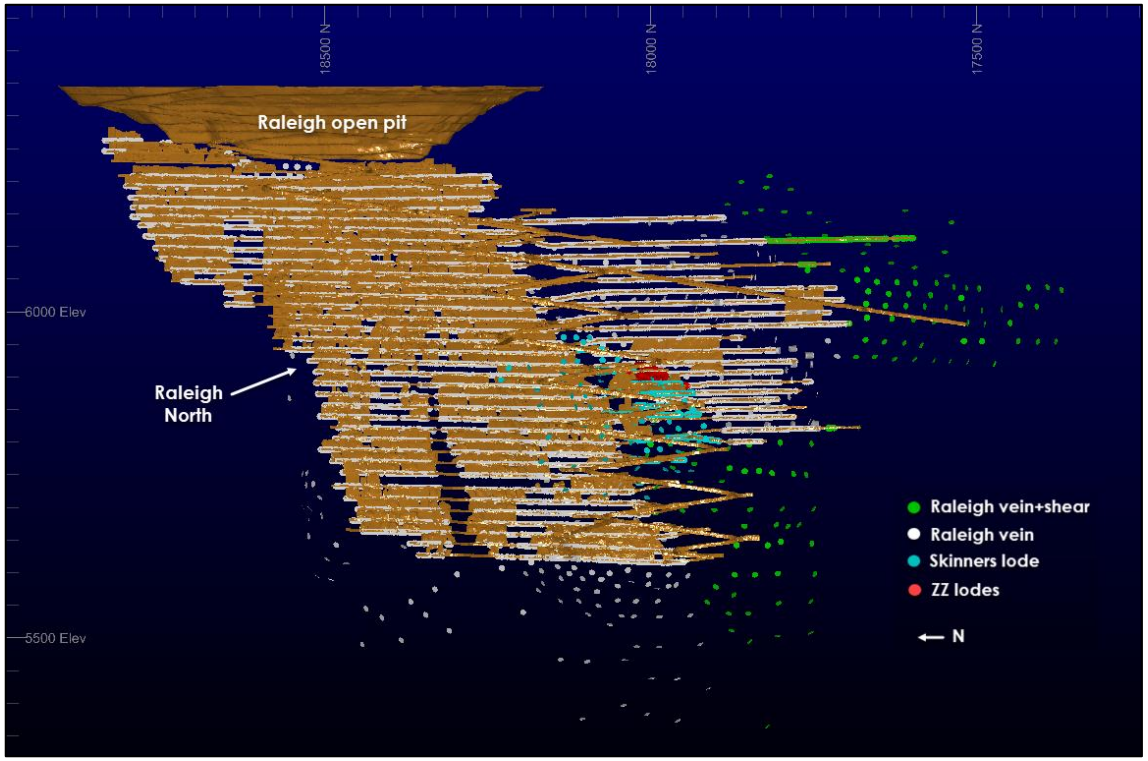


Figure 1. Long section view of the Raleigh deposit and data used for estimation

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Northern Star 2018MY resource
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources are reported inclusive of the Ore Reserve
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken by the competent person.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Feasibility Study

Criteria	JORC Code explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	The mine is currently in operation – this statement is an update of the previous Ore Reserve
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Forecast costs and physicals form the basis for Cut Off Grade calculations. Mill recovery is calculated based on historical recoveries achieved Various cut off grades are calculated including a fully costed cut-off grade (COG), variable cut-off grade (VCOG) and Mill cut-off grade (MCOG). The VCOG is used as the basis for stope design, with areas requiring significant development assessed by detailed financial analysis to confirm their profitability.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Mineral Resource is converted to Ore Reserve after completing a detailed mine design and associated financial assessment.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Selected mining method deemed appropriate as it has been used at Raleigh since 2005
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Design parameters for new areas utilise 22m level spacings with a stope strike length of 15m for dilution control purposes. This correlates to a Hydraulic Radius of 4.5m.
	The major assumptions made, and Mineral Resource model used for pit and stope optimisation (if appropriate).	Not applicable - this table one applies to underground mining only
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 10% dilution (rock and paste) for stoping additional to minimum mining width is applied as well as 15% dilution for Ore development.
	The mining recovery factors used.	Mining recovery factor of 96% is applied based on historical data
	Any minimum mining widths used.	At Raleigh: Minimum stope width of 3.0m where the vein is less than 2m wide, otherwise 1m additional to vein width when greater than 2m wide.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Designed stopes with greater than 50% inferred blocks are excluded from the reported reserve
	The infrastructure requirements of the selected mining methods.	Infrastructure in place, currently an operating mine
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	All Raleigh ore is treated at the Kanowna Belle milling facilities. These facilities are designed to handle approximately 1.8 million tonnes of feed per annum. The plant has the capability to treat both refractory and free milling ores, through either using the flotation circuit and associated concentrate roaster circuit (including carbon-in-leach (CIL) gold recovery) or bypassing the flotation circuit and going directly to a CIL circuit designed to treat flotation tails. The plant campaigns both refractory and free milling ores every month. Between campaigns, the circuit is "cleaned out" using mineralised waste. The plant is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained over plus 10 years operation
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Milling experience gained over plus 10 years operation
	Any assumptions or allowances made for deleterious elements.	No assumption made
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Milling experience gained over plus 10 years operation

Criteria	JORC Code explanation	Commentary
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Raleigh is currently compliant with all legal and regulatory requirements. All government permits, and licenses and statutory approvals are either granted or in the process of being granted
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	All current site infrastructure is suitable to the proposed mining plan
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Mine development capital cost based on historical performance on site and life-of-mine forward planning. Plant and equipment capital are based on site experience and the LOM plan.
	The methodology used to estimate operating costs.	All overhead costs and operational costs are projected forward on a $/t based on forecast data
	Allowances made for the content of deleterious elements.	No allowances made
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Corporate guidance
	The source of exchange rates used in the study.	Corporate guidance
	Derivation of transportation charges.	Historic performance
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Historic performance
	The allowances made for royalties payable, both Government and private.	All royalties are built into the cost model
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	AUD$ 1,500/oz gold
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	It is assumed all gold is sold directly to market at the Corporate gold price guidance of AUD$1,500/oz
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not Applicable
	Price and volume forecasts and the basis for these forecasts.	Corporate guidance
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All cost assumptions are made based on historical performance from the mine and current economic forecast seen as representative of current market conditions
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities have been used with gold price ranges of A$1,300 to A$1,700 per ounce.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	No Issues

Criteria	JORC Code explanation	Commentary
	Any identified material naturally occurring risks.	No Issues
	The status of material legal agreements and marketing arrangements.	No Issues
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	No Issues
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Ore Reserves classifications are derived from the underlying resource model classifications – i.e. Measured Resource material is converted to either Proved or Probable Reserves, with Indicated Resource material converting to Probable Reserve.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results accurately reflect the competent persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Nil
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Reserve has been internally reviewed in line with Northern Star Resources governance standard for Reserves and Resources. There have been no external reviews of this Ore reserve estimate
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the model and Ore Reserve Estimate is considered high based on current mine and reconciliation performance
	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.	Estimates are global but will be reasonably accurate on a local scale
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	Not applicable
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical reconciliation of Raleigh mine production has been used in the generation both the underlying Resource estimate and subsequent modifying factors applied to develop a Reserve.