Tribune
RESOURCES Ltd.

EKJV Summary Resources and Reserves Update

ASX ANNOUNCEMENT

2 August 2019

Australian Securities Exchange Code: TBR

Board of Directors:
Mr Otakar Demis
Chairman
Joint Company Secretary

Mr Anton Billis
Managing Director

Mr Gordon Sklenka
Non-Executive Director

Mr Stephen Buckley
Joint Company Secretary

Please find attached the Resources and Reserves Report as received from Northern Star Resources Limited on 1 August 2019.

The information contained in the attached Resources and Reserves Report has been prepared by Northern Star Resources Limited and Tribune makes no comment on its accuracy or completeness.

For further information, please contact:

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Encls:
Memorandum
Appendix 1: East Kundana JV Mineral Resources & Ore Reserves Competent Persons Statement
Appendix 2: East Kundana JV Ore Reserves, 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: 1 AUGUST 2019

SUBJECT: **EKJV SUMMARY RESOURCE AND RESERVE REPORT - 30 JUNE 2019**

EXECUTIVE SUMMARY

The full statement of Mineral Resources and Ore Reserves for the East Kundana Joint Venture (EKJV) as at 30 June 2019 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 2019 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 increased by 123,000 ounces to a total of:

11.27 million tonnes at 6.0 gpt gold for 2.19 million ounces of gold

Deposit	30 June 2019 ('000 ozs)	30 June 2018 ('000 ozs)	Variation ('000 ozs)
Hornet Pit	58	65	(7)
Drake	11	38	(27)
Raleigh	396	455	(59)
Hornet	249	293	(44)
Rubicon	254	362	(108)
Pegasus	449	846	(397)
Pode	410	-	410
Golden Hind	79	-	79
Falcon	234	-	234
Falcon North	11	-	11
Stockpiles RHP	14	6	8
Stockpiles Raleigh	6	-	6
Stockpiles GEM (100%)	0	-	0
Stockpiles R&T (100%)	17	-	17
Gold in Circuit	1	-	1
TOTAL	**2,190**	2,066	**123**

1. *Numbers are quoted on a 100% basis, some rounding differences*

Comparison with the Mineral Resource Statement for the year ended 30 June 2018 shows an increase of approximately 123,000 ounces representing the following variations:

- No change in gold price from A$1,750/oz
- Revised resource estimation methodology from June 2018
- Revised modifying factors used from June 2018
- Mining depletion at Rubicon, Hornet, Pegasus and Raleigh
- Reflects substantial drilling at Pegasus, Pode, Raleigh South, Falcon
- Maiden resource for Falcon and Golden Hind
- Revised Stockpile reconciliation

EKJV ORE RESERVE SUMMARY

Total Ore Reserves defined within the EKJV tenements decreased by 146,000 ounces to a total of:

6.10 million tonnes at 5.6 gpt gold for 1.09 million ounces of gold

Deposit	30 June 2019 ('000 ozs)	30 June 2018 ('000 ozs)	Variation ('000 ozs)
Hornet Pit	25	25	-
Raleigh	197	222	(25)
Hornet	64	93	(29)
Rubicon	174	248	(74)
Pegasus	313	470	(158)
Pode	283	173	110
Stockpiles RHP	14	6	8
Stockpiles Raleigh	6	-	6
Stockpiles GEM 100%	0	-	0
Stockpiles R&T 100%	17	-	17
Gold in Circuit	1	0	1
TOTAL	**1,094**	1,237	**(146)**

1. Numbers are quoted on a 100% basis, some rounding differences

Comparison with the Ore Reserve statement for the year ended 30 June 2018 shows a decrease of approximately 146,000 ounces representing the following variations:

- No change to gold price from 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 Pode following conversion of mine exploration success
- Decrease in Ore Reserves at Pegasus, Rubicon, Hornet and Raleigh from depletion and separation of Pode and Pegasus reserve areas.
- Revised Stockpile reconciliation

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

Encls

APPENDIX 1

EAST KUNDANA JV MINERAL RESOURCES

As at 30 June 2019		MEASURED			INDICATED			INFERRED			TOTAL RESOURCES		
		Tonnes	Grade	Ounces	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)	(000's)	(gpt)	(000's)
EAST KUNDANA JOINT VENTURE													
Surface													
Hornet	49%	-	-	-	115	5.6	21	103	2.4	8	218	4.1	28
Subtotal - Surface		*-*	*-*	*-*	*115*	*5.6*	*21*	*103*	*2.4*	*8*	*218*	*4.1*	*28*
Underground													
Drake - Moonbeam	49%	-	-	-	21	4.0	3	24	3.0	2	45	3.7	5
Hornet	49%	159	5.8	29	503	4.5	73	112	5.5	20	774	4.9	122
Pegasus	49%	241	6.8	53	722	6.8	157	72	4.3	10	1,035	6.6	220
Pode	49%	182	9.1	53	581	6.6	124	130	5.7	24	893	7.0	201
Rubicon	49%	229	5.3	39	420	5.5	75	76	4.2	10	726	5.3	124
Raleigh	50%	189	11.4	69	326	9.0	95	168	6.4	35	683	9.0	198
Golden Hind	49%	-	-	-	-	-	-	234	5.2	39	234	5.2	39
Falcon	49%	-	-	-	-	-	-	742	4.8	115	742	4.8	115
Falcon North	50%	-	-	-	-	-	-	41	4.1	6	41	4.2	6
Subtotal - Underground		*1,001*	*7.6*	*243*	*2,574*	*6.4*	*527*	*1,556*	*5.1*	*254*	*5,131*	*6.2*	*1,024*
Stockpiles RHP	49%	58	3.8	7	-	-	-	-	-	-	58	3.8	7
Stockpiles Raleigh	50%	21	4.2	3	-	-	-	-	-	-	21	4.2	3
Stockpiles GEM (100%)(SKO ROM)	0%	-	-	-	-	-	-	-	-	-	-	-	-
Stockpiles R&T (100%)	100%	140	3.8	17	-	-	-	-	-	-	140	3.8	17
Gold in Circuit	49%	-	-	1	-	-	-	-	-	-	-	-	1
Sub-Total East Kundana JV		**1,220**	**6.9**	**271**	**2,689**	**6.3**	**547**	**1,660**	**4.9**	**262**	**5,568**	**6.0**	**1,080**

APPENDIX 1

EAST KUNDANA JV ORE RESERVES

As at 30 June 2019

		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%	-	-	-	66	5.8	12	66	-	12
Subtotal - Surface		*-*	*-*	*-*	*66*	*5.8*	*12*	*66*	*5.8*	*12*
Underground										
Drake - Moonbeam	49%	-	-	-	-	-	-	-	-	-
Hornet	49%	60	5.2	10	165	4.0	21	225	4.3	31
Pegasus	49%	270	5.3	46	574	5.8	107	844	5.6	153
Pode	49%	177	7.7	44	574	5.1	95	750	5.8	139
Rubicon	49%	130	6.4	27	422	4.3	58	552	4.8	85
Raleigh	50%	121	8.5	33	294	6.9	65	415	7.4	98
Golden Hind	50%	-	-	-	-	-	-	-	-	-
Falcon	51%	-	-	-	-	-	-	-	-	-
Falcon North	50%	-	-	-	-	-	-	-	-	-
Subtotal - Underground		*758*	*6.6*	*160*	*2,029*	*5.3*	*346*	*2,787*	*5.7*	*507*
Stockpiles RHP	51%	58	3.8	7	-	-	-	58	3.8	7
Stockpiles Raleigh	50%	21	4.2	3	-	-	-	21	4.2	3
Stockpiles GEM (100%)(SKO ROM)	0%	-	-	-	-	-	-	-	-	-
Stockpiles R&T (100%)	100%	140	3.8	17	-	-	-	140	3.8	17
Gold in Circuit	51%	-	-	1	-	-	-	-	-	1
Sub-Total East Kundana JV		**977**	**6.0**	**188**	**2,094**	**5.3**	**359**	**3,071**	**5.5**	**547**

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 interest in the East Kundana Joint Venture (EKJV) areas is based on information compiled by Michael Mulroney, 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 Mulroney 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 interest in the EKJV areas. Mr Mulroney 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 interest in the EKJV 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 is 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.

APPENDIX 2: TABLE 1

JORC Code, 2012 Edition – Table 1 Report
Falcon Deposit: Resources and Reserves – 30 June 2019
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; underground and surface diamond drilling (DD), surface reverse circulation drilling (RC) and surface RC drilling with diamond tail (RC_DD).
<table>
<tr><th></th><th colspan="3">Falcon</th></tr>
<tr><th></th><th># of Holes</th><th>Total m's</th><th># of Samples</th></tr>
<tr><td>DD</td><td>88</td><td>33,135</td><td>30,865</td></tr>
<tr><td>FS</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>RC</td><td>1</td><td>318</td><td>318</td></tr>
<tr><td>RC_DD</td><td>1</td><td>672</td><td>417</td></tr>
<tr><td>Total</td><td>90</td><td>34,125</td><td>31,600</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.</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. Samples designated for half core were cut using an automated core saw. The mass of material collected was dependent on the drill hole diameter and sampling interval selected. 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 and crushed to 90% of material ≤3 mm. At this point, samples greater than 3 kg were split using a rotary splitter, then pulverised to 90% ≤75 µm. A 40 g charge was selected for fire assay of diamond drill hole samples.</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 Reverse Circulation and Diamond Drilling techniques were used to drill the Falcon deposit.
Surface diamond drill holes were completed using HQ2 (63.5 mm) coring, whilst underground diamond drill holes were completed using NQ2 (50.5 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 several cases, RC pre-collars were drilled, followed by diamond tails. Pre-collar depth was determined in the drill design phase.</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>Contractors adjust the rate and method off drilling 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%. No specific areas within the Falcon model area had issues with recovery.</td></tr>
<tr><td rowspan="3">Logging</td><td>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.</td><td>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.</td></tr>
<tr><td>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</td><td>All core logging is qualitative with mineralised zones assayed for quantitative measurements. Every core tray is photographed wet.</td></tr>
<tr><td>The total length and percentage of the relevant intersections logged.</td><td>For all drill holes, the entire length of the hole is logged.</td></tr>
<tr><td>Sub-sampling techniques and</td><td>If core, whether cut or sawn and whether quarter, half or all core taken.</td><td>The regolith in all drill holes was sampled as full core and the fresh rock was sampled as half core. Core cutting was completed using an automated core saw. Due to the current project stage, half core has been retained for cut holes.</td></tr>
</table>

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
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 sample 3 - 4 kg in size from each 1m interval. These samples were utilised for any zones approaching known mineralisation and from any areas identified as having anomalous gold. Outside known mineralised 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 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% ≤75 µm, using a Labtechnics LM5 bowl pulveriser. 400 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.	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 laboratory 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 being sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40 g fire assay charge for diamond drill holes 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. In circumstances where coarse gold has been encountered in drill core, up to five 40 g charges are fire assayed, or until the pulp is fully exhausted. The mean average is then calculated from the multiple gold fire assays.
	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. 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 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 twinned holes were drilled into the Falcon deposit. Re-drilling of some drill holes has occurred due to issues downhole (e.g. bogged rods). These have been captured in the database with an 'A' suffix. 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 the assay data.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
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. 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 Devi Shot 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 DeviFlex non-magnetic strain gauge instrument) survey is completed, taking measurements every 3 m to ensure accuracy of the hole. This is 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, with majority of drilling between 120 x 120 m and 40 x 40 m spacing.
	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 current 'Inferred' resource estimate.
	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.	The Falcon deposit is interpreted as a series of NNE-SSW trending structures that dip moderately (65°) to the west (local grid). Diamond drilling was designed to target the orebodies as close to perpendicular as practical. Due to the collar locations available, much of the drilling was completed from footwall to hangingwall. Where this is the case, a maximum drill hole dip of 40° is suggested as steeper holes could result in drilling down-dip of the lode.
	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, 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.

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 M15/993 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 Falcon deposit is 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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first reference to the mineralisation 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 with the Rubicon open pit 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.
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. The Falcon deposit is interpreted as a series of mineralised splays off low angle structures that persist through lithological contacts from the K2B (Victorious Basalt - Bent Tree Basalt contact) across the K2A (Bent Tree Basalt- upper felsic and volcaniclastic/sedimentary rocks of the Black Flag Group). The Falcon lodes sit in the hangingwall of the regional 'K2' structure, west of the Pode deposit. The Pode lodes have been used as a proxy when interpreting the Falcon structures as similar trends are present. Falcon lodes are comprised of laminated to brecciated quartz veining internal to a sheared biotite-sericite-ankerite altered siltstone/sandstone unit and an intermediate volcaniclastic unit. Mineralisation is present within veins, on vein selvedges, and within the altered host rock, with coarse gold often observed. There is a strong visual correlation between arsenopyrite and gold mineralisation. Vein orientation appears erratic and this is supported by structural measurements taken from lodes.
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 Falcon deposit can be found above. The collar locations are presented in plots contained in the NSR 2019 Resource Report. Drill holes vary in survey dip from +30 to -72 degrees, with hole depths ranging from 42 m to 951 m, with an average depth of 379 m. The assay data acquired from these holes are described in the NSR 2019 resource report. All validated drill hole data was 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.	Not applicable
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 mineralised samples has been permitted in the calculation of these widths. Typically grades over 2.0 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 2019 resource report.

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Criteria	JORC Code explanation	Commentary
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.	Petrology samples were selected for key lithologies and sent for thin section preparation and petrographic investigation.
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).	Resource Targeting (RT) drilling will continue to test the strike length of the deposit to an 80 x 80 m drill spacing. Resource Definition (RSD) drilling to a 40 x 40 m drill spacing will also be conducted to test the continuity of mineralised trends. The necessity for greater drill density will be determined by a follow up drill spacing study to be completed during FY19-20.
	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 2019 resource report.

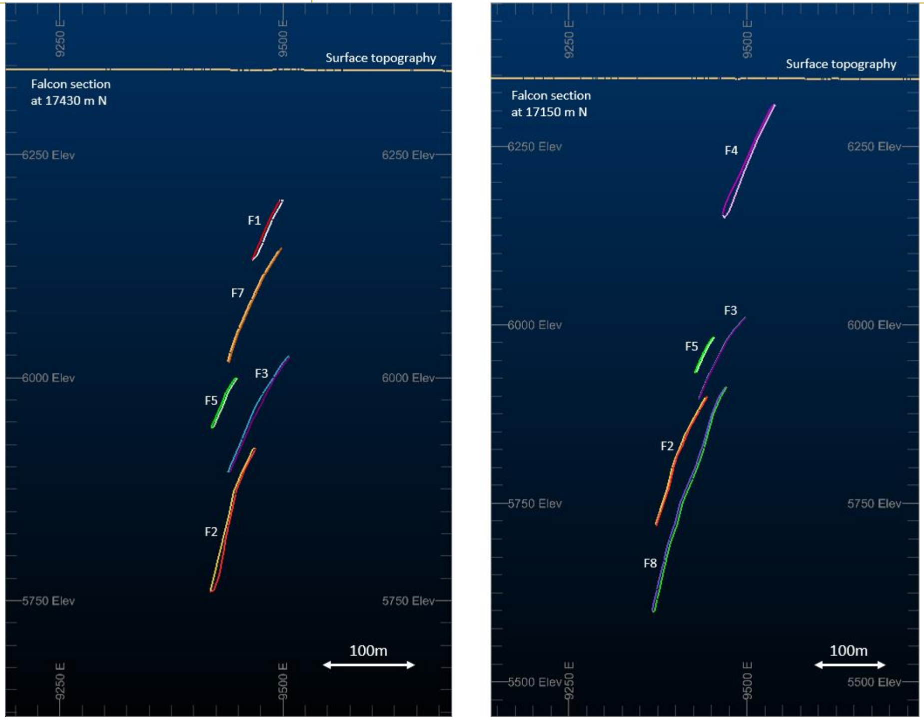

Figure 1. Cross section views of Falcon ore lodes

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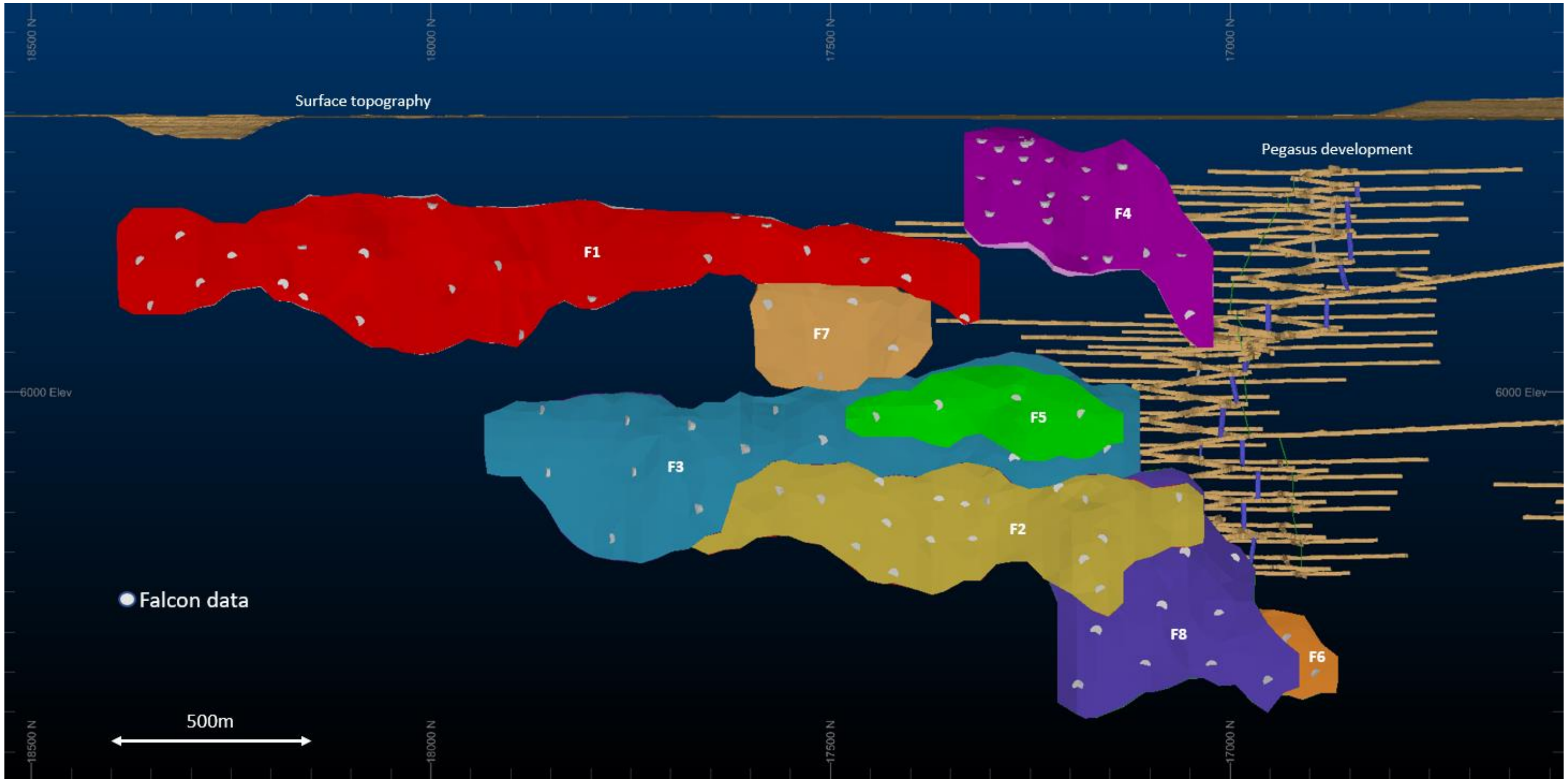

Figure 2. Long section view looking east of the Falcon deposit and data used for estimation

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Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data are 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-tool 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 RM 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 including: • Empty table checks to ensure all relevant fields are populated • Unique collar location check, • Distances between consecutive surveys is no more than 50m 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. In addition to being validated, drill holes are assigned a Data Class, which provides a secondary level of confidence in the quality of the data. A review of all the historic data for Falcon was undertaken in 2019 and Data Class (DC) values from 0 - 3 assigned, criteria summarised below: DC 3 = Recent data; all data high quality, validated and all original data available. DC 2 = Historic data; may or may not have all data in AcQuire or hard copy available but has proximity to recent drilling which confirms the dip, width and tenor. Used to assist in classification OR Recent data; minor issues with data such as QAQC fail but not proximal to the ore zone. DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling, i.e. too far away or too dissimilar dip, width and/or tenor to recent drilling. Not to be used in Resource estimate. DC 0 = Historic data; no original information or new drilling in proximity to verify. Not to be used in Resource estimate.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The geological interpretations underpinning these resource models have been prepared by geologists working in adjacent mines and in direct, daily contact with similar ore bodies. The estimation of grades was undertaken by personnel familiar with the orebody and the general style of mineralisation encountered. The Senior Resource Geologist, a competent person for reviewing and signing off on estimations of the Falcon lode maintained a presence throughout the process.
	If no site visits have been undertaken indicate why this is the case.	
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the Falcon deposit has been carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation is reasonable given the current density of data present. The interpretation of the Falcon mineralised envelopes was conducted using the sectional interpretation method in Datamine RM software. Sectional interpretation was completed at approximately 20 m spacing in cross-section. 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 drill holes (lithology, assay and structural data), regional structural models and adjacent analogous deposits.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the wide data spacing, alternative interpretations have been considered. This includes a single steep mineralised trends (as opposed to the current 'stacked' moderately dipping lodes) aligned with regional foliations. The chosen interpretation fits with known local structural trends (i.e. Pode-style mineralisation), although only future data addition will confirm. This has been considered when applying Resource Classification to the MRE and has been clearly stated in all documentation around this model release.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the main Falcon structures is based predominantly on moderate to steep dipping mineralised shears within the host unit. Current understanding is that the interbedded siltstone/sandstone forms a rheological control to mineralisation, and these have been viewed as the truncating structures to the east and west of the stacked Falcon lodes. Continuity of structure and mineralisation style along-strike and down-dip is required for at least three consecutive holes along the expected orientation of the mineralised trend for a mineralised envelope to be created for estimation.

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Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Individual mineralised envelopes are thought to be reasonably continuous at the current drill spacing, as similar mineralisation styles, structures and grade tenor exists between adjacent drill holes. Additional drill data is required to confirm this assumption, and this has been considered when applying Resource Classification to the MRE and has been clearly stated in all documentation around this model release. Offsetting structures are not present in the adjacent Pode deposit although significant undulations exist which may have some impact on continuity of the mineralised trends and metal estimated within. Mineralised envelopes for Falcon are confined to the interbedded sandstone/siltstone (SASL) lithological unit. Contacts to the east with Bent Tree basalt and to west with Black Flags intermediate volcaniclastic form the bounding structures for the Falcon mineralisation.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Mineralisation has been modelled at Falcon over a strike length of 1,500 m. Individual mineralised envelopes range from 200 m to 1000 m along strike and from 50 to 300 metres down dip. Mineralised envelope true widths range from 0.5 m to 8 m. Mineralisation is known to occur from the base of cover to around 750 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.	Multiple estimation methodologies have been tested to ascertain the sensitivity of the estimates to various input parameters, including top-cut, influence limitation model block size and kriging neighbourhood. This test work was completed on the Falc4 lode, which has the highest density of data present. The variability between estimates was ~50%, which suggests the requirement for greater data density to improve geological confidence before an Indicated Resource can be released. In order to combat the variability in dip and dip direction a two-dimensional approach has been used for sample selection. Samples and blocks are transformed into two-dimensional space (a single plane in the Y-Z orientation), the estimate is completed in this space, then samples and blocks are back-transformed to their original position. This back-transformation is checked to ensure it agrees with the original position of the wireframe. This methodology negates the requirement for dynamic anisotropy and allows the variogram to be used to estimate grade in the major (down plunge) and semi-major (down dip) orientations. The downside of the two-dimensional approach is the inability of the estimate to reflect variability across the lode. To combat this, a proportional estimate has been used for final grade calculation. Firstly, a ‘categorical estimate’ is completed on a grade cut-off of 0.30 g/t (0.75 g/t for the Falc4 lode). This cut-off grade has been determined by looking for a break in the grade distribution. There is low variability in this grade between Falcon lodes, so the 0.30 g/t cut-off has been used across all lodes (except Falc4). Blocks above 0.30 g/t are coded with ‘1’ and blocks below with ‘0’. An estimate is completed on the binary values to ascertain the probability of the block being above the grade cut-off. For instance, if the block estimate returned 0.65, the assumption would be that 65% of that block volume would be above the 0.30 g/t cut-off grade. Following this, two separate data sets are created. One contains all samples above 0.30 g/t and the other all samples below 0.30 g/t. These two data sets are used individually to estimate a high-grade and low-grade model. For lodes with few sample points, or lodes where it was not possible to create a coherent variogram model, Inverse Distance was used for both the proportional and grade estimates. For all other lodes, Ordinary Kriging was used. The final model is created by summing the products of the block proportion estimate and high- and low-grade estimates. FINAL_AU = (PROPORTION*HG_ESTIMATE) +(PROPORTION*LG_ESTIMATE) Note this final estimate is a weighted combination of these two models, which returns a single gold grade for the original block. All estimation uses a three-pass search strategy and have been completed in Datamine RM v 1.4 software. As all estimates use data transformed into two-dimensional space, the direction 3 search has been manipulated to equal the direction 1 search. Lode-specific estimation parameters are outlined below. Falc1 – No top-cut applied as no anomalous samples present and coefficient of variance within acceptable range. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the south. For categorical estimate, search ranges of 200 m in directions 1 and 3 and 150 m in direction 2 were used. Three passes were used for estimation with distances based on variography. The first pass had a minimum of 5 samples and a maximum of 8 samples. The second pass doubled the ranges, kept the same minimum number of samples and increased the maximum number of samples to 10. The third pass increased the search range to 5 times the original ranges, kept the same minimum number of samples and increased the max number of samples to 12 samples. A restriction of 7 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the ranges, increased the minimum number of samples to 6 and kept the same maximum number of samples. For the LG estimate, the third pass increased the minimum number of samples to 8 and kept the same maximum number of samples. No third pass was required for the HG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, a restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. A generic variogram has been used to estimate the HG and LG models. Falc2 – Data was top cut to 20 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the south. For categorical estimate, search ranges of 150 m in directions 1 and 3 and 120 m in direction 2 were used. Three passes were used for estimation

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Criteria	JORC Code explanation	Commentary
		with distances based on variography. The first pass had a minimum of 5 samples and a maximum of 8 samples. The second pass doubled the ranges, kept the same minimum number of samples and increased the maximum number of samples to 10. The third pass increased the search range to 5 times the original ranges, kept the same minimum number of samples and increased the max number of samples to 12 samples. A restriction of 7 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the ranges, increased the minimum number of samples to 6 and kept the same maximum number of samples. For the LG estimate, the third pass increased the minimum number of samples to 8 and kept the same maximum number of samples. No third pass was required for the HG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, a restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. A generic variogram has been used to estimate the HG and LG models. **Falc3** – Data was top cut to 15 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging shallowly to the south. For categorical estimate, search ranges of 200 m in directions 1 and 3 and 150 m in direction 2 were used. Three passes were used for estimation with distances based on variography. The first pass had a minimum of 5 samples and a maximum of 8 samples. The second pass doubled the ranges, kept the same minimum number of samples and increased the maximum number of samples to 10. The third pass increased the search range to 5 times the original ranges, kept the same minimum number of samples and increased the max number of samples to 12 samples. A restriction of 7 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the ranges, increased the minimum number of samples to 6 and kept the same maximum number of samples. For the LG estimate, the third pass increased the minimum number of samples to 8 and kept the same maximum number of samples. No third pass was required for the HG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, a restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. A generic variogram has been used to estimate the HG and LG models. **Falc4** – Data was top cut to 15 g/t using the influence limitation approach. In addition to this, a hard top cut of 40 g/t has been applied to limit impact of genuine outliers on the influence limitation model. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the south. For categorical estimate, search ranges of 200 m in directions 1 and 3 and 150 m in direction 2 were used. Only one pass was used for estimation as all blocks were able to be estimated within the variogram range. A minimum of 4 samples and a maximum of 10 samples were used. A restriction of 7 samples has been applied based on the BHID, which ensured that at least two holes were used for the estimate. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the ranges, increased the minimum number of samples to 6 and kept the same maximum number of samples. For the LG estimate, the third pass increased the minimum number of samples to 8 and kept the same maximum number of samples. No third pass was required for the HG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, a restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. A generic variogram has been used to estimate the HG and LG models. **Falc5** – No top-cut applied as no anomalous samples present and coefficient of variance within acceptable range. No variography was completed for the Falc5 lode as not enough sets of data points were available for realistic variogram calculation. An ID^2 model was used to inform all Falc5 block estimates. Grade continuity trend has been inferred from nearby lodes as being moderately south plunging. For categorical estimate, search ranges of 300 m in directions 1 and 3 and 100 m in direction 2 were used with anisotropy chosen to suit lode orientation and style. Two passes were used for estimation with distances based on adjacent lodes. The first pass had a minimum of 5 samples and a maximum of 8 samples. The second pass doubled the ranges and kept the same minimum and maximum number of samples. No sample restriction was applied for the categorial estimate as the Falc5 lode is narrow and, in all cases, multiple holes inform blocks. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the range for the HG estimate and increased by a factor of 5 for the LG estimate. Minimum and maximum number of samples stayed the same. For the HG estimate, the third pass second pass multiplied the range by a factor of 10, while the minimum number of samples increased the to 8. The maximum number of samples was unchanged at 10. No third pass was required for the LG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, no sample restriction was applied as the Falc5 lode is narrow and multiple holes are informing all block estimates. **Falc6** – Data was top cut to 15 g/t using the influence limitation approach. No variography was completed for the Falc6 lode as not enough sets of data points were available for realistic variogram calculation. An ID^2 model was used to inform all Falc6 block estimates. Grade continuity trend has been inferred from nearby lodes as being moderately south plunging. For categorical estimate, search ranges of 150 m in directions 1 and 3 and 100 m in direction 2 were used with anisotropy chosen to suit lode orientation and style. One pass was used for estimation with distances based on adjacent lodes. The first pass had a minimum of 5 samples and a maximum of 8 samples. No second or third pass was required for the categorical estimate as all blocks were filled in the first pass. No sample restriction was applied for the categorial estimate as the Falc5 lode is narrow and, in all cases, multiple holes inform blocks. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the range, while the minimum and maximum number of samples stayed the same. No third pass was required for either the HG or LG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, no sample restriction was applied as the Falc5 lode is narrow and multiple holes are informing all block estimates. **Falc7** – Data was top cut to 5 g/t using the influence limitation approach. No variography was completed for the Falc7 lode as not enough sets of data points were available for realistic variogram calculation. An ID^2 model was used to inform all Falc7 block estimates. Grade continuity trend has been inferred from nearby lodes as being moderately south plunging. For categorical estimate, search ranges of 150 m in directions 1 and 3 and 100 m in direction 2 were used with anisotropy chosen to suit lode orientation and style. One pass was used for estimation with distances based on adjacent lodes. The first pass had a minimum of 5 samples and a maximum of 8 samples. No second or third pass was required for the categorical estimate as all blocks were filled in the first pass. No sample restriction was applied for the categorial estimate as the Falc5 lode is narrow

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Criteria	JORC Code explanation	Commentary
		and, in all cases, multiple holes inform blocks. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the range, while the minimum and maximum number of samples stayed the same. No third pass was required for either the HG or LG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, no sample restriction was applied as the Falc5 lode is narrow and multiple holes are informing all block estimates. **Falc8** – Data was top cut to 50 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the south. For categorical estimate, search ranges of 300 m in directions 1 and 3 and 200 m in direction 2 were used. One pass was used for estimation with distances based on adjacent lodes. The first pass had a minimum of 5 samples and a maximum of 8 samples. No second or third pass was required for the categorical estimate as all blocks were filled in the first pass. A restriction of 7 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. LG and HG data set estimates use the same search ranges as the categorical estimate above. The first pass had a minimum of 4 samples and a maximum of 10 samples. The second pass doubled the range, while the minimum and maximum number of samples stayed the same. No third pass was required for either the HG or LG estimate as all blocks were filled in the second pass. For both the HG and LG estimate, a restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for the estimate. A generic variogram has been used to estimate the HG and LG models.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Check estimates have been completed for all lodes. These include conventional Ordinary Kriging (OK) in three-dimensional space with search from variography (with and without dynamic anisotropy applied), conventional Ordinary Kriging (OK) with data and model transformed into two-dimensional space, OK with a generic variogram and isotropic search, Inverse Distance (ID) and Nearest Neighbour (NN) estimates.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding recovery of any by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements have been considered or estimated for this deposit.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Data spacing for the Falcon deposit varies from 40 x 40 m to 120 x 120 m. For all lodes, a block size of 10 x 10 x 10 m has been chosen. 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.	No selective mining units are assumed in this estimate.
	Any assumptions about correlation between variables.	No other elements other than gold have been estimated.
	Description of how the geological interpretation was used to control the resource estimates.	Hangingwall and footwall wireframe surfaces were created using sectional interpretation for each of the Falcon mineralised envelopes. These wireframes are then combined and closed to make a solid which is in turn used to control the volume and samples used to estimate each lode. For mine planning purposes a waste model is created by projecting the hangingwall and footwall surfaces 15 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 to ensure consistency in MSO Resource Classification reporting.
	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; these vary by domain (ranging from 5 to 50 g/t for individual domains). The top cut values are applied in several steps, using a technique called influence limitation top cutting. 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. 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 variogram, and the *_BC values estimated using very small ranges (e.g. 5 m x 5 m x 5 m). Where the *_BC values produce estimated blocks within these restricted ranges, the *_NC estimated values replace the original top cut estimated values (AU). The application of the top-cuts has not resulted in a significant decrease in the mean grade from the un-cut to top-cut data. Hard top cuts were applied to the Falc4 lode while the remainder of the lodes used influence limitation top cuts.

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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 estimation performance, such as the Slope of Regression, are used to assess the quality of the estimation for each domain. Differences in the global grade of the declustered composite data set and the average model grade were within 10%, or justification for a difference outside 10% was explicable. Swath plots comparing composites to block model grades are prepared and reviewed. Plots are also 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 2.34 g/t cut off within 2.5 m minimum mining width (excluding dilution) MSO's using a $A1,750/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.	No metallurgical assumptions have been made during the resource wireframing or estimation process.
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 Falcon 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 or Inverse Distance Squared, 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 for Falcon.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Assumptions on the average bulk density of individual lithologies from the regional data set. 21,549 bulk density samples have been used. Results are in line with regional expectations. Default densities have been applied to oxide (1.9t/m^3) and transitional (2.3t/m^3) material, due to lack of data in this area. These values are in line with regional averages.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
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, based on the new Data Class system
	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.	The Resource model has 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 as robust and representative of the Pode style 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.	This resource report relates to the Falcon deposit. The model 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 reconciliation factors are applied to the resource post-modelling.

APPENDIX 2: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Golden Hind: Resources and Reserves – 30 June 2019

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>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>Sampling was completed using a combination of Reverse Circulation (RC), Rotary Air Blast (RAB) and Diamond (DD) drilling. RAB drilling was excluded in resource estimation work.
<table>
<tr><th></th><th colspan="3">Golden Hind</th></tr>
<tr><th></th><th># of Holes</th><th>Total m's</th><th># of Samples</th></tr>
<tr><td>DD</td><td>41</td><td>16,437</td><td>14,654</td></tr>
<tr><td>RAB</td><td>1</td><td>14</td><td>8</td></tr>
<tr><td>RC</td><td>84</td><td>8,291</td><td>7,529</td></tr>
<tr><td>RC_DD</td><td>11</td><td>3,662</td><td>2,784</td></tr>
<tr><td>Total</td><td>137</td><td>28,404</td><td>24,975</td></tr>
</table></td></tr>
<tr><td></td><td>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</td><td>RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay.
Diamond core was placed in core trays for logging and sampling. Half core samples were nominated by the geologist from diamond core with a minimum sample width of either 20 cm (HQ) or 30 cm (NQ2).</td></tr>
<tr><td></td><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>RC sampling was split using a rig mounted cone splitter to deliver a sample of approximately 3 kg
DD drill core was cut in half using an automated core saw, where the mass of material collected will vary on the hole diameter and sampling interval
All samples were delivered to a commercial laboratory where they were dried, crushed to 90% passing 3 mm if required, at this point large samples may be split using a rotary splitter, pulverisation to 90% 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 Reverse Circulation and Diamond Drilling techniques were used to drill the Falcon deposit.
Surface diamond drill holes were predominantly completed using HQ2 (63.5 mm) coring.
Historically, 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.
In limited cases, RC pre-collars were drilled, followed by diamond tails. Pre-collar depth was determined in the drill design phase.</td></tr>
<tr><td>Drill sample recovery</td><td>Method of recording and assessing core and chip sample recoveries and results assessed.</td><td>Any core loss in diamond drilling 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.
Moisture content and sample recovery is recorded for each RC sample</td></tr>
<tr><td></td><td>Measures taken to maximise sample recovery and ensure representative nature of the samples.</td><td>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.</td></tr>
<tr><td></td><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 of the ore lode is challenging at Golden Hind, with the brittle quartz vein RMV lode adjacent to the much softer RMS lode. Triple tubing has been employed by the drilling contractor in order to alleviate concerns around recovery although, due in part to the nature of the material being drilled and to the drill orientation oblique to the target structure, core loss is still a challenge. In order to mitigate the impacts on the estimate, samples which have logged core loss through the ore zone are excluded.</td></tr>
<tr><td>Logging</td><td>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.</td><td>All diamond core is logged for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones.
RC sample chips are logged in 1 m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded.
All logging codes for regolith, lithology, veining, alteration, mineralisation and structure is entered into the AcQuire database using suitable pre-set dropdown codes to remove the likelihood of human error.</td></tr>
</table>

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.
	The total length and percentage of the relevant intersections logged.	In all instances, the entire drill hole is 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. In most cases, half the core is taken for sampling with the remaining half being stored for later reference. Full core sampling is taken where data density of half core stored is sufficient for auditing purposes.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	As a majority of the data in the Golden Hind data set is historic, it is unknown what sampling methodology was used for these historic RC and RAB samples. For more recent RC drilling (2015 onwards), RC samples were 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 mineralisation and from any areas identified as having anomalous gold. Outside known mineralised 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.	As a majority of the data in the Golden Hind data set is historic, it is unknown what sample preparation methodology was used. For more recent data (2015 onwards), preparation of samples was conducted at Bureau Veritas' Kalgoorlie facilities. Sample preparation commences 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.	As a majority of the data in the Golden Hind data set is historic, it is unknown what quality control procedures were used. For more recent data (2015 onwards), 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.	As a majority of the data in the Golden Hind data set is historic, it is unknown if any umpire assay campaigns have been completed. None were completed in this reporting period.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material being sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	As a majority of the data in the Golden Hind data set is historic, it is unknown what assaying methodology has been used. For more recent data, a 40 g fire assay charge for is used with a lead flux 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.	As a majority of the data in the Golden Hind data set is historic, it is unknown what QC procedures have been used. Procedure below refers to data included since 2015. 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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
		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' suffix. 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 non-editable 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.	As a majority of the data in the Golden Hind data set is historic, it is unknown what QC procedures have been used. Procedure below refers to data included since 2015. Planned hole collars are pegged using a Differential GPS by the field assistants. The final collar is picked up after hole completion by Cardno Survey with a Real Time Kinematic Differential Global Positioning System (RTKDGPS) in the MGA 94_51 grid. During drilling single-shot surveys are conducted every 30 m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system which measures the gravitational dip and magnetic azimuth results are uploaded directly from the Reflex software export into the Acquire database. At the completion of diamond drilling the DeviFlex RAPID continuous in-rod survey instrument taking readings every 2 seconds, In and Out runs and reported in 3 m intervals was also used along with DeviSight GPS compass for surface alignment application True North Azimuth, DIP, latitude and longitude coordinates for set up.
	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, with majority of drilling between 120 x 120 m and 40 x 40 m spacing.
	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 estimate.
	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.	Most of the structures in the Kundana area dip steeply (80°) to the west (local grid). Golden Hind dips at a shallower angle of 55° to the west. Diamond drilling was designed to target the ore bodies perpendicular to this orientation to allow for a favourable 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.

APPENDIX 2: TABLE 1

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 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 Golden Hind 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 Golden Hind 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. Golden Hind ore lodes are located along the Strzelecki structure. The majority of mineralisation consists of narrow, laminated quartz veining on the contact between 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: ○ easting and northing of the drill hole collar ○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ○ dip and azimuth of the hole ○ down hole length and interception depth ○ hole length.	A summary of the data present in the Golden Hind deposit can be found above. The collar locations are presented in plots contained in the NSR 2019 resource report. Drill holes vary in survey dip from -42 to -90, with hole depths ranging from 14 m to 1,068 m, and having an average depth of 180 m. The assay data acquired from these holes are described in the NSR 2019 resource report. All of 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.	
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 < 2.0 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 2019 resource report.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
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.
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).	There are no plans for drilling at Golden Hind in FY19-20, although this does not preclude future drilling to extend 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 are 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-tool 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 RM 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 including: Empty table checks to ensure all relevant fields are populated Unique collar location check, Distances between consecutive surveys is no more than 50m 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. In addition to being validated, drill holes are assigned a Data Class, which provides a secondary level of confidence in the quality of the data. A review of all the historic data for Falcon was undertaken in 2019 and Data Class (DC) values from 0 - 3 assigned, criteria summarised below: • DC 3 = Recent data; all data high quality, validated and all original data available. • DC 2 = Historic data; may or may not have all data in AcQuire or hard copy available but has proximity to recent drilling which confirms the dip, width and tenor. Used to assist in classification OR Recent data; minor issues with data such as QAQC fail but not proximal to the ore zone. • DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling, i.e. too far away or too dissimilar dip, width and/or tenor to recent drilling. Not to be used in Resource estimate. • DC 0 = Historic data; no original information or new drilling in proximity to verify. Not to be used in Resource estimate.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The geological interpretations underpinning these resource models have been prepared by geologists working in adjacent mines and in direct, daily contact with similar ore bodies. The estimation of grades was undertaken by personnel familiar with the orebody and the general style of mineralisation encountered. The Senior Resource Geologist, a competent person for reviewing and signing off on estimations of the Golden Hind lode maintained a presence throughout the process.

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Criteria	JORC Code explanation	Commentary
	If no site visits have been undertaken indicate why this is the case.	
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the Golden Hind deposit has been carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation in the South is high and is supported with information acquired from drilling. Towards the Northern end of the mineralisation the structure between Sir Walter and Golden Hind is not as well understood. The interpretation of the Golden Hind mineralisation wireframe was conducted using the sectional interpretation method in Vulcan software. Sectional interpretation was completed in vertical east-west sections at approximately 40 m spacing where the drill density was good, and at approximately 80m spacing in the North where the drill density data was sparser. 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 drill holes and regional structural models.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the consistency of the structure conveyed by this dataset, and knowledge from the adjacent Raleigh deposit, no alternative interpretations have been considered.
	The use of geology in guiding and controlling Mineral Resource estimation.	Golden Hind is an extension of the Raleigh Main Vein (RMV) hosted in the Strzelecki Structure, and is located to the south of Raleigh South/Sir Walter. The continuity of the RMV from Sir Walter to Golden Hind is not well understood currently, and the northern extent of the Golden Hind wireframe will be updated following completion of the 2018 Sir Walter drilling. 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 RMV was constrained to high-grade intercepts hosted within the Raleigh Main Vein, with all holes with available photography reviewed for lithology logging. The RMS was identified as a lower-grade halo surrounding the RMV, usually hosted in brecciated Volcaniclastics or Andesite. The RMS was not always present within the drilling, and so was modelled as coincident with the RMV when halo grades were absent, to eliminate overestimation of the volume.
	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.
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 Golden Hind structure is approximately 1500 m and is restricted by lack of validated drilling to the north and diamond drilling at depth. The Golden Hind mineralisation occurs in a major regional shear system, the Strzelecki structure, extending over 10s of kilometres. The Golden Hind RMV varies in width but is typically in the range of 0.1 to 1 m. Mineralisation is known to occur from the base of cover to around 900 m below surface in the region.
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 Golden Hind RMV and RMS mineralisation used full length composites with direct grade estimation of gold. The primary method of estimation was by Ordinary Kriging (unless otherwise stated), utilising a three pass search strategy using Datamine Studio RM v 1.4 software. Details of the estimation parameters for each mineralisation zone are summarised below. RMV - divided into two subdomains RMV Central and RMV North, with RMV Central further subdomained based on data density; high data density (drilling less than 40 m by 40 m) and lower density (drill spacing greater than 40 m by 40 m). RMV Central and RMV north were analysed and estimated separately. For RMV central a hard top cut of 100 g/t Au was applied and also the top cut influence limitation approach at 60 g/t Au. No top cut was applied to RMV north. Once top cut, variography was completed on the RMV Central domain composites, indicating grade continuity in the south plunge direction. No variography was completed for the RMV North domain due to the low number of samples (22 total). The RMV central domain data had a search range of 300 m in direction 1 and 260 m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of 12 samples and a maximum of 17 samples for the high and low-density subdomains. The second pass doubled the ranges, the minimum number of samples was 8 and the max number of samples 15. The third pass increased the search range to 4 times the original ranges, reducing the minimum number of samples to 4 and the max number of samples at 15. Estimation was completed using a soft boundary between the high and low-density subdomains. No restrictions by drill hole or drill hole type have been applied. The RMV north domain was estimated using Inverse distance squared method, the search range was 120 m by 90 m. Three passes were used, the first pass had a minimum of 5 and a minimum of 10 samples, the second pass doubled the range and decreased the minimum to 2 samples with a maximum of 7, the third pass multiplied the original ellipse by 6 times, using a minimum of 2 and maximum of 7. No restrictions by drill hole or drill hole type have been applied. RMS - the RMS domain was analysed, and no top cut applied. Variography was completed on the full-length composite file and indicated grade continuity in the north plunge direction, although fairly isotropic. The RMS domain data had a search range of 200 m in direction 1 and 190 m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of 7 samples and a maximum of 12 samples. The second pass doubled the ranges and reduced the minimum number of samples to 5 keeping the max number of samples at 15. The third pass increased the search range to 4 times the original ranges, reducing the minimum number of samples to 2 and keeping the maximum number of samples at 15. No restrictions by drill hole or drill hole type have been applied.

APPENDIX 2: TABLE 1

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.	All mineralisation zones had check estimates using Inverse Distance power of 2 (ID2) and Nearest Neighbour (NN) completed as a comparison. Full length versus fixed length composites were also compared.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding recovery of any by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements have been considered and therefore estimated for this deposit.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The data spacing varies considerably within the deposit ranging from closed spaced drilling 40 m (along strike) and 40 m (down dip) through to more widely spaced intercepts at over 80 m (along strike) and 80 m (down dip). As such, the block sizes varied depending on sample density. In areas of where the close spaced data existed, a 10 m x 10 m x 10 m block size was chosen. For lower density drilling with wider spacing a block size of 20 m x 20 m x 20 m was selected. 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.	No selective mining units are assumed in this estimate.
	Any assumptions about correlation between variables.	No other elements other than gold have been estimated.
	Description of how the geological interpretation was used to control the resource estimates.	Closed volume wireframes have been created using sectional interpretation. These were used to define the RMV and RMS mineralised zones based on the shearing, veins and gold grade. RMV (Golden Hind) steeply dipping structure with quartz veining evident from drilling. RMS lower grade halo (Golden Hind)- Steeply dipping sheared structure usually hosted in brecciated volcaniclastics. For mine planning purposes a waste model is created by making a waste solid wireframe approximately 30 m either side of the mineralisation. A default grade of 0.1 g/t is assigned and the same resource classification as the adjacent ore lode is applied to ensure consistency in MSO Resource Classification reporting.
	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; these vary by domain. The top cut values are applied in several steps, using a technique called influence limitation top cutting. 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. 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 variogram, and the *_BC values estimated using very small ranges (e.g. 5 m x 5 m x 5 m). 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 estimation performance, such as the Slope of Regression have been used to assess the quality of the estimation for each domain. Differences in the global grade of the declustered composite data set and the average model grade were within 10%, or justification for a difference outside 10% was explicable. Swath plots comparing composites to block model grades are prepared and reviewed. Plots are also prepared summarising the critical model parameters. Visually, block grades are assessed against drill hole data.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	The tonnes have been 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 2.0 g/t cut off within 2.5 m minimum mining width (excluding dilution) MSO's using a $AU1750/oz gold price.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	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.	No metallurgical assumptions have been made during the resource wireframing or estimation process.
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 Golden Hind 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 2.7 t/m³ was applied. Density was then estimated by Ordinary Kriging or Inverse Distance Squared, 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 502 bulk density measurements at Golden Hind. Assumptions were also made based on regional averages, on the default density applied to oxide (1.8 t/m³) and transitional (2.3 t/m³) material, due to lack of data in this area.
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, based on the new Data Class system
	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.	The Resource model has been subjected to internal peer reviews.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	The mineral resource estimate is considered robust and representative of the Golden Hind style of the RMV 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 Golden Hind deposit. The model 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 reconciliation factors are applied to the resource post-modelling.

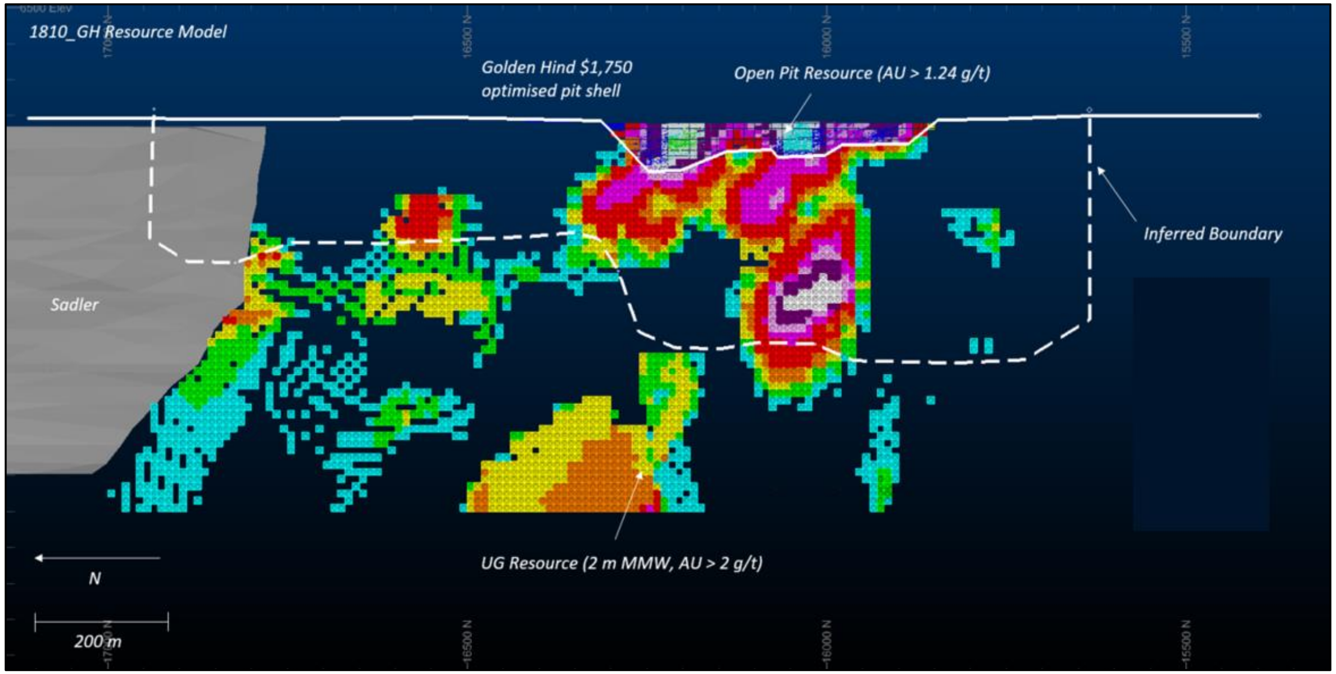

Figure 1. Long section view of the Golden Hind deposit

APPENDIX 2: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Kundana Area Deposits (Drake, Pegasus, Rubicon and Hornet): Resources and Reserves – 30 June 2019

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; underground and surface diamond drilling (DD), surface reverse circulation drilling (RC) and face channel (FC) sampling. Rotary air blast (RAB) holes were excluded from the estimate. Where sufficient DD holes were present, RC holes were also excluded.
<table>
<tr><th></th><th colspan="3">Drake</th><th colspan="3">Pegasus</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># of Samples</th><th># of Holes</th><th>Total m's</th><th># of Samples</th><th># of Holes</th><th>Total m's</th><th># of Samples</th><th># of Holes</th><th>Total m's</th><th># of Samples</th></tr>
<tr><td>DD</td><td>17</td><td>8,538</td><td>4,264</td><td>369</td><td>119,133</td><td>77,672</td><td>414</td><td>90,856</td><td>65,782</td><td>647</td><td>147,725</td><td>100,542</td></tr>
<tr><td>FS</td><td></td><td></td><td></td><td>2,802</td><td>13,135</td><td>22,977</td><td>1,439</td><td>6,649</td><td>11,766</td><td>3,049</td><td>14,121</td><td>23,604</td></tr>
<tr><td>RC</td><td>41</td><td>5,219</td><td>3,829</td><td>84</td><td>8,429</td><td>5,136</td><td>5</td><td>392</td><td>186</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>RC_DD</td><td>1</td><td>365</td><td>368</td><td>44</td><td>15,914</td><td>10,203</td><td>13</td><td>3,665</td><td>2,749</td><td>1</td><td>243</td><td>141</td></tr>
<tr><td>Total</td><td>59</td><td>14,122</td><td>8,461</td><td>3,299</td><td>156,611</td><td>115,988</td><td>1,871</td><td>101,562</td><td>80,483</td><td>3,697</td><td>162,089</td><td>124,287</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 using an automated core saw. The mass of material collected was dependent 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 and crushed to 90% of material ≤3 mm. At this point large samples were split using a rotary splitter, then pulverised to 90% ≤75 µm.
For FY19 a 40 g charge was selected for fire assay of diamond drill hole samples, and a 20 g charge for face samples.</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 Reverse Circulation 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 were 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>Contractors adjust the rate and method off drilling 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>
<tr><td>Logging</td><td>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.</td><td>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.</td></tr>
</table>

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
	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. 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 is 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. Sampling and cutting methodology are dependent on the type of drilling completed. Half core is utilised for Resource targeting (RT) drilling and Resource Definition drilling (RSD). Some RSD holes have been whole core sampled due to production pressures. Grade Control drilling (GC) is whole core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	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 mineralisation and from any areas identified as having anomalous gold. Outside known mineralised 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 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% ≤75 µm, using a Labtechnics LM5 bowl pulveriser. 400 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.	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 laboratory for processing. Umpire samples of faces were analysed using a 40g charge weight.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material being sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40 g fire assay charge for diamond drill holes and a 20 g charge for face samples is used with a lead flux 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 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 nominal 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.
	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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	The use of twinned holes.	No twinned holes were drilled at RHP/Drake. Re-drilling of some drill holes has occurred due to issues downhole (e.g. bogged rods). These have been captured in the database with an 'A' suffix. 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 non-editable 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. 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 Devi Shot 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 DeviFlex non-magnetic strain gauge instrument) survey is completed, taking measurements every 3 m to ensure accuracy of the hole. This is 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. Resource Targeting (RT) drilling at an 80 x 80 m nominal spacing is infilled during Resource Definition (RSD) down to an average of 30 x 30 m. Grade control drilling follows development and is generally comprised of stab drilling from the development drive at 10 to 15 m spacing.
	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.
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.	Most of the structures in the Kundana area dip steeply (80°) to the west (local grid). Diamond drilling was designed to target the ore bodies perpendicular to this orientation to allow for a favourable intersection angle. Instances where this was not achievable (primarily due to drill platform location), drilling was not completed, or re-designed once a more 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.

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 Drake 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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	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 mineralisation 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.
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, Drake) 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 in 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: 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/Drake deposits can be found above. The collar locations are presented in plots contained in the NSR 2019 resource report. Drill holes vary in survey dip from +46 to -88 degrees, with hole depths ranging from 10 m to 1413 m, with an average depth of 244 m. The assay data acquired from these holes are described in the NSR 2019 resource report. All validated drill hole data was 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.	Excluded information is not considered material.
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 mineralised samples has been permitted in the calculation of these widths. Typically grades over 2 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').	Where a true width cannot be estimated, the intersection is noted as "downhole length"

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Criteria	JORC Code explanation	Commentary
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included at the end of this table and in the NSR 2019 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. Eleven geotechnical holes were drilled targeting several different areas through lower Rubicon and Pegasus. Holes have been designed for seismic monitoring. Holes were geologically logged to ensure no mineralisation 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 across RHP/Drake will be those down dip of current high-grade trends on the K2 ahead of development. GC drilling will also be conducted as required on a level by level basis.
	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 2019 Resource Report.
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. Eleven geotechnical holes were drilled targeting several different areas through lower Rubicon and Pegasus. Holes have been designed for seismic monitoring. Holes were geologically logged to ensure no mineralisation 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 across RHP/Drake will be those down dip of current high-grade trends on the K2 ahead of development. GC drilling will also be conducted as required on a level by level basis.
	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 2019 Resource Report.

APPENDIX 2: TABLE 1

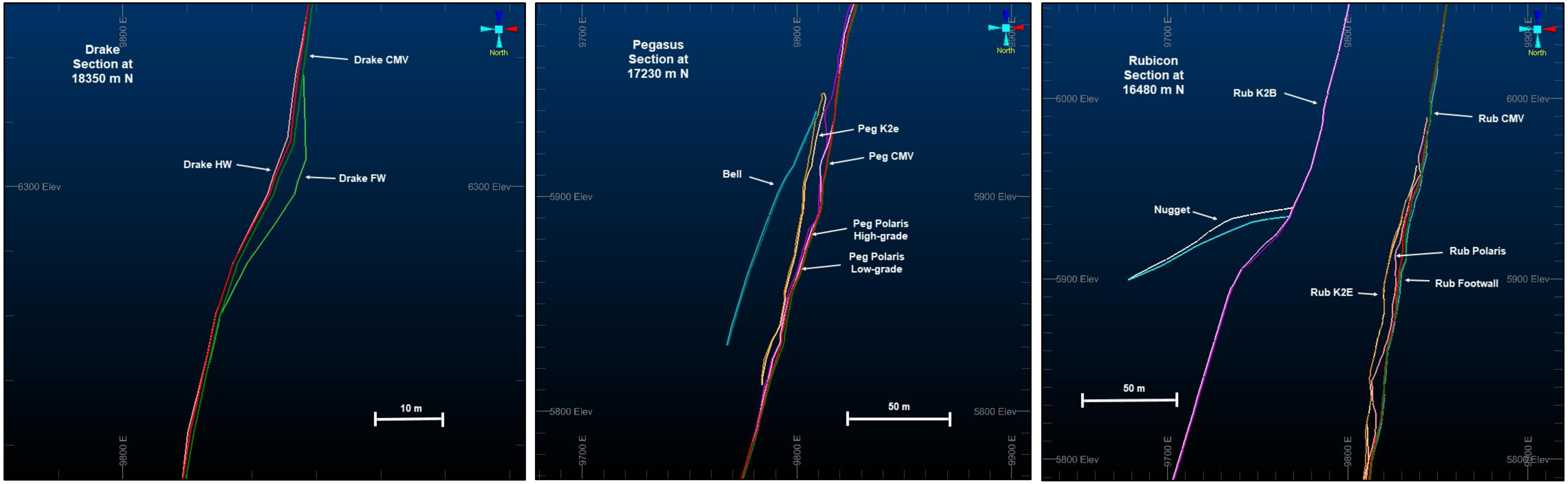

Figure 1. Cross section views of Drake, Pegasus and Rubicon ore lodes

APPENDIX 2: TABLE 1

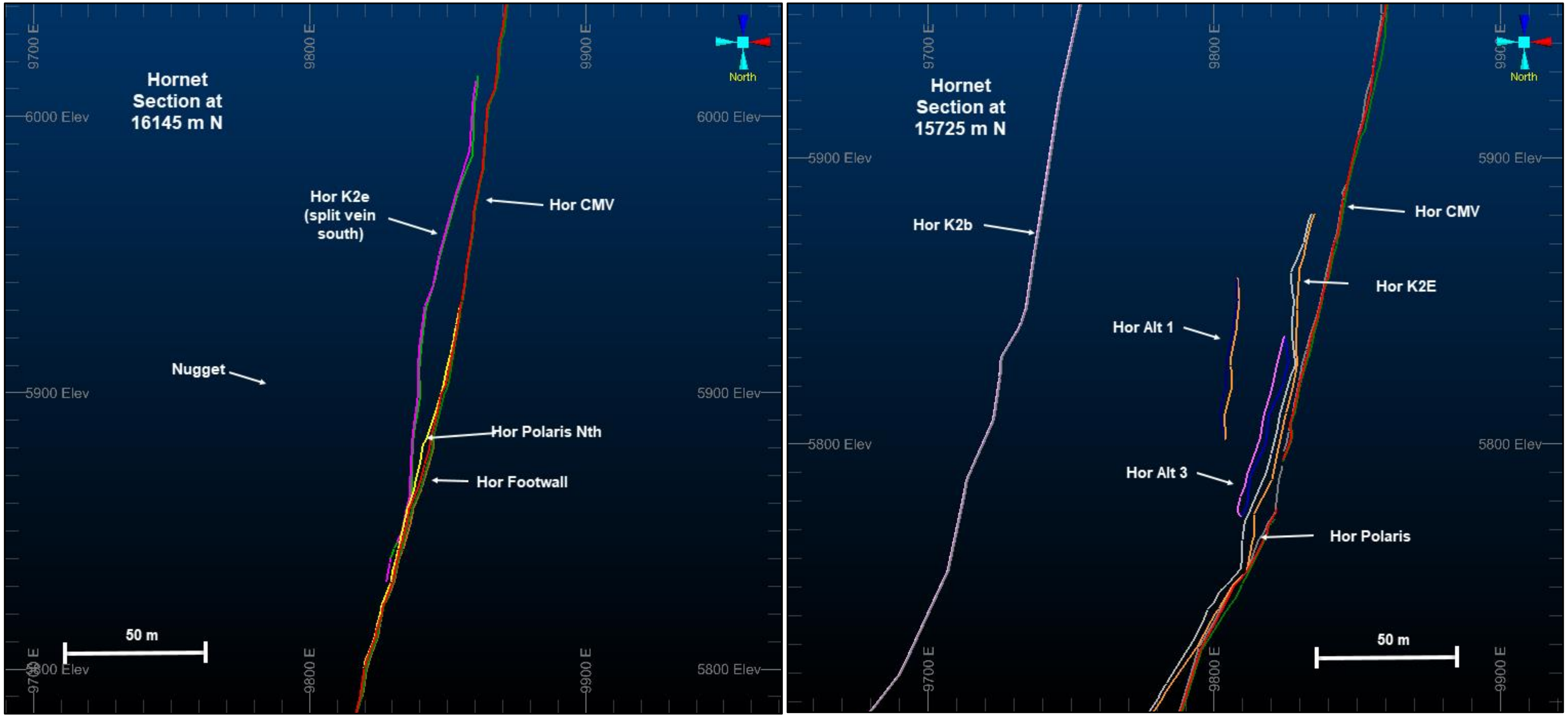

Figure 2. Cross section views of Hornet ore lodes

APPENDIX 2: TABLE 1

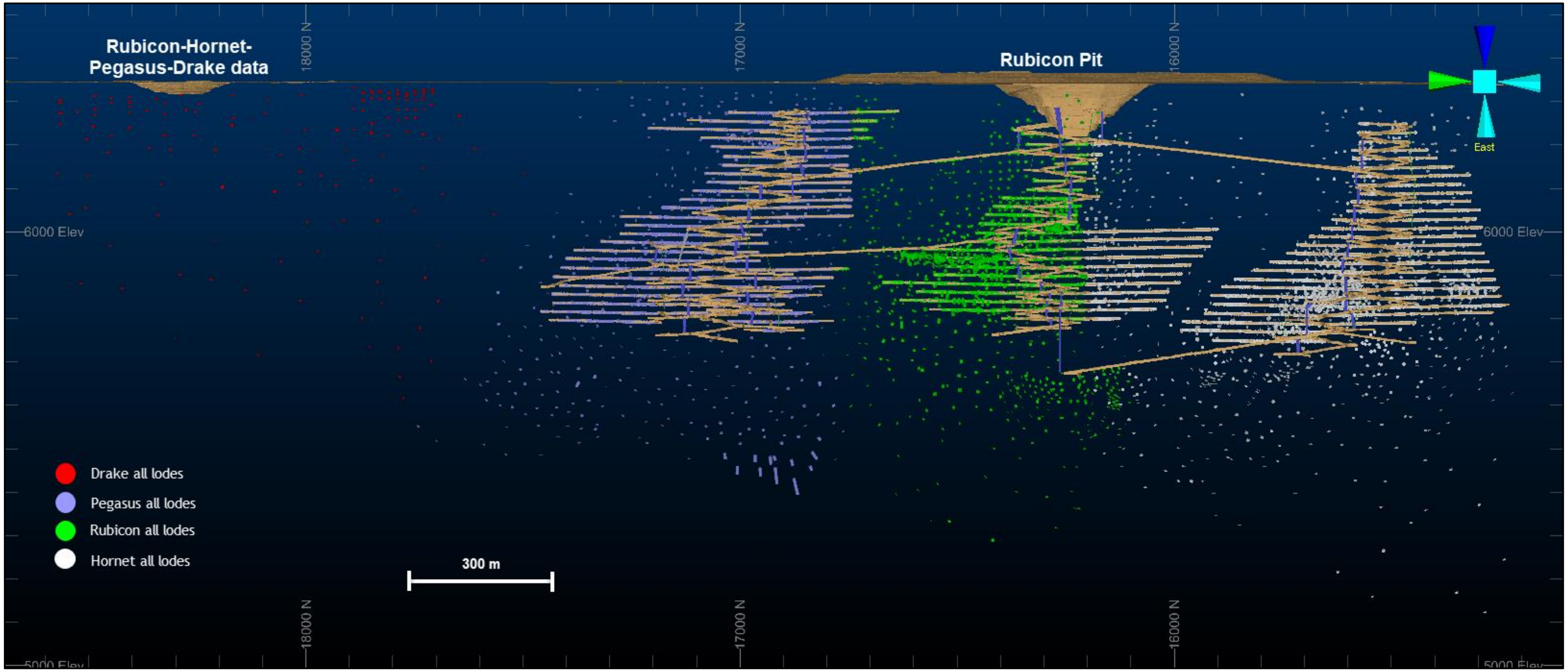

Figure 3. Long section views of Drake, Pegasus, Rubicon and Hornet ore lodes and data used in resource estimations

APPENDIX 2: TABLE 1

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 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-tool 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 metre depths recorded by the drillers. This resulted in multiple drill holes recording the intersection of the K2 several metres 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. The same sample translation method has been applied to surface drilling in between development levels which are deemed to cause an unrealistic kink in the wireframe interpretation. This is only done after a thorough investigation of the surrounding data to ensure that no secondary veining is present in the footwall or hanging wall and that no separate lodes are missed. In addition to being Resource Flagged as "Yes" or "No", drill holes are assigned a Data Class, which provides a secondary level of confidence in the data quality. Data Class (DC) values range from 0 to 3, with criteria summarised below: • DC 3 = Recent data; all data high quality, validated and all original data available. • DC 2 = Historic data; may or may not have all data in AcQuire or hard copy available but has proximity to recent drilling which confirms the dip, width and tenor. Used to assist in classification OR Recent data; minor issues with data such as QAQC fail but away from the ore zone. • DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling, i.e. too far away or dissimilar dip, width and/or tenor to recent drilling. Not to be used in Resource estimate. • DC 0 = Historic data; no original information or new drilling in proximity to verify. Not to be used in Resource estimate.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The geological interpretations underpinning these resource models were prepared by geologists working in the mine who were 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 Senior Resource Geologist, a competent person for reviewing and signing off on the RHP and Drake estimate, maintained a site presence throughout the process.
	If no site visits have been undertaken indicate why this is the case.	The Competent Person has maintained a presence onsite.

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Criteria	JORC Code explanation	Commentary
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the RHP and Drake 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 and Drake mineralised wireframes was conducted using the sectional interpretation method in Datamine RM software. All lodes have been interpreted in plan-view section. Where development levels were present, sectional interpretation was completed at approximately 5 m spacing. Where only drilling data was present, sectional interpretation was completed at approximately 10 - 20 m spacing. Checks were made to ensure that the wireframed volume agreed with the true ore widths of drill hole intersections. As a rule, wireframe extrapolation was limited to one half of the average drill spacing.
	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.	No alternative interpretations have been proposed.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the RHP and Drake mineralisation is based on the presence of mineralised structure (veining and shear), ore-bearing mineralogy (gold and associated sulphides), assayed samples and continuity between sections.
	The factors affecting continuity both of grade and geology.	Individual RHP and Drake mineralised structures are thought to be reasonably continuous at the current drill spacing, as similar mineralisation styles, structures and grade tenor exists between adjacent drill holes. Post-mineralisation dextral offsetting faults (locally called D4 structures) affect the continuity of the K2 structure. These structures are steep-dipping and the general trend is NNW-SSE. The largest is the Mary fault with a ~600 m offset. The White Foil and Poseidon faults form the bounding structures between the Hornet/Rubicon and Rubicon/Pegasus mine areas respectively. Offset on these structures varies between 1 and 10 m. Many smaller scale faults exist within the mining areas although none have a material impact on the Resource model.
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 the individual Rubicon Hornet, Pegasus and Drake CMV structures having the longest strike lengths. 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 – 3.0 m. The widest orebody is Rubicon Nugget at approximately 7 m. The narrowest is the K2B (present at Rubicon, Hornet and Pegasus) 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. The structure is open at depth.
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 Drake mineralised zones with high data-density used direct grade estimation by Ordinary Kriging (unless otherwise stated) supported by composited sample data. Composite lengths of 1 m were used for all lodes, determined from statistical analysis of all sample lengths in the estimation dataset. In smaller mineralised zones where construction of a coherent variogram was not possible, Inverse Distance has been used. All estimation was completed using Datamine RM software. Details of estimation by ore lode is summarised below: CMV (Rubicon, Hornet and Pegasus) - divided into two grade subdomains based on data density; high density around development levels and lower density for the remainder. Each domain was analysed for top cuts and had variography completed separately. Both subdomains indicate grade continuity in the NNW plunge direction. The high-density domain has search ranges between 90-100 m in direction 1, 60-100 m in direction 2 and 25-50 m in direction 3. The low-density domain has search ranges between 150 – 250 m for direction 1 and 100 – 160 m for direction 2 and 25-50 m in direction 3, Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 6 - 10 samples and a maximum of 10 - 14 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 and Drake CMV/Pegasus CMV boundary. Restrictions by drill hole have been applied to the high-density domain and restrictions by drill hole type have been applied to the low-density domain. Hornet CMV contains a third subdomain based on grade. It is a low-grade domain distinguished by shale thickening and was analysed for top cuts and had variography completed separately. It indicates grade continuity in the SSE direction with search ranges of 80 m in direction 1 and 40 m in direction 2. A minimum of 6 and a maximum of 10 samples were used in the first pass. Three passes were used. Restrictions by drill hole have been applied. 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 two domains; Polaris North situated proximal to northern Hornet development and Polaris situated proximal to southern Hornet development. 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 40 m for direction 1 and 30 m for direction 2 in the high data density domain and 110 m for direction 1 and 90 m for direction 2 in the low data density domain. Pegasus Polaris has search distances of 50 m for direction 1 and 35 m for direction 2 in the high-grade domain and search distances of 40 m for direction 1 and 30 m for direction 2 in the low-grade domain. Hornet Polaris has search distances of 45 m for direction 1 and 30 m for direction 2 in Polaris North and 35 m for direction 1 and 25 m for direction 2 in Polaris. Three passes were used in all domains. Rubicon Polaris domains used a minimum of 10 samples and a maximum of 16. Pegasus Polaris domains used a minimum of 7 samples and a maximum of 12. Hornet Polaris domains used a minimum of 7 samples and a maximum of 12. Restrictions based on drill hole type were applied to the Rubicon Polaris low density domain. Restrictions by drill hole were applied to the both Hornet Polaris domains. No restrictions were applied to Pegasus Polaris domains.

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Criteria	JORC Code explanation	Commentary
		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 two domains; A northern Hornet K2E proximal to northern Hornet development and a Hornet K2E proximal to southern Hornet development. Each domain was analysed for top cuts and had variography completed separately. Rubicon, Pegasus and Hornet Polaris indicate grade continuity plunges to the NNW. Rubicon K2E has search distances of 75 m for direction 1 and 50 m for direction 2 in the high data density domain and 150 m for direction 1 and 100 m for direction 2 in the low data density domain. Pegasus K2E has search distances of 75 m for direction 1 and 50 m for direction 2 and K2E Lower has search distances of 150 m for direction 1 and 100 m for direction 2. Both Hornet K2E domains have search distances of ~60 m for direction 1 and 40 m for direction 2. Three passes were used in all domains. In the first pass; Rubicon K2E used a minimum of 10 and a maximum of 16 samples, Pegasus K2E used a minimum of 6 and a maximum of 10 and Hornet K2E used a minimum of 8 and a maximum of 12. Estimation was completed using a soft boundary for only the Rubicon K2E high and low-density subdomains. Restrictions by drill hole type were applied to both domains in the Rubicon K2E. Restrictions by drill hole were applied to Pegasus and Hornet K2E. K2B (Rubicon and Hornet)- Rubicon and Hornet K2B 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 Rubicon K2B domains have search distances of 100 m for direction 1 and 100 m for direction 2. Rubicon K2B estimation was tested using variography however an ID2 estimate that used rotation angles obtained from dynamic anisotropy analysis produced a better result. Hornet K2B has search distances of 80 m for direction 1 and 60 m for direction 2 for the high-density subdomain and 250 m for direction 1 and 200 m for direction 2 for the low-density subdomain. Three passes were used in all domains. Rubicon K2B used a minimum of 4-7 samples and a maximum of 7-10 samples in the high and low-density subdomains for the first pass. Hornet K2B used a minimum of 8 samples and a maximum of 12 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. No restrictions by drill hole or drill hole type have been applied. 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 80 m in direction 1 and 40 m in direction 2. Restriction by drill hole were applied. Footwall (Rubicon and Hornet) – Rubicon footwall is divided into two subdomains based on data density; high density around development levels and lower density for the remainder. Hornet footwall comprises one domain. Each domain was analysed for top cuts and had variography completed separately. All domains indicate grade continuity plunging to the NNW. The Rubicon high-density domain has a search distance of 40 m for direction 1 and 20 m for direction 2 and the low-density domain has search distances of 50 m for both direction 1 and direction 2. Hornet footwall domain has a search distance of 40 m for direction 1 and 30 m for direction 2. Three passes were used in all domains. All domains used a minimum of 10 samples and a maximum of 14-16 samples for the first pass. Estimation was completed using a soft boundary between the Rubicon footwall high and low-density subdomains. Restriction by drill hole type was applied to both Rubicon and Hornet footwall. Bell (Pegasus) – includes one domain which was not top cut and had variography analysis completed which indicates no plunge and has ranges of 50 m in direction 1 and 40 m in direction 2. A minimum of 6 and a maximum of 10 samples were used in the first pass. Three passes were used. Restriction by drill hole was applied. FWVN (Pegasus) – includes one domain which was not top cut. There was insufficient data for variography analysis therefore ID2 was used rather than OK for estimation. Pegasus CMV variography with NNW plunge direction was used for rotation angles in the ID2 estimate. A minimum of 10 and a maximum of 14 samples were used in the first pass. Three passes were used. Restriction by drill hole was applied. INTW (Pegasus) – includes one domain which was top cut. There was insufficient data for variography analysis therefore ID2 was used rather than OK for estimation. Pegasus CMV variography with NNW plunge direction was used for rotation angles in the ID2 estimate. A minimum of 8 and a maximum of 12 samples were used in the first pass. Three passes were used. Restriction by drill hole was applied. CMV (Drake)- divided into two grade subdomains based on data density; high density near surface and lower density at depth. Both domains were analysed for top cuts and had variography completed together and indicate grade continuity in the NNW plunge direction. Each domain has a search distance of 200 m for direction 1 and 150 m for direction 2. Both domains used a minimum of 10 and a maximum of 22 samples in the first pass. Three passes were used. Estimation was completed using a soft boundary between the high and low-density domains and between adjacent CMV domains e.g. Drake CMV/Pegasus CMV boundary. No restrictions by drill hole or drill hole type have been applied. Halo (Drake) – divided into the Hanging wall (HW) and Foot wall (FW) domains either side of the Drake CMV. Both domains were analysed for top cuts separately. Drake CMV variography with NNW plunge direction was used due to lack of data. Both domains used a minimum of 7 and a maximum of 12 samples in the first pass. Three passes were used. No restrictions by drill hole or drill hole type have been applied. 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 ID2 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. HORVQ and ALT1 were restricted by drill hole while the other lodes had no restrictions.

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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.	Check estimates have been completed for all lodes. These include Inverse Distance (ID) and Nearest Neighbour (NN) estimates. Isotropic searches have also been tested to corroborate chosen variogram angles. All mineralised zones at RHP and Drake 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. Low density drill spacing is defined as approximately 30 m or greater and a 10 x 10 x 10 m block size 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.
	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 Drake mineralised zones based on the geology (usually a quartz vein) and gold grade. CMV (RHP and Drake)- 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 hangingwall structure with quartz veining evident from drilling and underground development. K2B (Rubicon/Hornet)- Steeply dipping hangingwall structure with quartz veining evident from drilling and underground development. Bell/Nugget (Pegasus/Rubicon)– Low angled dilatational 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. Halo (Drake)- Steeply dipping hangingwall and footwall brecciated veining and shearing directly adjacent to the Drake CMV. For mine planning purposes a waste model is created by projecting the hanging wall and footwall surfaces 15 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.

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Criteria	JORC Code explanation	Commentary
	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 4 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 gold top cutting only. 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 5 m). Where the *_BC values produce estimated blocks within these restricted ranges, the *_NC estimated values replace the original top cut estimated values (AU). The same principle has been applied to produce a 'lower-cut' to the composited sample data with the intention of limiting the impact of high-grade samples on genuine low-grade areas, especially where there is an order of magnitude difference in assayed grade. A spatial variable (*_LC) is created using the non-top cut (*_NC) variable which only has values where the low-cut values appear; this applies to gold low cutting only. For example, where gold requires a low cut, the following variables will be created and estimated: AU_NC (non- cut gold) AU_LC (spatial variable; values present where AU data is low-cut) The non-top cut values are estimated using search ranges based on the modelled gold variogram, and the *_LC values estimated using small ranges (e.g. 30 x 20 x 15 m). Where the *_LC values produce estimated blocks within these restricted ranges, the *_LC estimated values replace the original top cut estimated values (AU). Multiple iterations are tested with different A hard top cut is applied instead of/as well in the following situations: If there are extreme outliers within an ore domain If the area has a history of poor reconciliation (i.e. overcalling)
	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 2.37 g/t cut off within 2.5 m minimum mining width MSO's (with no additional dilution) using a $A1,750/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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a 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 and Drake 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 and Drake. Assumptions were also made based on regional averages, on the default densities applied to oxide (1.8 t/m³) and transition (2.3 t/m³) 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, based on the new Data Class system
	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 Person's 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.
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 and Drake 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.

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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 2019MY 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 20m 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.
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 5% (Hornet), 0% (Rubicon), 20% (Pegasus) Rock and 10% Paste dilution (10 -30% 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 to Pegasus and Hornet, 94% is applied to Rubicon based on historical data
	Any minimum mining widths used.	At Rubicon, Hornet, and Pegasus: 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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	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.
	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.	A$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 A$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.

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Criteria	JORC Code explanation	Commentary
	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.
	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.

APPENDIX 2: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Kundana Area Deposits (Pode): Resources and Reserves – 30 June 2019

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; underground and surface diamond drilling (DD), surface reverse circulation drilling (RC) and face channel (FC) sampling.
<table>
<tr><th></th><th colspan="3">Pode</th></tr>
<tr><th>Type</th><th># of Holes</th><th>Total m's</th><th># of Samples</th></tr>
<tr><td>DD</td><td>708</td><td>182515</td><td>135558</td></tr>
<tr><td>FS</td><td>592</td><td>3048</td><td>5182</td></tr>
<tr><td>RC</td><td>8</td><td>1170</td><td>683</td></tr>
<tr><td>RC_DD</td><td>39</td><td>16418</td><td>10283</td></tr>
<tr><td>Total</td><td>1347</td><td>203151</td><td>151706</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 narrower structures in the face. Where possible, face sampling is conducted from channels perpendicular to the vein structure.</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. Samples designated for half core were cut using an automated core saw. The mass of material collected was dependent on the drill hole diameter and sampling interval selected. 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 and crushed to 90% of material ≤3 mm. At this point, samples greater than 3 kg were split using a rotary splitter, then pulverised to 90% ≤75 µm.
For FY19, a 40 g charge was selected for fire assay of diamond drill hole samples, and a 20 g charge for face samples.</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 Reverse Circulation 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 were completed using NQ2 (50.5 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.</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>Contractors adjust the rate and method off drilling 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%. No specific areas within Pode had issues with recovery.</td></tr>
<tr><td>Logging</td><td>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.</td><td>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.</td></tr>
</table>

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Criteria	JORC Code explanation	Commentary
	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. 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 is 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. Sampling and cutting methodology are dependent on the type of drilling completed. Half core is utilised for Resource targeting (RT) drilling and Resource Definition drilling (RSD). Some RSD holes have been whole core sampled due to production pressures. Grade Control drilling (GC) is whole core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	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 mineralisation and from any areas identified as having anomalous gold. Outside known mineralised 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 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% ≤75 µm, using a Labtechnics LM5 bowl pulveriser. 400 g Pulp subsamples are then taken with an aluminum 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.	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 laboratory for processing. Umpire samples of faces were analysed using a 40g charge weight.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material being sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40 g fire assay charge for diamond drill holes and a 20 g charge for face samples is used with a lead flux 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 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 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 nominal insertion 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 or face samples. 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.
	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.

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Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	The use of twinned holes.	No twinned holes were drilled at Pode. Re-drilling of some drill holes has occurred due to issues downhole (e.g. bogged rods). These have been captured in the database with an 'A' suffix. Re-drilled holes are logged and 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 recorded directly 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 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. 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 DeviFlex non-magnetic strain gauge instrument) survey is completed, taking measurements every 3 m to ensure accuracy of the hole. This is 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. Resource Targeting (RT) drilling at an 80 x 80 m nominal spacing is infilled during Resource Definition (RSD) down to an average of 30 x 30 m. Grade control drilling follows development and is generally comprised of stab drilling from the development drive at 10 to 15 m spacing.
	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.
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.	Pode structures in the Kundana area dip on average (50°) to the west (local grid). Diamond drilling was designed to target the orebodies perpendicular to this orientation to allow for a favourable intersection angle. In instances where this was not possible (primarily due to drill platform location), drilling was not completed, or re-designed once a more suitable platform became available. Drill holes with extremely poor intersection angles are excluded from resource estimation.
	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, 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.

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 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.

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Criteria	JORC Code explanation	Commentary
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	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 mineralisation 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.
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, Drake) 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 Pode deposits can be found above. The collar locations are presented in plots contained in the NSR 2019 resource report. Drill holes vary in survey dip from +43 to -73 degrees, with hole depths ranging from 15 m to 1413 m. Average hole depth is 289 m. The assay data acquired from these holes are described in the NSR 2019 resource report. All validated drill hole data was 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.	The exclusion of any information is not material
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 mineralised samples has been permitted in the calculation of these widths. Typically grades over 2.0 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 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').	True widths have been calculated for intersections of the known ore zones, otherwise noted as "downhole length"

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Criteria	JORC Code explanation	Commentary
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included at the end of this table and in the NSR 2019 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.
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).	RT drilling will continue in FY19-20 to define the extents of the Pode-style mineralisation. Following this, RSD and Grade Control drilling will also be conducted as required.
	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 2019 resource report.

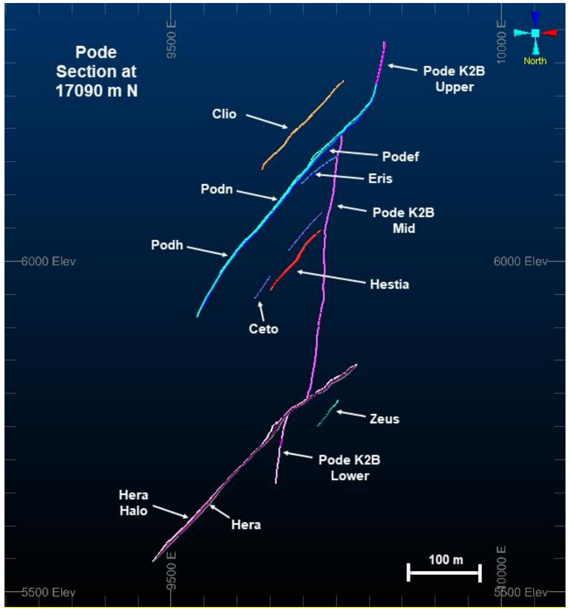

Figure 1. Cross section views of Pode ore lodes

APPENDIX 2: TABLE 1

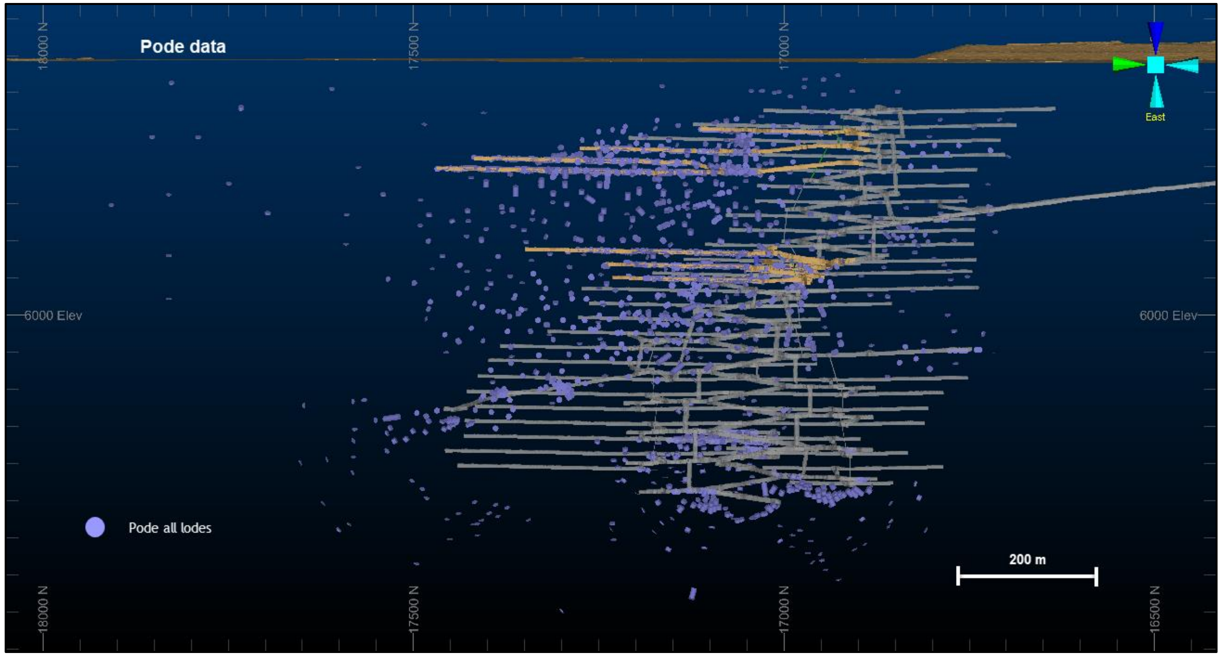

Figure 2. Long section view of Pode ore lodes and data used in resource estimations

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 are 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-tool derived files.
	Data validation procedures used.	The database has further checks performed prior to estimation to confirm data validity. The complete exported database (including drill and face samples) is imported 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. These include: • 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;

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
		• 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 metre depths recorded by the drillers. This resulted in multiple drill holes recording the intersection of the K2 several metres earlier than expected. Until underground development had progressed to these elevations, the extent of the error 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. The same sample translation method has been applied to surface drilling in between development levels which are deemed to cause an unrealistic kink in the wireframe interpretation. This is only done after a thorough investigation of the surrounding data to ensure that no secondary veining is present in the footwall or hanging wall and that no separate lodes are missed. In addition to being Resource Flagged as "Yes" or "No", drill holes are assigned a Data Class, which provides a secondary level of confidence in the data quality. Data Class (DC) values range from 0 to 3, with criteria summarised below: • DC 3 = Recent data; all data high quality, validated and all original data available. • DC 2 = Historic data; may or may not have all data in AcQuire or hard copy available but has proximity to recent drilling which confirms the dip, width and tenor. Used to assist in classification OR Recent data; minor issues with data such as QAQC fail but away from the ore zone. • DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling, i.e. too far away or dissimilar dip, width and/or tenor to recent drilling. Not to be used in Resource estimate. • DC 0 = Historic data; no original information or new drilling in proximity to verify. Not to be used in Resource estimate.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The geological interpretations underpinning these resource models were prepared by geologists working in the mine who were 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 Senior Resource Geologist, a competent person for reviewing and signing off on the Pode estimate maintained a site presence throughout the process.
	If no site visits have been undertaken indicate why this is the case.	The Competent Person has maintained a presence onsite.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the 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 Pode mineralised wireframes was conducted using the sectional interpretation method in Datamine RM software. All Pode lodes have been interpreted in plan-view. Where development levels were present, sectional interpretation was completed at approximately 5 m spacing. Where only drilling data was present, sectional interpretation was completed at approximately 10-20 m spacing. Checks were made to ensure that the wireframed volume agreed with the true ore widths of drill hole intersections. As a rule, wireframe extrapolation was limited to one half of the average drill spacing.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including surface mapping, DD and RC drill holes, underground face channel data, 3D photogrammetry and regional and local structural models.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	There is no alternative interpretation put forward
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the Pode mineralisation is based on the presence of mineralised structure (veining and shear), ore-bearing mineralogy (gold and associated sulphides), assayed samples and continuity between sections.
	The factors affecting continuity both of grade and geology.	Individual Pode mineralised envelopes are thought to be reasonably continuous at the current drill spacing, as similar mineralisation styles, structures and grade tenor exists between adjacent drill holes. Offsetting structures are not known to be present in Pode although significant undulations exist which may have some impact on continuity of the mineralised trends and metal estimated within. Mineralised envelopes for Pode are confined to the Victorious basalt (porphyritic) and Bent Tree basalt (fine-grained) lithological units.

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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 ~200 m to ~1200 m. 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 0.4 - 2 m. The widest orebody is Hera Halo at approximately 2 m. The narrowest is Zeus at approximately 0.4 m. The PodN structure has an average thickness of 1.5 m. Mineralisation is known to occur from the base of cover to ~800 m below surface and 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.	Pode mineralised zones with high data-density used direct grade estimation by Ordinary Kriging (unless otherwise stated) supported by composited sample data. Composite lengths of 1 m were used for all lodes, determined from statistical analysis of all sample lengths in the estimation dataset. In smaller mineralised zones where construction of a coherent variogram was not possible, Inverse Distance has been used. All estimation was completed using Datamine RM software. Details of estimation by ore lode is summarised below: **PodN** – Divided into two subdomains based on data density. Data was top cut to 150 g/t using the influence limitation approach. In addition to this a hard top cut of 400 g/t was used to limit the impact of genuinely anomalous data points. Variography was completed on the composited data file, indicating grade continuity plunging shallowly to the south. Searches were completed in three passes. For the high data-density estimate, search ranges of 50 m in direction 1 (dir1), 30 m in direction 2 (dir2) and 25 m in direction 3 (dir3) were used. For the low data-density estimate, search ranges of 120 m in dir1, 100 m in dir2 and 60 m in dir3 were used. The first pass had a minimum of 4 - 5 samples and a maximum of 8 - 15 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The minimum number of samples required has been increased for each subsequent search pass. Dynamic anisotropy has been used for the estimate, with the plunge component hard coded to 45° based on the variogram-derived search orientation. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **PodH** – Divided into two subdomains based on data density. Data was top cut to 30 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the north. Searches were completed in three passes. For the high data-density estimate, search ranges of 50 m in dir1, 40 m in dir2 and 30 m in dir3 were used. For the low data-density estimate, search ranges of 120 m in dir1, 90 m in dir2 and 60 m in dir3 were used. For both subdomains, the first pass had a minimum of 5 samples and a maximum of 12 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. Dynamic anisotropy has been used for the estimate, with the plunge component hard coded to 45° based on the variogram-derived search orientation. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **PodF** – Divided into two subdomains based on data density. Data was top cut to 20 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging shallowly to the south. Searches were completed in three passes. For the high data-density estimate, search ranges of 40 m in dir1/dir2 and 25 m in dir3 were used. For the low data-density estimate, search ranges of 85 m in dir1, 65 m in dir2 and 45 m in dir3 were used. For both subdomains, the first pass had a minimum of 5 samples and a maximum of 12 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. Dynamic anisotropy has been used for the estimate, with the plunge component hard coded to 45° based on the variogram-derived search orientation. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **K2B** – Divided into two subdomains based on grade. Top cutting was completed separately on the high-grade and low-grade subdomains (50 g/t and 20 g/t respectively) using the influence limitation approach. Variography was completed on the composited data files separately with both indicating grade continuity plunging moderately to the north. Searches were completed in three passes. For the high-grade estimate, search ranges of 50 m in dir1, 35 m in dir2 and 25 m in dir3 were used. For the low-grade estimate, search ranges of 85 m in dir1, 60 m in dir2 and 40 m in dir3 were used. The first pass had a minimum of 4 - 5 samples and a maximum of 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 2 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Hera** – Divided into two subdomains based on data density. Data was top cut to 400 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging steeply to the south. Searches were completed in three passes. For the high data-density estimate, search ranges of 40 m in dir1/dir2 and 20 m in dir3 were used. For the low data-density estimate, search ranges of 180 m in dir1, 130 m in dir2 and 60 m in dir3 were used. For both subdomains, the first pass had a minimum of 5 samples and a maximum of 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples required has been increased for each subsequent search pass, while the minimum amount has stayed the same. Dynamic anisotropy has been used for the estimate, with the plunge component hard coded to 40° based on the variogram-derived search orientation. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Halo** – Divided into two subdomains based on data density. Data was top cut to 50 g/t using the influence limitation approach. All other search parameters identical to Hera lode, excepting the use of dynamic anisotropy (not used for the Halo lode). **Hestia** – Estimated as a single domain. Data was top cut to 30 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the north. Searches were completed in three passes. Search ranges of 75 m in dir1, 35 m in dir2 and 15 m in dir3 were used. The first

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Criteria	JORC Code explanation	Commentary
		pass had a minimum of 5 samples and a maximum of 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. Dynamic anisotropy has been used for the estimate, with the plunge component hard coded to 40° based on the variogram-derived search orientation. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Ceto** – Estimated as a single domain. Data was top cut to 10 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the south. Searches were completed in three passes. Search ranges of 60 m in dir1, 40 m in dir2 and 30 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Eris** – Estimated as a single domain. Data was top cut to 8 g/t using the influence limitation approach. No variography completed due to lack of data pairs in domain. Continuity fans analysed to ascertain search orientation and anisotropy. Searches were completed in three passes. Search ranges of 75 m in dir1, 35 m in dir2 and 15 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 8 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Clio** – Estimated as a single domain. Data was top cut to 12 g/t using the influence limitation approach. No variography completed due to lack of data pairs in domain. Continuity fans analysed to ascertain search orientation and anisotropy. Searches were completed in three passes. Search ranges of 80 m in dir1, 50 m in dir2 and 30 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 8 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Kratos** – Estimated as a single domain. Data was top cut to 10 g/t using the influence limitation approach. No variography completed due to lack of data pairs in domain. Continuity fans analysed to ascertain search orientation and anisotropy. Searches were completed in three passes. Search ranges of 80 m in dir1, 50 m in dir2 and 30 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 8 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Ares** – Estimated as a single domain. No top-cut applied as no anomalous samples present and coefficient of variance within acceptable range. No variography completed due to lack of data pairs in domain. Continuity fans analysed to ascertain search orientation and anisotropy. Searches were completed in three passes. Search ranges of 80 m in dir1, 50 m in dir2 and 30 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 8 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Zeus** – Estimated as a single domain. Data was top cut to 80 g/t using the influence limitation approach. No variography completed due to lack of data pairs in domain. Continuity fans analysed to ascertain search orientation and anisotropy. Searches were completed in three passes. Search ranges of 75 m in dir1, 35 m in dir2 and 15 m in dir3 were used. The first pass had a minimum of 5 samples and a maximum of 7 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. Dynamic anisotropy has been used for the estimate, with the plunge component hard coded to 45° based on the variogram-derived search orientation. A restriction of 2 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate. **Apollo** – Estimated as a single domain. Data was top cut to 15 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the north. Searches were completed in three passes. Search ranges of 80 m in dir1, 30 m in dir2 and 25 m in dir3 were used. The first pass had a minimum of 5 samples and a maximum of 7 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 3 samples was used based on the BHID, which ensured that at least two holes were used for each block estimate.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Check estimates have been completed for all lodes. These include Inverse Distance (ID) and Nearest Neighbour (NN) estimates. Isotropic searches have also been tested to corroborate chosen variogram angles.
	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.

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Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	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. Low density drill spacing is defined as approximately 30 m or greater and a 10 x 10 x 10 m block size 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.
	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 Pode mineralised zones based on the geology (usually a quartz vein) and gold grade. Pode mineralised zones are predominantly low angled dilatational fault zones with quartz veining evident from drilling (all lodes) and development (PodN, PodF, PodH, Hera and Hera Halo only). For mine planning purposes a waste model is created by projecting the hanging wall and footwall surfaces 15 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. Top cuts vary by domain and range from 8 to 400 g/t. The top cut values are applied in several steps, using a technique called influence limitation top cutting. 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. 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 in the global grade of the declustered composite data set and the average model grade were within 10%, or justification for a difference outside 10% was explicable. 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 2.37 g/t cut off within 2.5 m minimum mining width MSO's (with no additional dilution), 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.

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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 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 Pode and RHP. Assumptions were also made based on regional averages, on the default densities applied to oxide (1.80) and transitional (2.30) 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 kriging estimate • Confidence in historical data, based on the new Data Class system
	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.
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 Pode style 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.

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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.	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 2019MY 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.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Design parameters include a 20m 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.
	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 to Pode.
	Any minimum mining widths used.	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 way 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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.
	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.	A$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.
	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 A$1,500/oz.

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Criteria	JORC Code explanation	Commentary
Market assessment	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.
	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.

APPENDIX 2: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Raleigh-Sadler: Resources and Reserves – 30 June 2019

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 surface and underground diamond drilling (DD), surface reverse circulation drilling (RC) and face channel (FC) sampling. RAB holes were excluded from the estimate. Where sufficient diamond drill holes were present, RC holes were also excluded.
<table>
<tr><th></th><th colspan="3">Raleigh</th></tr>
<tr><th></th><th># of Holes</th><th>Total m's</th><th># of Samples</th></tr>
<tr><td>DD</td><td>616</td><td>110,121</td><td>50,768</td></tr>
<tr><td>FS</td><td>7,199</td><td>27,774</td><td>43,766</td></tr>
<tr><td>RC</td><td>5</td><td>672</td><td>451</td></tr>
<tr><td>RC_DD</td><td>32</td><td>9,566</td><td>2,892</td></tr>
<tr><td>Total</td><td>7,852</td><td>148,133</td><td>97,877</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 narrower structures in the face. These samples are frequent at Raleigh due to the nature of the extremely narrow ore structure present at Raleigh.</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. Samples designated for half core were cut using an automated core saw. The mass of material collected was dependent on the drill hole diameter and sampling interval selected. 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 and crushed to 90% of material ≤3 mm. At this point, samples greater than 3 kg were split using a rotary splitter, then pulverised to 90% ≤75 µm.
For FY19 a 40 g charge was selected for fire assay of diamond drill hole samples, and a 20 g charge for face samples.</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 Reverse Circulation and Diamond Drilling techniques were used to drill the Raleigh deposit.
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.</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>Any core loss in diamond drilling 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 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.</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 of the ore lode is challenging at Raleigh, with the brittle quartz vein RMV lode adjacent to the much softer RMS lode. Triple tubing has been employed by the drilling contractor in order to alleviate concerns around recovery although, due in part to the nature of the material being drilled and to the drill orientation oblique to the target structure, core loss is still a challenge. In order to mitigate the impacts on the estimate, samples which have logged core loss through the ore zone are excluded. No relationship between sample recovery and grade has been discerned.</td></tr>
</table>

APPENDIX 2: TABLE 1

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 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 cut using an automated core saw. Sampling and cutting methodology are dependent on the type of drilling completed. Half core is utilised for Resource targeting (RT) drilling and Resource Definition drilling (RSD). Some RSD holes have been whole core sampled due to production pressures. Grade Control drilling (GC) is whole core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	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 mineralisation and from any areas identified as having anomalous gold. Outside known mineralised 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 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% ≤75 µm, using a Labtechnics LM5 bowl pulveriser. 400 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. Umpire samples of faces were analysed using a 40g charge weight.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material being sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 40 g fire assay charge for diamond drill holes and a 20-gm charge for face samples 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.
	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 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 nominal 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.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
		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 Raleigh. Re-drilling of some drill holes has occurred due to issues downhole (e.g. bogged rods). These have been captured in the database with an 'A' suffix. 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 non-editable 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. 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 DeviFlex non-magnetic strain gauge instrument) survey is completed, taking measurements every 3 m to ensure accuracy of the hole. This is 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 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
	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.	The major Raleigh structures dip steeply (80°) to the west (local grid). Diamond drilling was designed to target the ore bodies as close to perpendicular as possible, allowing for a favourable intersection angle. In 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.	As explained above, holes drilled on suboptimal orientations are thought to suffer more from recovery issues than those drilled near perpendicular to the lode. Robust data validation has been completed to ensure no sample bias is introduced by including these holes. 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.

APPENDIX 2: TABLE 1

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 either the M15/993 or M16/157 Mining leases. M15/993 which is held by The East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited. The minority holding in the EKJV is held by Tribune Resources Ltd and Rand Mining Ltd. M16/157 is fully owned by Northern Star Resources Limited. The tenements on which the Raleigh and Sadler 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. Raleigh ore lodes are located along the Strzelecki structure, with mining commencing in 2000. The majority of mineralisation consists of narrow, laminated quartz veining on the contact between volcanogenic sedimentary rock unit and andesite/gabbro (RMV). Sadler is the southern extent of Raleigh, with no clear geological boundary distinguishing them. Underground mining began in Sadler in FY19.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: ○ easting and northing of the drill hole collar ○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ○ dip and azimuth of the hole ○ down hole length and interception depth ○ hole length.	A summary of the data present in the Raleigh and Sadler deposits can be found above. The collar locations are presented in plots contained in the NSR 2019 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 2019 resource report. All of 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.	The exclusion of nay data is not considered material
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 < 2.0 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').	True widths have been calculated for intersections of the known ore zones, if unknown, the length is notes as "downhole length"
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 2019 resource report.

APPENDIX 2: TABLE 1

Criteria	JORC Code explanation	Commentary
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.
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).	There are no plans for drilling at Raleigh-Sadler in FY19-20, although this does not preclude future drilling to extend Raleigh-Sadler.
	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.

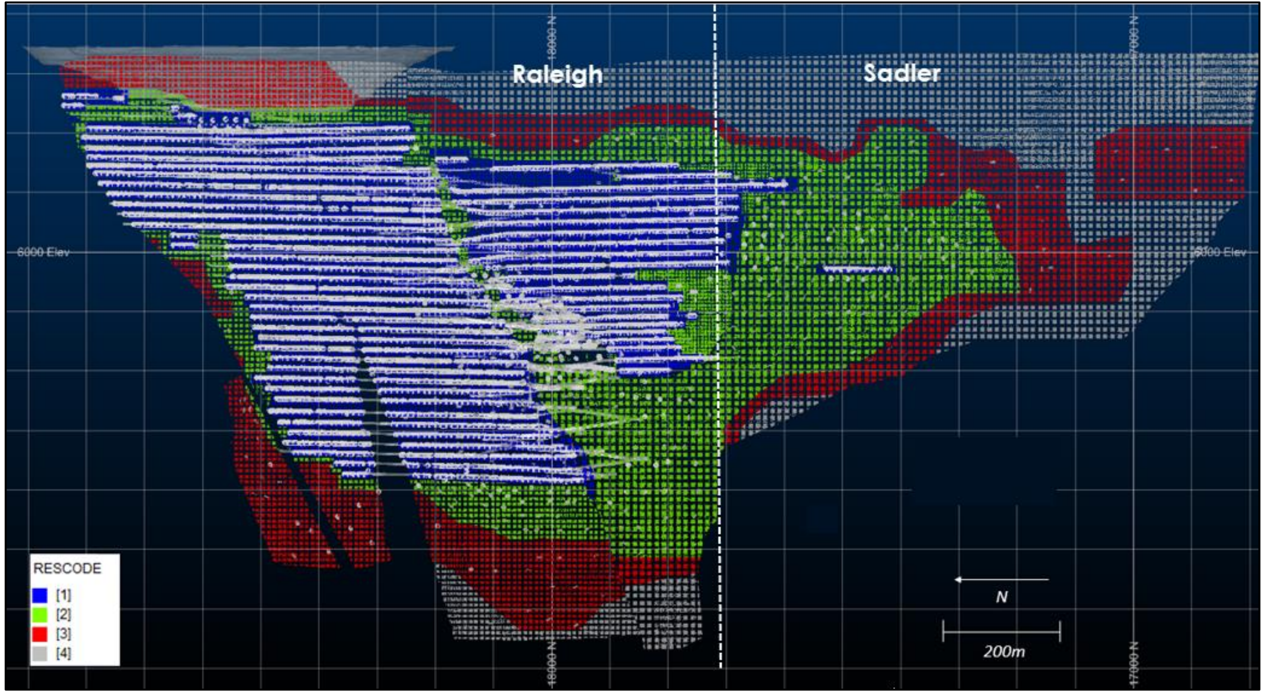

Figure 1. Long section view of the Raleigh and Sadler deposits and data used for estimation

APPENDIX 2: TABLE 1

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 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 prior to estimation to confirm data validity. The complete exported database (including drill and face samples) is imported 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. These include: • 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 2015 and 2016 had erroneous metre depths recorded by the drillers. This resulted in multiple drill-holes recording the intersection of the main Raleigh structures several metres 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. The same sample translation method has been applied to surface drilling in between development levels which are deemed to cause an unrealistic kink in the wireframe interpretation. This is only done after a thorough investigation of the surrounding data to ensure that no secondary veining is present in the footwall or hanging wall and that no separate lodes are missed. In addition to being Resource Flagged as "Yes" or "No", drill holes are assigned a Data Class, which provides a secondary level of confidence in the data quality. Data Class (DC) values range from 0 to 3, with criteria summarised below: • DC 3 = Recent data; all data high quality, validated and all original data available. • DC 2 = Historic data; may or may not have all data in AcQuire or hard copy available but has proximity to recent drilling which confirms the dip, width and tenor. Used to assist in classification OR Recent data; minor issues with data such as QAQC fail but away from the ore zone. • DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling, i.e. too far away or dissimilar dip, width and/or tenor to recent drilling. Not to be used in Resource estimate. • DC 0 = Historic data; no original information or new drilling in proximity to verify. Not to be used in Resource estimate.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	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 Senior Resource Geologist, a competent person for reviewing and signing off the Raleigh estimate maintained a site presence throughout the process.
	If no site visits have been undertaken indicate why this is the case.	The Competent Person has maintained a presence onsite.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the Raleigh and Sadler 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 and Sadler 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. Checks were made to ensure that the wireframed volume agreed with the true ore widths of drill hole intersections. As a rule, wireframe extrapolation was limited to one half of the average drill spacing.

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Criteria	JORC Code explanation	Commentary
	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.	No alternative interpretations have been put forward
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of Raleigh and Sadler mineralisation is based on the presence of mineralised structure (veining and shear), ore-bearing mineralogy (gold and associated sulphides), assayed samples and continuity between sections. Interpretation of the **Raleigh Main Vein** (RMV) is based on the presence of a high-grade laminated quartz vein. Pinch-outs are common and significant time has been invested into ensuring a wireframe model is created that best represents the variable width of the lode. Volume considerations are of particular importance for the RMV as the average ore width is < 0.3 m. The **Raleigh Main Shear** (RMS) is located adjacent to the RMV and migrates between the hangingwall and footwall along the contact between the Quartz arenite (SAQ) and Intermediate andesite (IA). It presents as a zone of increased shear and, on rare occasions, some minor veining can also be present. A **Halo** lode (halo) has been estimated that estimates grade present between the RMV and RMS. **Skinners Lode** (SKV) is in the hangingwall of the RMV and presents as a chalky-white vein (as opposed to the laminated grey-white RMV). Pinch-outs are less common, and width is more consistent than the RMV. Skinners lode truncates against the RMV at its southern extent. The **ZZ and ZZ2** are two hangingwall lodes comprised of stockwork-style vein arrays which dips shallowly to the west. They are truncated at the east by the RMV and at the west by the SKV. The **RMVS** lode includes both the Raleigh vein and shear structures where data density is not sufficient to confidently separate the two mineralisation types. This has been extended from Raleigh to Sadler and constitutes most of the Sadler ore body, where the RMV has not been delineated from ore development.
	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.
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 and Shear (RMVS) 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. The 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** – Estimated as a single domain. Data was top cut to 1000 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the north. Searches were completed in three passes. Search ranges of 100 m in direction 1 (dir1), 75 m in direction 2 (dir2) and 50 m in direction 3 (dir3) were used. The first pass had a minimum of 8 samples and a maximum of 12 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. No additional sample restrictions were used for the RMV estimate. **RMS** – divided into two grade subdomains. Binary estimate completed on composited data set with indicators (0 or 1) applied based on grade cut-off (> 2.5 g/t) and quartz vein presence (vein logged in LITH1 field). Estimate returns result between 0 and 1. Cut-off of 0.45 chosen to ascertain two grade subdomains (high grade and low grade) for final gold estimate. Data sets top cut to 150 g/t (high grade subdomain) or 50 g/t (low grade subdomain) using the influence limitation approach. Same variogram and search parameters used for both high- and low-grade subdomains. Variogram indicates grade continuity plunging moderately to the north. Searches were completed in three passes. Search ranges of 100 m in dir1, 80 m in dir2 and 40 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 8 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The minimum number of samples allowed has been decreased for each subsequent search pass, while the maximum amount has stayed the same. No additional sample restrictions were used for the RMS estimate. **RMVN** – Divided into two subdomains based on data density. Data was top cut to 500 g/t and 100 g/t (for high-density and low-density subdomains respectively) using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging steeply to the north. Searches were completed in three passes. For the high data-density estimate, search ranges of 100 m in dir1, 50 m in dir2 and 100 m in dir3 were used. For the low data-density estimate, search ranges of 190 m in dir1, 140 m in dir2 and 70 m in dir3 were used. The first pass had a minimum of 4 - 6 samples and a maximum of 6 - 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The minimum and maximum number of samples required are the same for all search passes. For the low data density estimate, a restriction of 3 samples was used based on the DHTYPE, which ensured that a maximum of 2 channel samples were able to be used for each block estimate. Estimation was completed using a soft boundary between the high and low-density subdomains and between adjacent Raleigh domains (RMV, RMS and RMVS).

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Criteria	JORC Code explanation	Commentary
		RMVS – Divided into two subdomains based on grade. Data was top cut to 200 g/t and 10 g/t (for high-grade and low-grade subdomains respectively) using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the south. Searches were completed in three passes. For the high-grade estimate, search ranges of 150 m in dir1, 80 m in dir2 and 50 m in dir3 were used. For the low-grade estimate, search ranges of 250 m in dir1, 150 m in dir2 and 100 m in dir3 were used. The first pass had a minimum of 5 - 6 samples and a maximum of 7 - 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been decreased for each subsequent search pass, while the minimum amount has stayed the same. For the high-grade estimate, a restriction of 3 samples was used based on the DHTYPE, which ensured that a maximum of 3 channel samples were able to be used for each block estimate. For the low-grade estimate, a restriction of 1 channel sample was used. Estimation was completed using a soft boundary between the high and low-density subdomains and between adjacent Raleigh domains (RMV, RMS and RMVN). **RMV/RMS Halo** (halo) - Estimated as a single domain. Data was top cut to 10 g/t using the influence limitation approach. Variography borrowed from the RMV estimate, as not enough sample pairs were available to construct a coherent variogram. Searches were completed in three passes. Search ranges of 100 m in dir1, 75 m in dir2 and 50 m in dir3 were used. The first pass had a minimum of 8 samples and a maximum of 12 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. No additional sample restrictions were used for the halo estimate. **SKV** – Divided into two subdomains based on grade. Data was top cut to 600 g/t and 30 g/t (for high-grade and low-grade subdomains respectively) using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the north. Searches were completed in three passes. For the high-grade estimate, search ranges of 100 m in dir1, 60 m in dir2 and 40 m in dir3 were used. For the low-grade estimate, search ranges of 100 m in dir1, 50 m in dir2 and 30 m in dir3 were used. The first pass had a minimum of 4 - 7 samples and a maximum of 6 - 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The minimum and maximum number of samples required are the same for all search passes. No additional sample restrictions were used for the SKV estimate. **ZZ** - Estimated as a single domain. Data was top cut to 60 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging shallowly to the south. Searches were completed in three passes. Search ranges of 30 m in dir1, 15 m in dir2 and 10 m in dir3 were used. The first pass had a minimum of 6 samples and a maximum of 10 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The minimum and maximum number of samples required are the same for all search passes. A restriction of 4 samples was used based on the BHID, which ensured that a maximum of 4 samples were able to be used from an individual drill hole. **ZZ2** - Estimated as a single domain. Data was top cut to 40 g/t using the influence limitation approach. Variography was completed on the composited data file, indicating grade continuity plunging moderately to the north. Searches were completed in three passes. Search ranges of 25 m in dir1, 15 m in dir2 and 10 m in dir3 were used. The first pass had a minimum of 8 samples and a maximum of 12 samples. The second pass doubled the ranges, and the third pass increased the search range by a factor of 10. The maximum number of samples allowed has been increased for each subsequent search pass, while the minimum amount has stayed the same. A restriction of 2 samples was used based on the DHTYPE, which ensured that a maximum of 2 channel samples were able to be used for each block estimate
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Check estimates have been completed for all lodes. These include Inverse Distance (ID) and Nearest Neighbour (NN) estimates.
	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 data-density (underground face samples with average spacing of 3 – 4 m) a 5 x 5 x 5 m block size was chosen. Low density drill spacing is defined as approximately 30 m or greater and a 10 x 10 x 10 m block size 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 gold.

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Criteria	JORC Code explanation	Commentary
	Description of how the geological interpretation was used to control the resource estimates.	Hangingwall and footwall wireframe surfaces were created using sectional interpretation. These were used to define the Raleigh mineralised zones based on the geology and gold grade. **Raleigh Main Vein** (RMV) - Steeply dipping structure with smoky quartz veining evident from drilling and development **Raleigh Main Vein South** (RMVS) - Steeply dipping structure with smoky quartz veining and shearing evident from drilling and development **Raleigh Main Vein North** (RMVN) - Steeply dipping structure with smoky 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 chalky-white 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. Top cuts vary by domain and range from 10 to 1000 g/t. The top cut values are applied in several steps, using a technique called influence limitation top cutting. 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. 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). A hard top cut is applied instead of/as well in the following situations: If there are extreme outliers within an ore domain If the area has a history of poor reconciliation (i.e. overcalling)
	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 in the global grade of the declustered composite data set and the average model grade were within 10%, or justification for a difference outside 10% was explicable. 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 2.77 g/t cut off within 2.5 m minimum mining width MSO's (no additional dilution applied), 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.

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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 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-Sadler 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 2.7 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 2920 bulk density measurements at Raleigh. Assumptions were also made based on regional averages, on the default densities applied to oxide (1.8 t/m^3) and transitional (2.3 t/m^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, based on the new Data Class system
	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, quantity, quality 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 as robust and representative of the Strzelecki style 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.

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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.	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 2019MY 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.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Design parameters include a 22m level spacing 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 8% (rock and paste) 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 94% is applied based on historical data
	Any minimum mining widths used.	A minimum stope width of 3.0m where the vein is less than 2m wide. An additional 1m is applied where the vein width is greater than 2m wide.

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Criteria	JORC Code explanation	Commentary
	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.
	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.

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Criteria	JORC Code explanation	Commentary
	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 AUD$1,300 to AUD$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.
	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.

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Criteria	JORC Code explanation	Commentary
	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.