NORTHERN STAR
RESOURCES LIMITED

ASX Announcement
3 May 2022

ANNUAL MINERAL RESOURCE AND ORE RESERVE STATEMENT

Mineral Resource of 56.4Moz and Ore Reserve of 20.7Moz underpin organic production growth + mine life extensions + more cashflow

KEY POINTS

- **Group Mineral Resource stable at 56.4Moz, despite mining depletion and portfolio optimisation, reflecting:**
  - **Growth of 4.3Moz from exploration success across operating centres, including;**
    - **Maiden 1.1Moz Mineral Resource at 10.3g/t defined at Goodpaster, 2km west of Pogo mill – for overall lift in Pogo grade**
    - **Fimiston Underground Inferred Mineral Resource increased by 1.0Moz – first glimpse of new world-class system at KCGM**
  - **Reduction of 2.4Moz following the divestment of the Kundana Assets[1]**
- **Group Ore Reserve of 20.7Moz, despite mining depletion and portfolio optimisation, reflecting:**
  - **Exceptional growth at Pogo to 1.8Moz at higher grade of 8.5g/t and Kalgoorlie Operations to 13.2Moz, underpins potential for mine life extensions and further organic growth opportunities**
  - **Reduction of 0.6Moz following the divestment of the Kundana Assets[1]**
- **Unchanged conservative long-term gold price assumptions for the calculation of Resources and Reserves**

Northern Star Resources Limited (ASX: NST) is pleased to announce the Mineral Resource and Ore Reserve update for the 12 months ended 31 March 2022. The Group Ore Reserve inventory provides the foundation for Northern Star's five-year profitable growth strategy.

Mineral Resource growth of 4.3Moz from exploration showcases the value generated by the Company's sustained exploration investment, more than offsetting mine depletion and divestments. In addition, it reinforces Northern Star's strategy to identify growth opportunities within strongly endowed geological terrains that can deliver maximum returns to shareholders.

Commenting on the Mineral Resource and Ore Reserve update, Northern Star Managing Director Stuart Tonkin said:

"Our ongoing exploration success highlights the significant opportunity that exists within our Tier-1 asset portfolio to grow the gold resource base, particularly through the extension of known mineralisation at depth at KCGM. We continue to focus our exploration efforts on extending mine lives and developing our three production centres.

"Despite a challenging year for drilling and assaying capability, Pogo achieved a 20% increase in Ore Reserves at a higher grade and declared a maiden Mineral Resource at Goodpaster reinforcing the enormous growth potential of Pogo.

"Our substantial Mineral Resource base in world-class jurisdictions is what enables Northern Star to stand out in the marketplace. We will continue to explore aggressively and effectively to unlock the enormous potential within, around and below our existing operations. This further supports the replacement of Ore Reserves in coming years.

"Our conservative gold price assumptions combined with our underground mining portfolio provide optionality in a supportive gold price environment to optimise cash flow and shareholder returns as well as ensure downside protection."

[1] Refer to ASX announcement "Northern Star completes A$400M sale of Kundana Assets" dated 18 August 2021.

Northern Star Resources Limited - ABN: 43 092 832 892

Level 1, 388 Hay Street, Subiaco WA 6008, Australia
PO Box 2008, Subiaco WA 6904
T: +61 8 6188 2100
F: +61 8 6188 2111
E: info@nsrltd.com
W: www.nsrltd.com

EXPLORATION HIGHLIGHTS

KALGOORLIE, WESTERN AUSTRALIA

- **Fimiston Underground Mineral Resource increased by 20% to 5.0Moz** (up from 4.0Moz at 31 March 21) as a result of initial drilling from the first dedicated drill drive. Strong drill results include 4.7m @ 22.9g/t, 12.1m @ 3.8g/t and 9.3m @ 3.4g/t.
- At South Kalgoorlie, extensional drilling at the northern end of the HBJ underground mine has returned exceptional results including 17.9m @ 12.2g/t, 6.3m @ 12.3g/t and 3.9m @ 26.7g/t.
- At Carosue Dam, exploration drilling at **Qena** (4.5km north of the plant) has delivered a **maiden Inferred Mineral Resource of 310koz.** Key drill results include 29.4m @ 4.8g/t, 9.8m @ 5.9g/t and 7.5m @ 5.2g/t.

YANDAL, WESTERN AUSTRALIA

- **New discovery identified at "Golden Wonder"** less than 1km south-east of the Wonder North project. Results from the discovery program include 31.8m @ 3.1g/t, 10.3m @ 6.2g/t and 21.4m @ 3.1g/t.
- Exploration drilling only 500m north of the Bannockburn Ore Reserve has returned some exceptional drilling results including 30.8m @ 4.6g/t, 19.7m @ 4.3g/t and 19.6m @ 3.8g/t.
- Infill drilling at the Corboys project delivered some excellent drill results including 28.8m @ 2.5g/t, 9.9m @ 5.6g/t, 10.8m @ 6.0g/t and 32.4m @ 1.6g/t.
- Yandal Mineral Resources are slightly lower with reductions at Jundee (170,000 assays outstanding, not included in resource model).

POGO, ALASKA (USA)

- At Goodpaster, **maiden Inferred Mineral Resource of 3.2Mt @ 10.3g/t for 1.1Moz** defined by exploration drilling on a portion of the mineralised trend. Drilling highlights include 6.9m @ 22.8g/t, 6.8m @ 18.4g/t and 8.2m @ 8.3g/t.
- **Pogo Ore Reserves increased by 20% to 1.8Moz at increased grade of 8.5g/t**, driven by in-mine drilling and optimised mine design parameters in the high-grade Liese lodes.

Mineral Resource and Ore Reserve Summary

As of 31 March 2022, the Group Mineral Resource is estimated as 865Mt @ 2.0g/t Au for 56.4Moz.

Mineral Resources for the Australian Operations were estimated at an assumed gold price of A$2,250/oz. Mineral Resources for the Pogo Operation were calculated using an assumed gold price of US$1,500/oz.

As of 31 March 2022, the Group Ore Reserve is estimated at 388Mt @ 1.7g/t Au for 20.7Moz.

Ore Reserves for the Australian Operations were estimated at an assumed gold price of A$1,750/oz. Reserves for the Pogo Operation were estimated at an assumed gold price of US$1,350/oz.

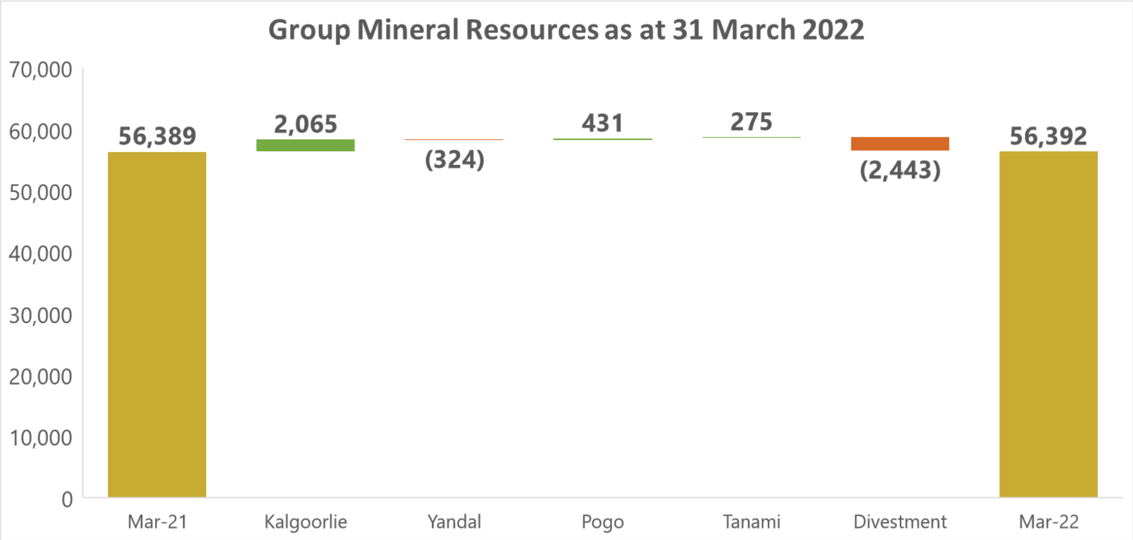
These figures represent JORC 2012 Mineral Resources and Ore Reserves for the combined assets owned by Northern Star.

MINERAL RESOURCES as at 31 March 2022	MEASURED			INDICATED			INFERRED			TOTAL RESOURCES		
NST ATTRIBUTABLE INCLUSIVE OF RESERVE	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)
NORTHERN STAR TOTAL	169,495	1.1	6,058	451,955	2.2	32,046	243,289	2.3	18,288	864,738	2.0	56,392

ORE RESERVES as at 31 March 2022	PROVED			PROBABLE			TOTAL RESERVE		
NST ATTRIBUTABLE INCLUSIVE OF RESERVE	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)
NORTHERN STAR TOTAL	146,799	0.9	4,338	241,067	2.1	16,346	387,866	1.7	20,683

Refer to Appendix A for a full breakdown of each project's Mineral Resources and Ore Reserves.

The results demonstrate that Northern Star's commitment to exploration (A$140M guided for the 12 months ended 30 June 2022) continues to drive organic growth across the Company's three world-class production centres.



Authorised for release to the ASX by Stuart Tonkin, Managing Director

Investor Relations:
Sophie Spartalis
Northern Star Resources Limited
T: +61 8 6188 2100
E: investorrelations@nsrltd.com

Media Enquiries:
Peter Klinger
Cannings Purple
T: +61 411 251 540
E: pklinger@canningspurple.com.au

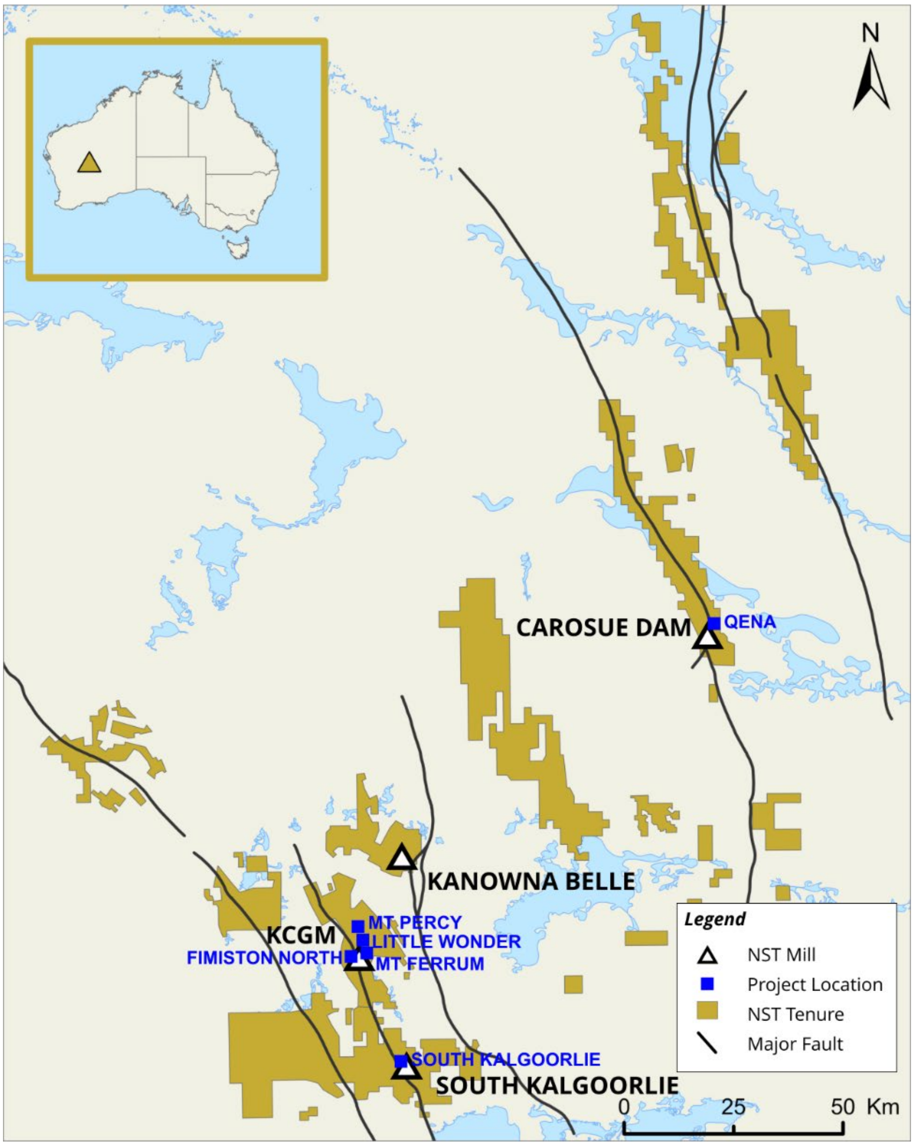
EXPLORATION UPDATE

Northern Star is pleased to provide an update on recent exploration results from its gold production centres in the tier-one locations of Western Australia and Alaska, USA.

KALGOORLIE OPERATIONS

The Kalgoorlie region of the Western Australian Goldfields has been a prolific region for gold production and exploration success. The highly prospective region continues to deliver exceptional drilling results and grow with ongoing exploration investment.

Figure 1 - Kalgoorlie Operations Location Map



KCGM

Fimiston North

The world-class Fimiston deposit has produced more than 65Moz at a mined grade of 5.0g/t since 1893.

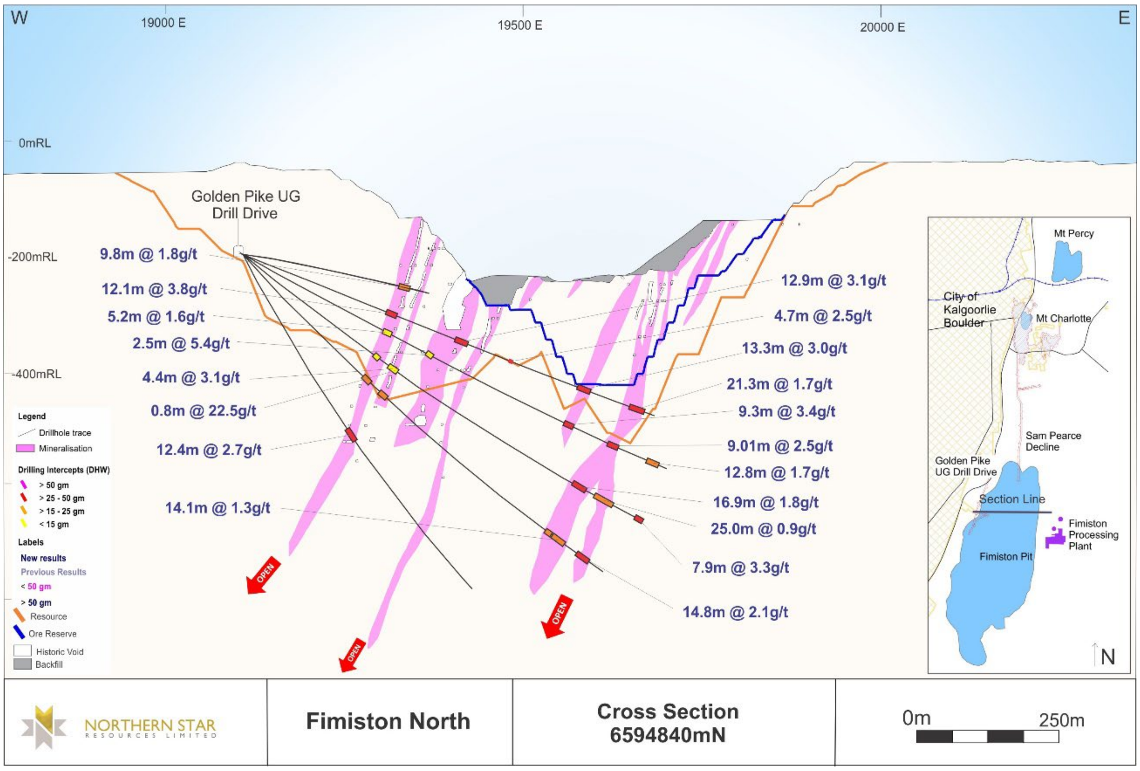
Over the past year, Northern Star has increased the Fimiston Underground Mineral Resource by 20% to 65Mt @ 2.3g/t for 5.0Moz.

At Fimiston, historic underground workings extend to a maximum depth of ~1.4km below surface with historic drilling intersecting mineralisation at depths more than 2km.

To accelerate the growth and definition of the future underground resource potential at Fimiston, Northern Star in April 2021 cut the first underground portal in the Super Pit in almost 25 years.

The new drilling platform was completed on schedule in November 2021, with exploration drilling commencing less than two weeks later. Two underground rigs are initially testing the northern extensions of the historically mined and defined Fimiston lode system. Underground drilling has successfully drilled through multiple voids allowing for greater testing of this highly prospective area.

Figure 2 - New Underground Portal, Golden Pike Drill Drive



Significant Fimiston North Underground drilling intersections received include:

Significant underground drill results include:	
All widths are estimated true width	
FNUD0049	4.7m @ 22.9g/t
FNUD0043	12.1m @ 3.8g/t, 12.9m @ 3.1g/t, 4.74m @ 7.7g/t
FNUD0044	9.3m @ 3.4g/t, 9.0m @ 2.5g/t, 2.m @ 5.4g/t
FNUD0045	16.8m @ 1.8g/t, 7.8m @ 3.3g/t, 25m @ 0.9g/t
FNUD0046	14.8m @ 2.1g/t, 14.1m @ 1.3g/t
FNUD0048	12.3m@ 2.7g/t (including 5.0m @ 5.2g/t)

Mt Charlotte

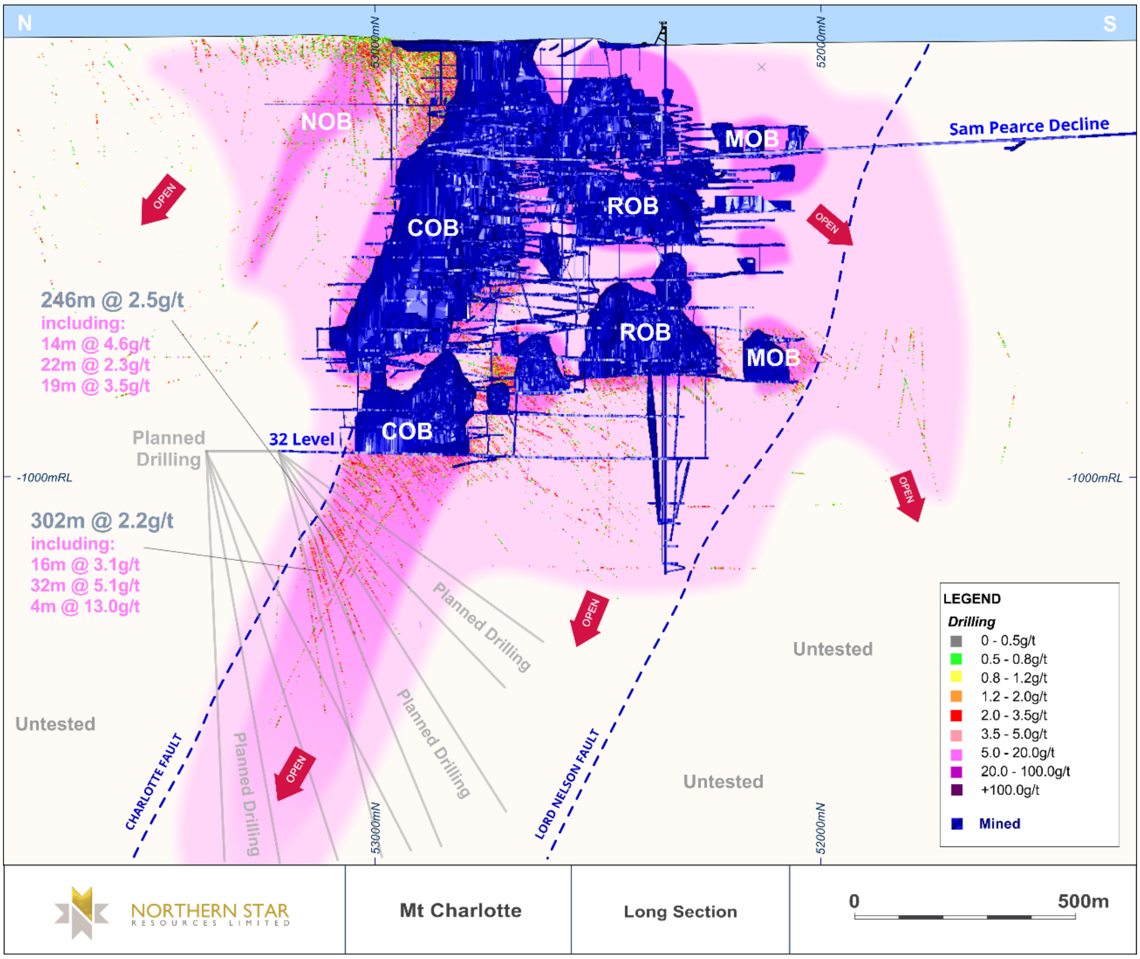
The Mt Charlotte underground operation, located 3km north of the Fimiston processing plant (Fig 1), has produced more than 5.6Moz at an average grade of 3.5g/t.

Optimisation of key estimation parameters derived from the current operating performance and drilling success resulted in a 28% increase in Ore Reserves to 1.2Moz, after depletion. This result begins to highlight the substantial potential of the Mt Charlotte ore system with underground exploration drilling continuing to expand multiple areas adjacent to the existing mine infrastructure.

Looking forward, completion of the rehabilitation of the 32 Level will provide a new drill drive position and an ideal platform for future extensional drilling to significantly expand the down-plunge position of the main Charlotte orebody (COB Lode).

Two underground rigs are currently operating across the Mt Charlotte mine with plans to increase the drilling fleet as the new drill platforms become available.

Figure 3 - Planned 32 Level drilling, Mt Charlotte



Mt Ferrum

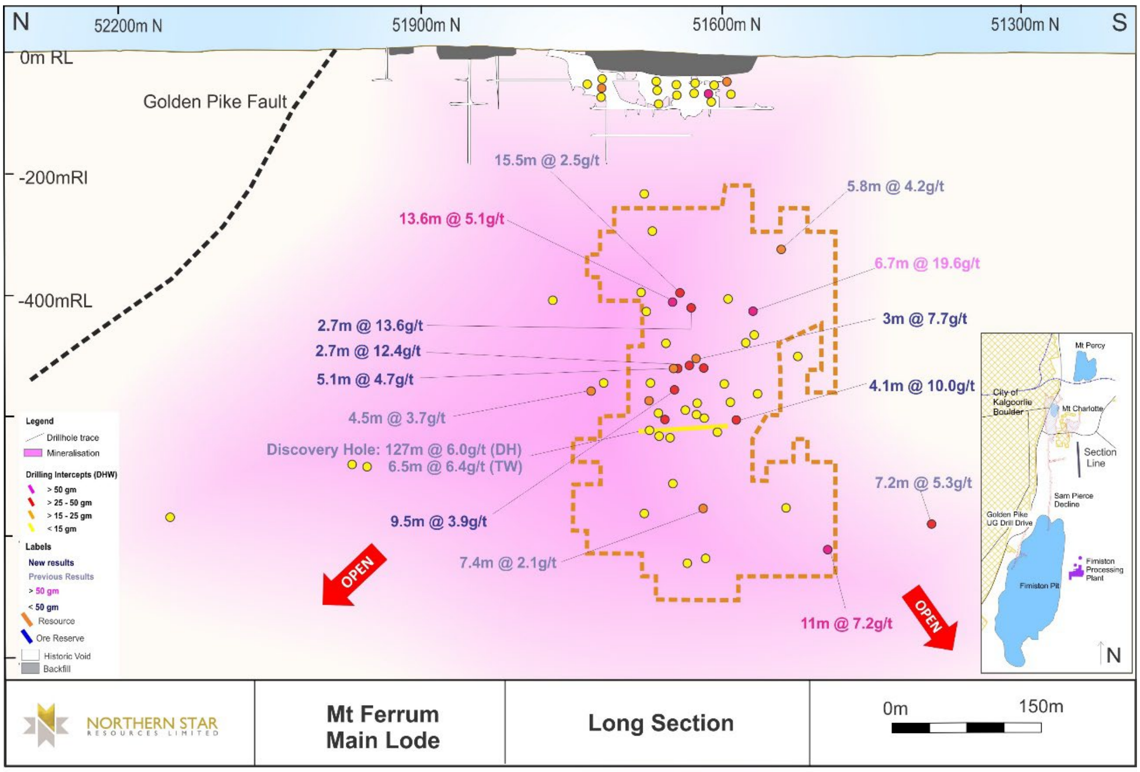
Historically mined near surface, the Mt Ferrum area was largely overlooked until 2018 when underground exploration drilling from Mt Charlotte initially revealed the deeper potential of the near-surface mineralisation.

The Mt Ferrum project is located only 500m east of the Sam Pearce Decline, which serves as the main access to the Mt Charlotte underground mine. The underground drilling across the year has intersected multiple stacked zones of Fimiston-style mineralisation hosted within the Devons Consols Basalt.

A dedicated drilling platform from the Sam Pearce Decline was established during the year, after which resource definition drilling commenced to define the system leading to future Mineral Resource estimate updates.

Drilling completed has returned several impressive intersections including 11.0m @ 7.2g/t and 4.1m @ 10.0g/t. Infill drilling will continue across FY23 with potential mining activities anticipated to commence in FY26.

Figure 4 - Mt Ferrum Main Lode Long Section, New Drill Results



Significant Mt Ferrum underground drilling intersections to date include:

Significant drill results include:	
All widths are estimated true width	
LFUD048	11m @ 7.2g/t
LFUD053	13.63m @ 5.1g/t
LFUD049	9.5m @ 3.9g/t
LFUD058	4.1m @ 10.0g/t
LFUD051	2.7m @ 12.4g/t
LFUD056	2.7m @ 13.6g/t

Mt Percy – Little Wonder

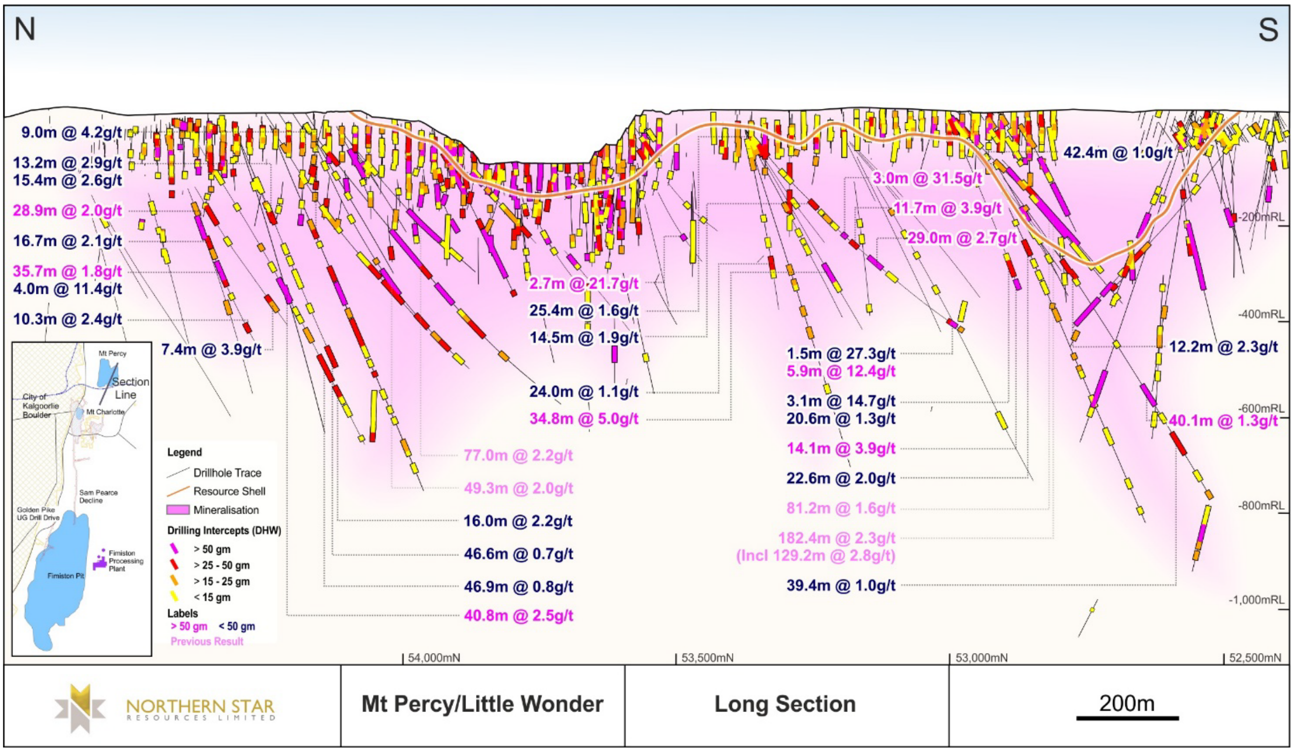
The Mt Percy area, located 4km north of the Fimiston process plant (Fig 1), extends 1km south to the Little Wonder area. Historically, open pit mining at Mt Percy produced a total of 277,000 ounces at a mined grade of 1.8g/t between 1989 and 1992.

Mt Percy hosts multiple mineralisation styles including both Fimiston shear-hosted and Mt Charlotte stockwork styles, predominantly hosted in the Devons Consols Basalt and the Hannans Lake Serpentinite. Limited exploration has been conducted at Mt Percy since the cessation of mining, with most historical surface drilling targeting north-south striking Fimiston-style shear zones.

Recent exploration drilling has targeted potential bulk tonnage stockwork mineralisation, using "Mt Charlotte-style" drilling orientations, which returned some excellent results. This initial exploration drilling has driven a 100% increase in the Mineral Resource to 17.0Mt @ 1.2g/t for 640,000oz.

Critically, a significant number of exceptional drill results exist outside the current resource, highlighting the outstanding long-term exploration potential of this northern corridor.

Figure 5 - Mt Percy Long Section, New Drill Results



Below is a table of significant Mt Percy – Little Wonder intersections recorded to date:

Significant drill results include:	
All widths are down hole widths unless indicated	
LWGD015	34.8m @ 5.0g/t
UCGD011	40.7m @ 2.5g/t, 20m @ 1.0g/t, 15.9m @ 2.2g/t
LWGD012	3m @ 31.4g/t, 29m @ 2.7g/t, 5.9m @ 12.4g/t
LWGD011	3.1m @ 14.6g/t, 20.5m @ 1.2g/t, 14.1m @ 3.9g/t
LWGD008	20m @ 1.8/t, 40.0m @ 1.2g/t, 39.3m @ 1g/t
LWGD007	9m @ 4.1g/t, 37.2m @ 1.7g/t, 47.3m @ 0.74g/t

SOUTH KALGOORLIE

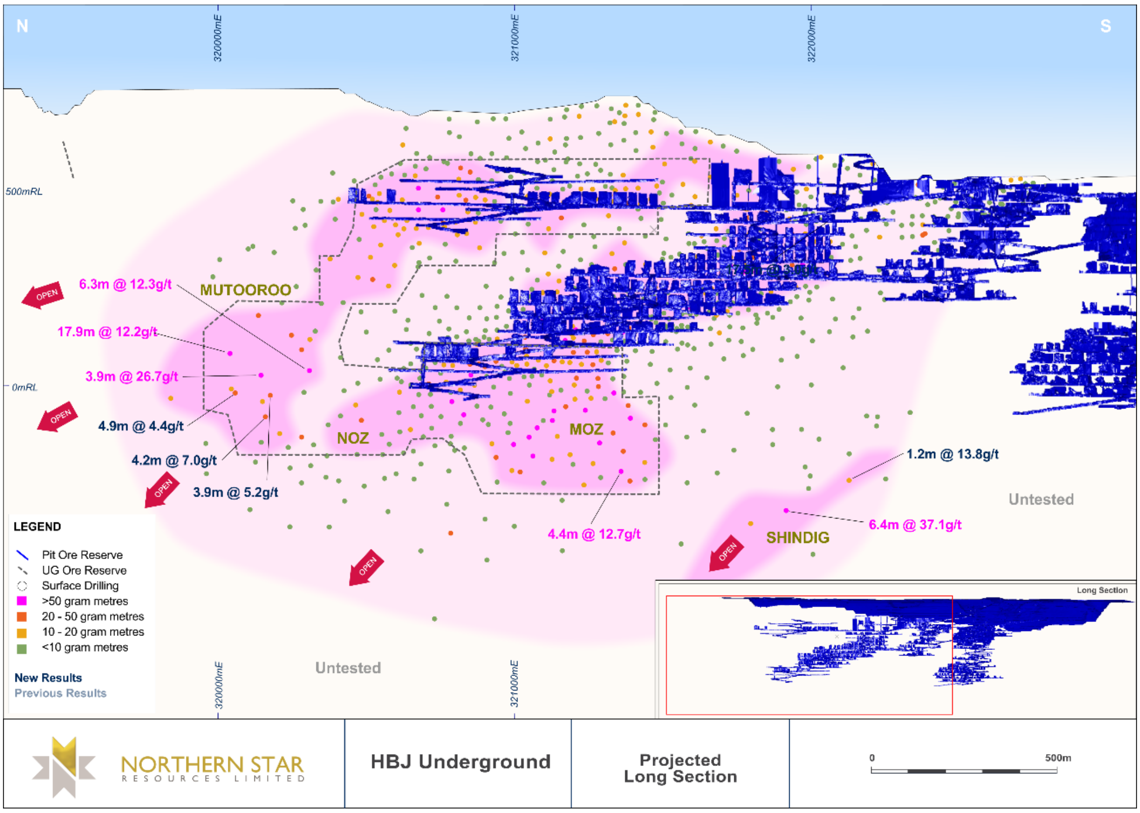
At the HBJ mine, located 25km south of Kalgoorlie, recent in-mine exploration drilling has successfully identified further extensions across the northern portion of the mine, which remain open down plunge.

Of significance are the recent high-grade drill results in the Mutooroo trend north of the current mining area. This north-plunging zone has returned impressive results including 17.9m @ 12.2g/t, 3.9m @ 26.7g/t and 6.3m @ 12.3g/t.

Early results from the new Shindig area (6.4m @ 37.1g/t and 1.2m @ 13.8g/t) continue to demonstrate the potential for further parallel, high-grade mineralisation proximal to the mine infrastructure.

Resource definition drilling programs across the mine during FY22 resulted in a significant 66% increase in Ore Reserves to 457,000 ounces.

Figure 6 - HBJ NOZ Long Section, New Drill Results



Further extensional drilling is pending an assessment of future underground drill platforms and surface drilling options.

Below is a table of significant HBJ intercepts:

Significant drill results include:	
All widths are estimated true width unless indicated	
NOZRT21139	17.9m @ 12.2g/t
NOZRT21003	3.9m @ 26.7g/t
NOZRSD21143	6.3m @ 12.3g/t
NOZRSD21092	4.4m @ 12.7g/t
NOZRT21145	11.1m @ 4.4g/t

CAROSUE DAM

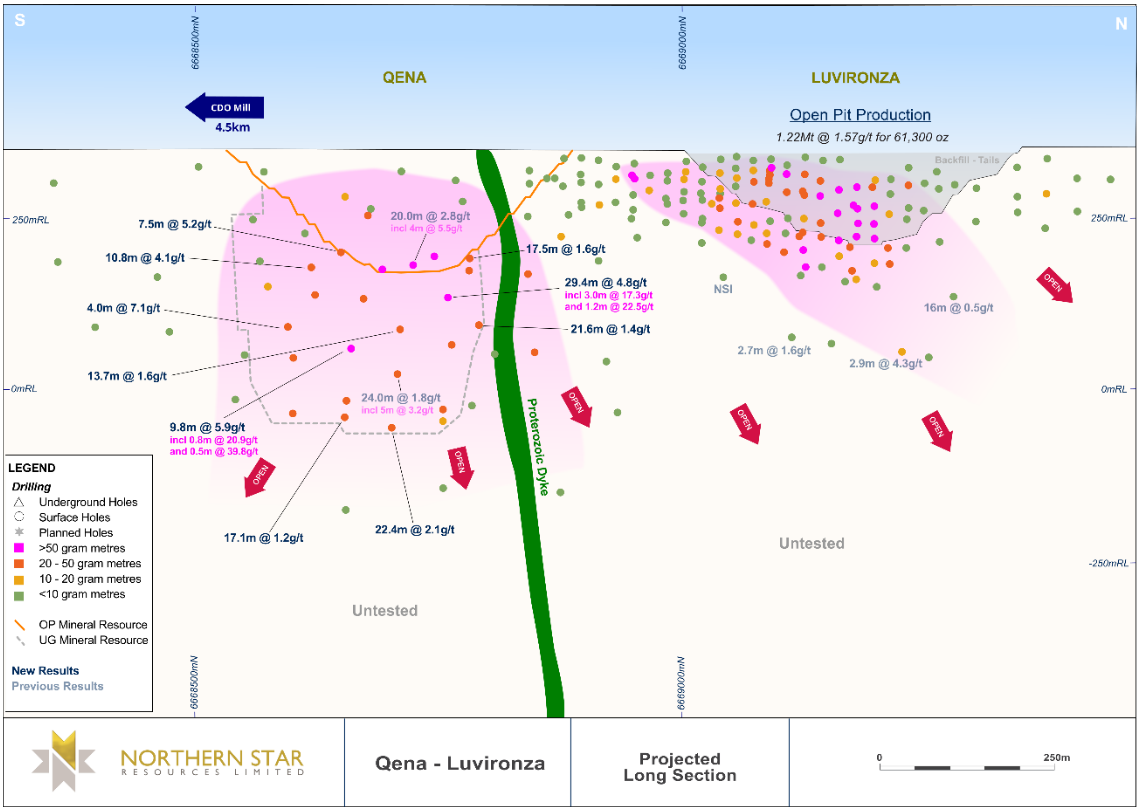
Qena

The Qena prospect is located only 4.5km north of the Carosue Dam mill complex. Exploration drilling during the year successfully outlined a zone of continuous gold mineralisation along the steeply dipping eastern contact of the Atbara monzonite intrusion.

The initial exploration drilling program generated a maiden open pit and underground Mineral Resource totalling 4.3Mt @ 2.2g/t for 310,000oz that remains open in all directions.

Exploration drilling returned significant intersections over a 400m strike length, extending from near surface to a vertical depth of 350m. The mineralisation has an average thickness of 12m with a characteristic pervasive quartz-albite-dolomite alteration and disseminated sulphide mineralisation in volcaniclastic sandstone host rock.

Figure 7 - Qena Long Section, New Drill Results



The mineralisation remains open with extension drilling ongoing to define the full strike and depth extent of the Qena system. Signification drill intersections to date include:

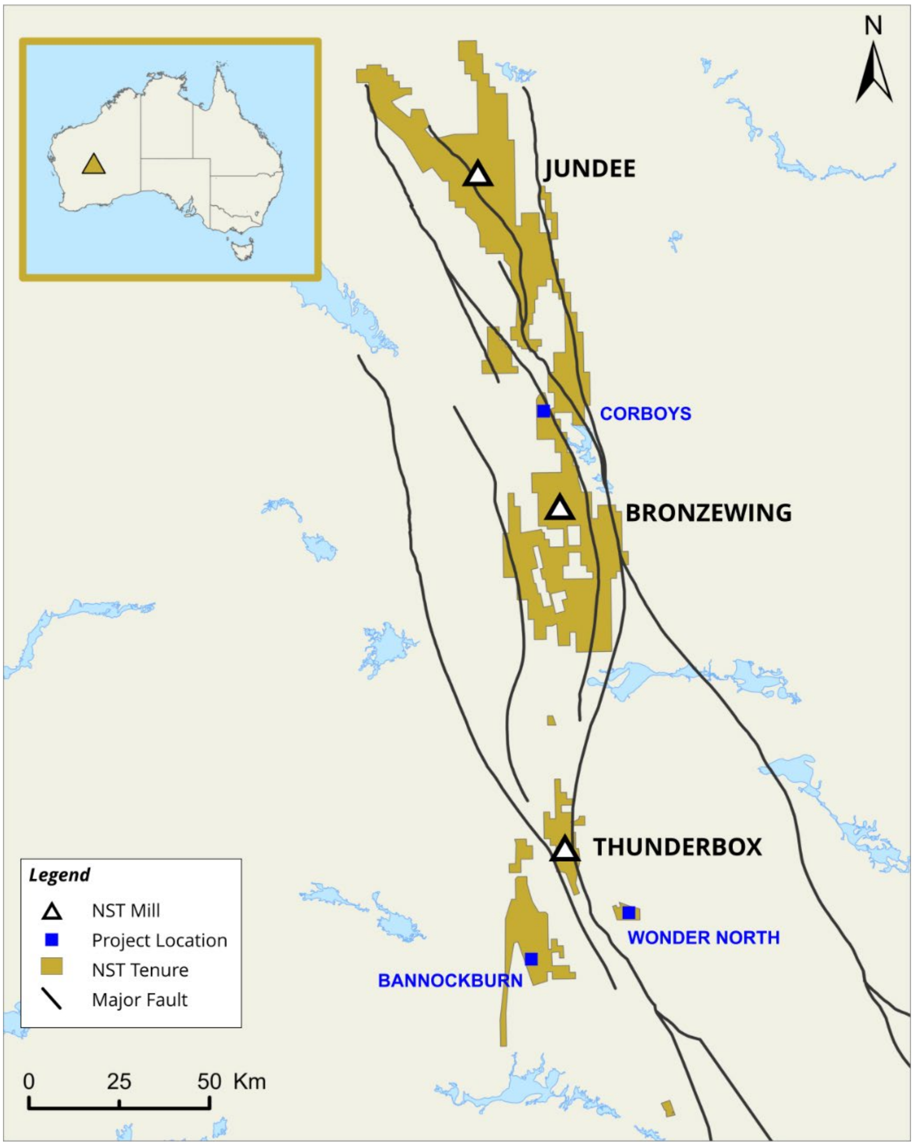
Significant drill results include:	
All widths are down hole widths unless indicated	
QEEX031	29.4m @ 4.8 g/t
QEEX037	7.5m @ 5.2 g/t
QEEX039	9.8m @ 5.9 g/t
QEEX040	10.8m @ 4.1 g/t
QEEX049	22.4m @ 2.1 g/t

YANDAL OPERATIONS

The Yandal Region covers an area of approximately 180 strike kilometres stretching from Jundee in the north to Bannockburn in the south – encompassing several key greenstone belts.

Despite challenging conditions over the past 12 months, several key exploration programs generated excellent results. The standout achievement was a new discovery at Golden Wonder, located only 1km along strike from the Wonder North mining area.

Figure 8 - Yandal Operations, Location Plan



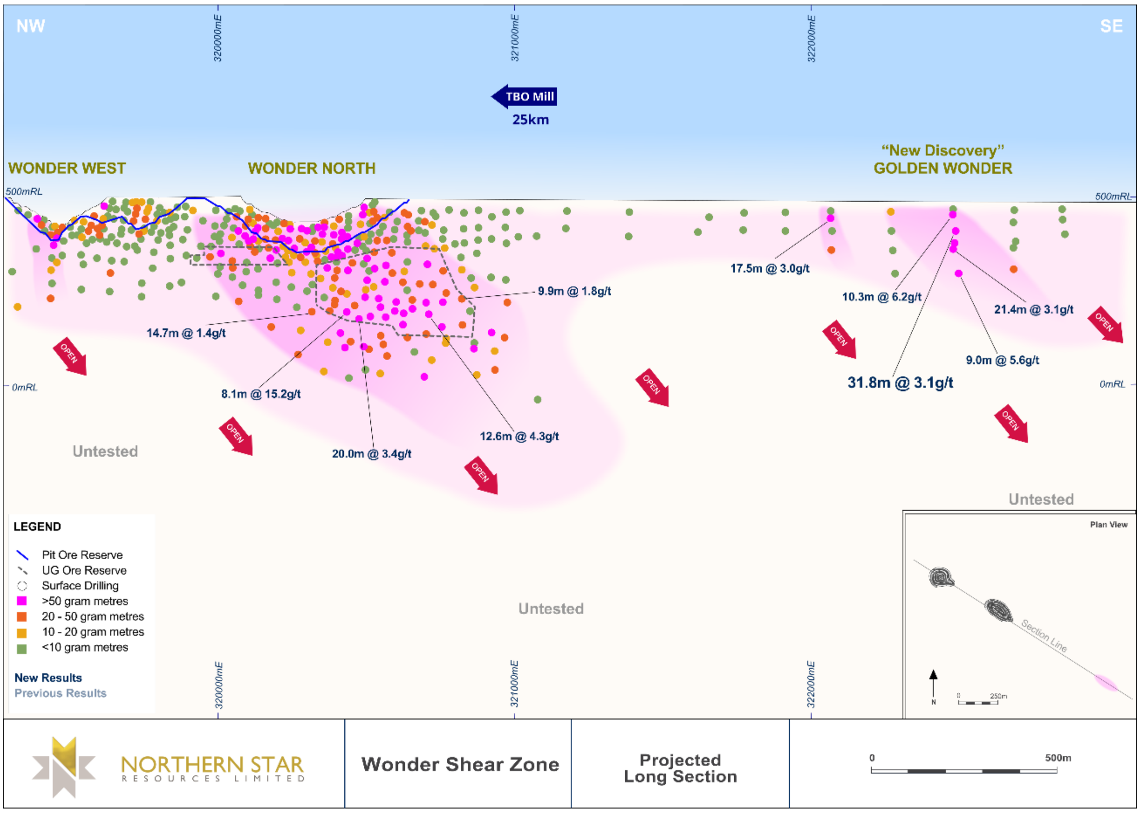
Wonder North – Golden Wonder

Continuing exploration on the Wonder Shear Zone has resulted in the discovery at the Golden Wonder prospect.

The Golden Wonder discovery resulted from analysis of improved geophysical data that clearly defined the positioning of the Wonder Shear Zone to the south-east. Preliminary aircore and RC drilling intersected significant gold mineralisation characterised by strong alteration hosted within a highly strained monzogranite host.

Resource definition drilling is planned for FY23 to generate a maiden Mineral Resource estimate.

Figure 9 - Wonder North and Golden Wonder, New Drill Results



Along trend to the north, infill drilling at Wonder North has focused on defining the underground potential below the existing open pit Ore Reserve. This program has resulted in a maiden underground Ore Reserve for Wonder North of 1.4Mt @ 3.1g/t for 135koz. Below is a table of significant Wonder North and Golden Wonder intercepts:

Significant drill results include:	
All widths are estimated true width	
BNRC056	31.8m @ 3.1g/t
BNRC055	10.3m @ 6.2g/t
BNRC078A	21.4m @ 3.1g/t
WNRD1081	8.1m @ 15.2g/t
WNRD1083	20.0m @ 3.4g/t

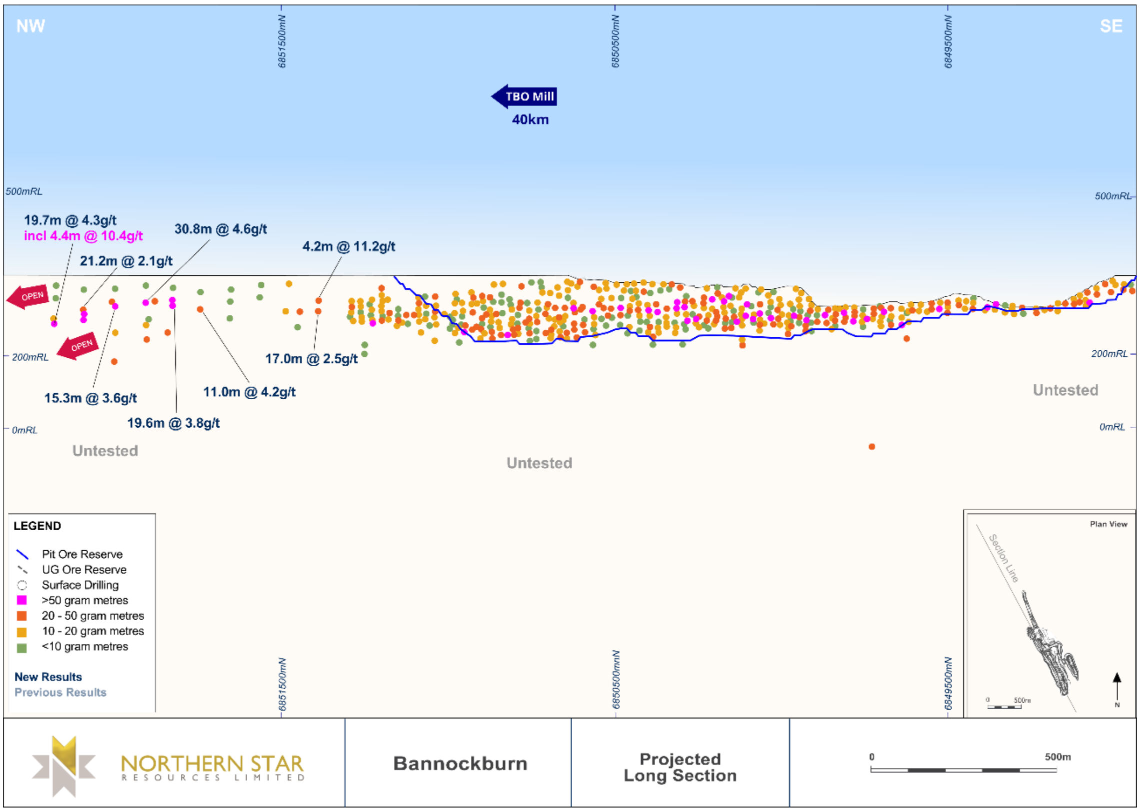
Bannockburn

Exploration at the Bannockburn mining centre focused on drill-testing the Bannockburn Shear Zone to the north of the current defined Mineral Resource and Ore Reserve.

Exploration north of Bannockburn has been hampered by the presence of thick surface and paleo drainage channels. The current drilling program successfully negotiated the difficult drilling conditions to achieve several highly encouraging results located 500m north of the current Bannockburn Ore Reserve.

The broad-spaced drilling located strong primary mineralisation in structures propagating off the Bannockburn Shear Zone in a similar geological setting to the Bannockburn open pit to the south. Exploration is ongoing to define this newly identified mineralisation.

Figure 10 - Bannockburn Long Section, New Drill Results



Below is a table of significant Bannockburn intercepts:

Significant drill results include:	
All widths are estimated true width	
BBRC0201	30.8m @ 4.6g/t
BBRC0183	19.6m @ 3.8g/t
BBRC0191	19.7m @ 4.3g/t (including 4.4m @ 10.4g/t)
BBRC0198	11.0m @ 4.2g/t
BBRC0193	4.2m @ 11.2g/t

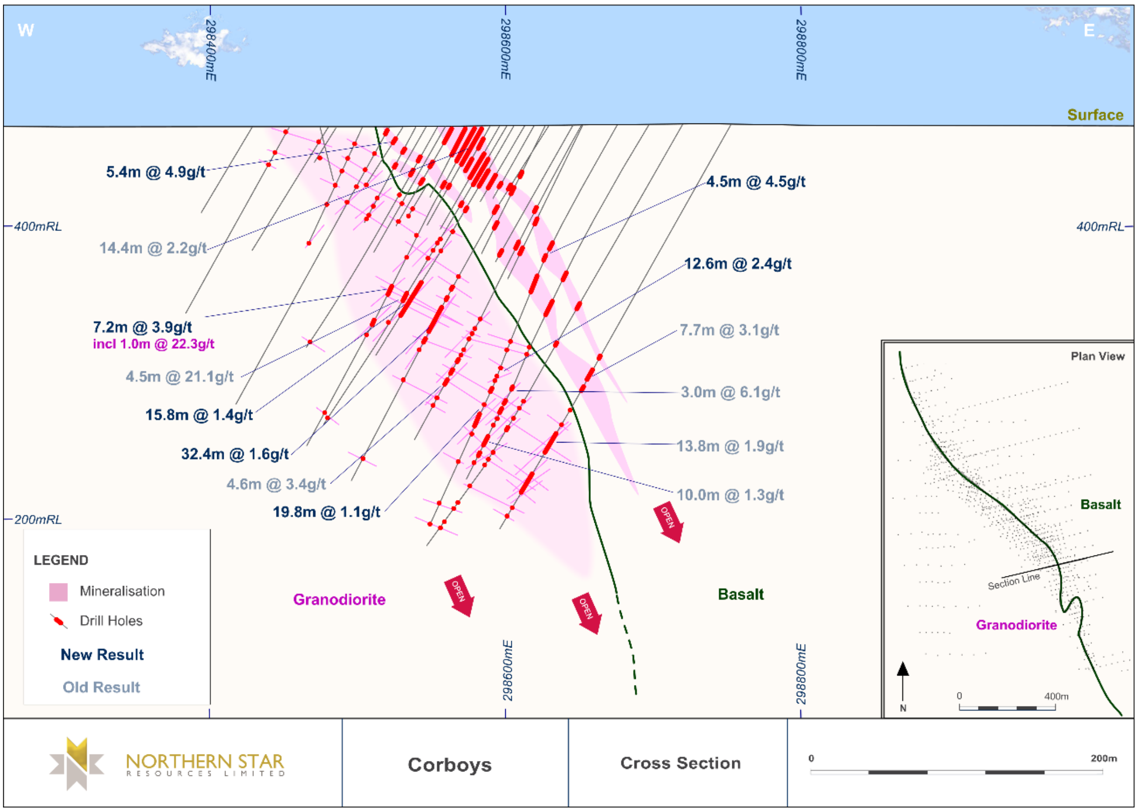
Corboys

The Corboys project is located approximately 25km north of Bronzewing and forms part of a regionally significant, gold-mineralised trend that extends to the Mt Joel area approximately 30km along strike to the south.

At Corboys, mineralisation is concentrated along a steeply dipping granite-basalt contact with both shear-hosted quartz-carbonate-sulphide mineralisation in the mafic hangingwall and extensive sheeted quartz vein arrays developed in the footwall granodiorite.

Resource definition drilling on the central Corboys prospect has continued to significantly expand the extent of footwall mineralisation and highlight the long-term potential of the Corboys – Mt Joel trend for future discoveries.

Figure 11 - Corboys Cross Section, New Drill Results



Further infill drilling is planned to upgrade the mineralisation at depth and provide metallurgical and geotechnical information for preliminary economic assessment.

Below is a table of significant Corboys intercepts:

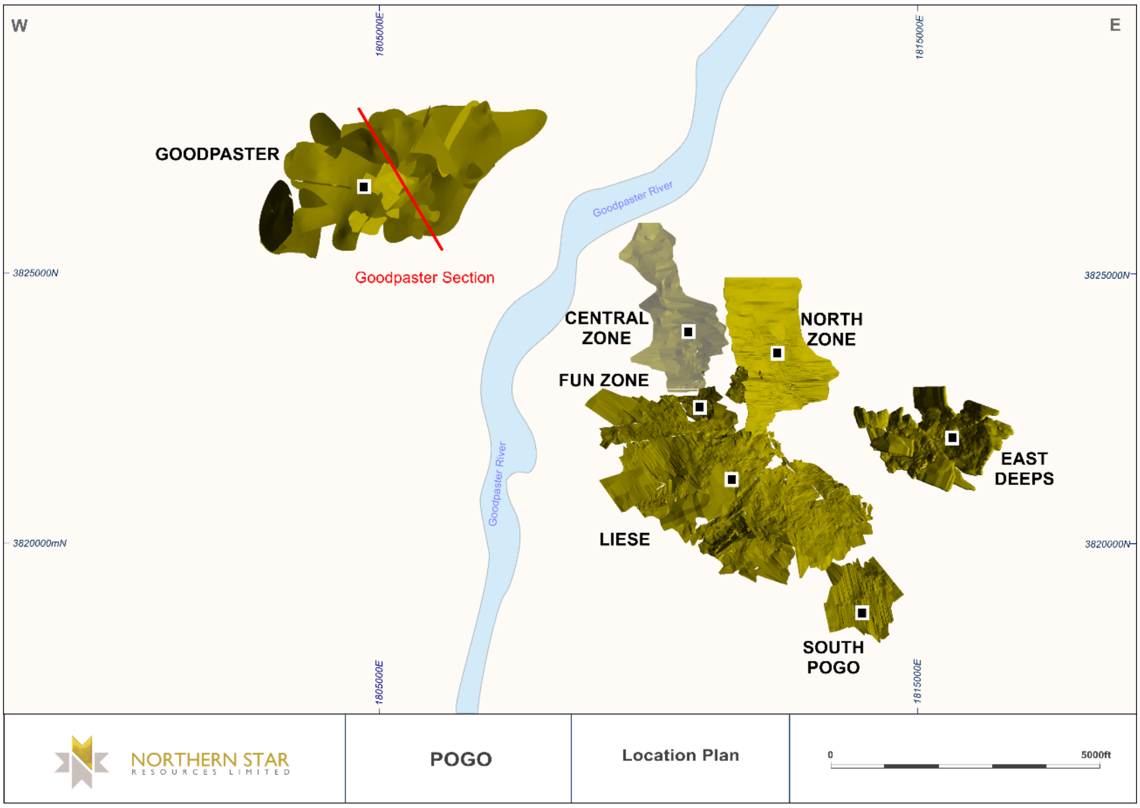
Significant drill results include:	
All widths are estimated true width	
NSRYXR00174	9.9m @ 5.62 g/t
NSRYXR00181	2.7m @ 20.09 g/t
NSRYXR00188	10.8m @ 6.04 g/t
NSRYXR00201	28.8m @ 2.52 g/t
NSRYXR00211	32.4m @ 1.61 g/t
NSRYXR00217	13.5m @ 4.72 g/t
NSRYXR00318	4.5m @ 33.89 g/t

POGO OPERATIONS

At Pogo, while in-mine drilling activity was continually challenged by the impact of COVID-19 and labour availability, the mine achieved a 20% increase in Ore Reserves to 1.8Moz at an increased grade of 8.5g/t, highlighting the exceptional geological potential of the Pogo system.

Pre-development drilling contributed to the significant increase in Ore Reserves, particularly in the high-grade Liese lode system.

Figure 12 - Pogo Location Plan

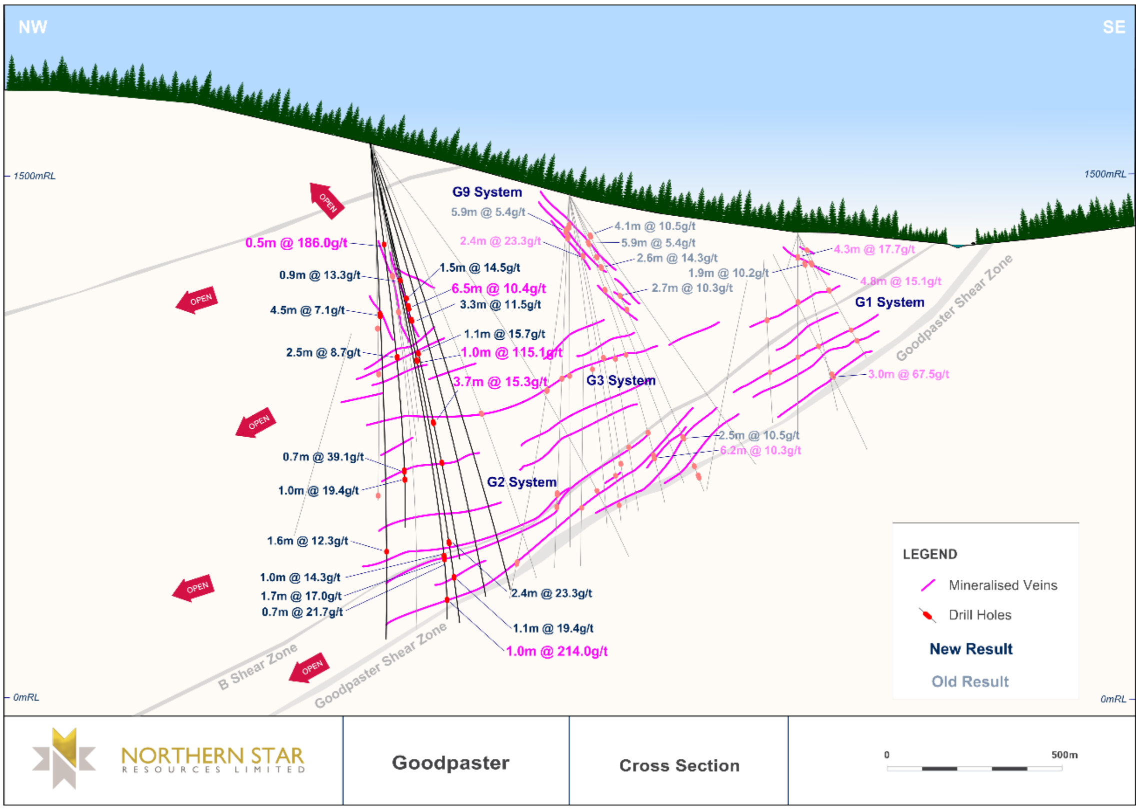


Goodpaster

At the Goodpaster project, approximately 2km west of the Pogo mine area, the initial resource definition drilling program was completed during the year with considerable success on a portion of the Goodpaster trend. The maiden underground Inferred Mineral Resource estimate, based on 214 diamond drill holes, is 3.2Mt @ 10.3g/t for 1.1Moz of gold.

Drilling has confirmed the geological model of shallow to moderately dipping shear zones containing stacked quartz vein arrays combined with several strike-extensive zones of sub-vertical quartz veining. This structural style and characteristic gold-bismuth-telluride mineralisation are comparable to the existing northern mining areas at Pogo (Fun Zone).

Figure 13 - Goodpaster Cross Section, New Drill Results



The Goodpaster mineralised vein system has been delineated over a 2km strike length and remains open in every direction. Follow-up resource conversion and expansion drilling programs are underway.

Below is a table of significant Goodpaster intercepts:

Significant drill results include:	
All widths are estimated true width	
21-022	6.8m @ 18.4 g/t
21-027	8.2m @ 8.3 g/t
21-033	1.3m @ 55.0 g/t
21-073	2.4m @ 23.3 g/t
21-078	0.5m @ 186.0 g/t
21-079	2.3m @ 67.3 g/t
21-084	1.0m @ 115.1 g/t, 1.0m @ 214.0 g/t
21-085	6.5m @ 10.4 g/t, 3.7m @ 15.3 g/t
21-094	6.9m @ 22.8 g/t
21-095	0.5m @ 118.5 g/t

Competent Persons Statements

The information in this announcement that relates to exploration results, data quality and geological interpretations for the Company's Operations is based on information compiled by Daniel Howe, 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 Howe 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". Mr Howe 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 Mineral Resource estimations for the Company's Operations is based on information compiled by Jabulani Machukera, 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 Machukera 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". Mr Machukera 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 Operations is based on information compiled by Jeff Brown, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and a full-time employee of Northern Star Resources Limited. Mr Brown has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Brown consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to the Central and Western Tanami Gold Projects is extracted from the Tanami Gold NL ASX announcement entitled "Quarterly Report for the Period Ending 31 March 2014" released on 1 May 2014 and is available to view on www.tanami.com.au.

The Company confirms that it is not aware of any further new information or data that materially affects the information included in the original market announcement entitled "Quarterly Report for the Period Ending 31 March 2014" released on 1 May 2014 and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. To the extent disclosed above, the Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

APPENDIX A: RESOURCES & RESERVES

MINERAL RESOURCES STATEMENT FOR 12 MONTHS ENDED 31 MARCH 2022

MINERAL RESOURCES as at 31 March 2022

	MEASURED			INDICATED			INFERRED			TOTAL RESOURCES		
NST ATTRIBUTABLE INCLUSIVE OF RESERVE	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)
JUNDEE GOLD PROJECT												
Surface	1,884	1.0	61	7,376	1.5	355	4,784	1.3	192	14,045	1.3	609
Underground	45	2.1	3	35,478	3.2	3,661	11,885	2.9	1,126	47,408	3.1	4,791
Stockpiles	576	1.3	21	-	-	-	-	-	-	576	1.3	21
Gold in Circuit	-	-	5	-	-	-	-	-	-	-	-	5
Sub-Total Jundee	2,506	1.1	90	42,854	2.9	4,017	16,670	2.5	1,319	62,029	2.7	5,425
THUNDERBOX												
Surface	2,910	1.5	136	43,803	1.6	2,190	4,537	1.4	206	51,250	1.5	2,532
Underground	12,986	1.8	733	13,811	1.8	805	4,342	1.8	254	31,139	1.8	1,792
Stockpiles	1,925	1.3	44	-	-	-	-	-	-	1,925	1.3	44
Gold in Circuit	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Thunderbox	17,821	1.6	914	57,614	1.6	2,995	8,878	1.6	459	84,313	1.6	4,368
TOTAL YANDAL	20,326	1.5	1,004	100,468	2.2	7,012	25,548	2.2	1,778	146,342	2.1	9,793
POGO PROJECT												
Surface	-	-	-	-	-	-	503	7.0	114	503	7.0	114
Underground	-	-	-	9,572	11.0	3,400	12,265	9.7	3,817	21,837	10.3	7,217
Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-
Gold in Circuit	-	-	7	-	-	-	-	-	-	-	-	7
Sub-Total Pogo	-	-	7	9,572	11.0	3,400	12,768	9.6	3,931	22,340	10.2	7,338
KCGM												
Surface	-	-	-	219,505	1.8	12,385	99,288	1.3	4,309	318,792	1.6	16,694
Underground	-	-	-	49,440	2.2	3,497	54,758	2.4	4,277	104,198	2.3	7,774
Stockpiles	122,976	0.7	2,864	-	-	-	-	-	-	122,976	0.7	2,864
Gold in Circuit	-	-	25	-	-	-	-	-	-	-	-	25
Sub-Total KCGM	122,976	0.7	2,889	268,945	1.8	15,882	154,046	1.7	8,586	545,967	1.6	27,357
KANOWNA GOLD PROJECT												
Surface	10	3.1	1	2,878	2.7	249	3,339	1.3	144	6,227	2.0	393
Underground	4,588	3.3	483	15,652	2.6	1,326	11,274	2.3	827	31,514	2.6	2,636
Stockpiles	230	1.6	12	-	-	-	-	-	-	230	1.6	12
Gold in Circuit	-	-	6	-	-	-	-	-	-	-	-	6
Sub-Total Kanowna	4,828	3.2	502	18,530	2.6	1,575	14,613	2.1	971	37,971	2.5	3,047
SKO GOLD PROJECT												
Surface	-	-	-	-	-	-	-	-	-	-	-	-
Underground	2,591	3.0	251	12,136	3.0	1,183	10,116	3.3	1,058	24,843	3.1	2,492
Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-
Jubilee ROM stocks	208	1.3	8	-	-	-	-	-	-	208	1.3	8
Gold in Circuit	-	-	3	-	-	-	-	-	-	-	-	3
Sub-Total SKO	2,799	2.9	262	12,136	3.0	1,183	10,116	3.3	1,058	25,051	3.1	2,503
CAROSUE DAM GOLD PROJECT												
Surface	3,794	1.6	195	22,687	1.7	1,217	10,467	1.6	522	36,947	1.6	1,934
Underground	7,583	3.0	727	12,685	2.5	1,036	5,977	2.9	473	26,244	2.7	2,235
Stockpiles	2,526	1.8	58	-	-	-	-	-	-	2,526	1.8	58
Gold in Circuit	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Carosue Dam	13,903	2.2	980	35,371	2.0	2,253	16,444	2.1	995	65,718	2.1	4,227
TOTAL KALGOORLIE	144,506	1.0	4,633	334,982	1.9	20,892	195,218	1.8	11,610	674,706	1.7	37,135
PAULSENS PROJECT												
Surface	-	-	-	129	3.1	13	1,766	1.9	106	1,895	2.0	119
Underground	341	5.8	64	88	5.6	16	43	6.6	9	473	5.8	89
Stockpiles	11	1.6	1	-	-	-	-	-	-	11	1.6	1
Gold in Circuit	-	-	0	-	-	-	-	-	-	-	-	0
Sub-Total Paulsens	353	5.7	65	217	4.1	29	1,809	2.0	115	2,379	2.7	209
ASHBURTON PROJECT												
Surface	-	-	-	98	1.6	5	444	1.2	17	542	1.3	22
Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Ashburton	-	-	-	98	1.6	5	444	1.2	17	542	1.3	22
CENTRAL TANAMI PROJECT JV												
Surface/Underground	3,128	2.9	290	5,538	2.8	500	6,052	2.9	566	14,718	2.9	1,356
Stockpiles	700	0.7	16	-	-	-	-	-	-	700	0.7	16
Sub-Total Central Tanami JV	3,828	2.5	306	5,538	2.8	500	6,052	2.9	566	15,418	2.8	1,372
WESTERN TANAMI PROJECT												
Surface/Underground	107	7.8	27	1,079	6.0	208	1,449	5.8	271	2,635	6.0	506
Stockpiles	375	1.4	17	-	-	-	-	-	-	375	1.4	17
Sub-Total Western Tanami	482	2.8	44	1,079	6.0	208	1,449	5.8	271	3,010	5.4	523
NORTHERN STAR TOTAL	169,495	1.1	6,058	451,955	2.2	32,046	243,289	2.3	18,288	864,738	2.0	56,392

Note:

1. Mineral Resources are inclusive of Ore Reserves.
2. Mineral Resources are reported at various gold price guidelines: a. A$2,250/oz Au - All Australian assets except Ashburton; b. AUD $1,850 /oz Au - Ashburton; US$1,500/oz Au - USA assets.
3. Rounding may result in apparent summation differences between tonnes, grade and contained metal content.
4. Numbers are 100 % NST attributable.
5. Bronzewing projects have been re-distributed into the likely processing option either Thunderbox or Jundee

Competent Persons:

1. Jabulani Machukera

APPENDIX A: RESOURCES & RESERVES

ORE RESERVES STATEMENT FOR 12 MONTHS ENDED 31 MARCH 2022

ORE RESERVES as at 31 March 2022	PROVED			PROBABLE			TOTAL RESERVE		
NST ATTRIBUTABLE RESERVE	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)
JUNDEE GOLD PROJECT									
Surface	1,851	1.0	60	1,338	1.7	75	3,190	1.3	134
Underground	45	2.1	3	11,668	4.2	1,576	11,713	4.2	1,579
Stockpiles	576	1.1	21	-	-	-	576	1.1	21
Gold in Circuit	-	-	5	-	-	-	-	-	5
Sub-Total Jundee	2,473	1.1	89	13,006	3.9	1,651	15,479	3.5	1,740
THUNDERBOX PROJECT									
Surface	-	-	-	24,344	1.5	1,185	24,344	1.5	1,185
Underground	8,570	1.7	475	7,132	1.9	439	15,702	1.8	914
Stockpiles	1,925	1.3	44	-	-	-	1,925	1.3	44
Gold in Circuit	-	-	3	-	-	-	-	-	3
Sub-Total Thunderbox	10,495	1.5	522	31,476	1.6	1,625	41,971	1.6	2,147
TOTAL YANDAL	13,433	1.4	625	42,364	2.2	3,060	57,450	2.1	3,887
POGO GOLD PROJECT									
Surface	-	-	-	-	-	-	-	-	-
Underground	-	-	-	6,590	8.5	1,800	6,590	8.5	1,800
Stockpiles	-	-	-	-	-	-	-	-	-
Gold in Circuit	-	-	7	-	-	-	-	-	7
Sub-Total Pogo	-	-	7	6,590	8.5	1,800	6,590	8.5	1,808
KCGM									
Surface	-	-	-	140,035	1.7	7,863	140,035	1.7	7,863
Underground	-	-	-	17,839	2.0	1,174	17,839	2.0	1,174
Stockpiles	122,976	0.7	2,864	-	-	-	122,976	0.7	2,864
Gold in Circuit	-	-	25	-	-	-	-	-	25
Sub-Total KCGM	122,976	0.7	2,889	157,874	1.8	9,037	280,850	1.3	11,926
KANOWNA GOLD PROJECT									
Surface	-	-	-	1,426	3.0	137	1,426	3.0	137
Underground	2,376	2.7	203	5,775	2.3	432	8,151	2.4	635
Stockpiles	230	1.6	12	-	-	-	230	1.6	12
Gold in Circuit	-	-	6	-	-	-	-	-	6
Sub-Total Kanowna	2,606	2.6	220	7,201	2.5	569	9,807	2.5	789
SKO GOLD PROJECT									
Surface	-	-	-	-	-	-	-	-	-
Underground	711	3.8	87	2,717	4.1	359	3,428	4.0	446
Stockpiles	-	-	-	-	-	-	-	-	-
Jubilee ROM stocks	208	1.3	8	-	-	-	208	1.3	8
Gold in Circuit	-	-	3	-	-	-	-	-	3
Sub-Total SKO	919	3.3	98	2,717	4.1	359	3,636	3.9	457
CAROSUE DAM PROJECT									
Surface	588	1.2	23	15,996	1.5	768	16,584	1.5	791
Underground	4,019	3.0	392	6,124	2.7	527	10,143	2.8	919
Stockpiles	2,526	1.8	58	-	-	-	2,526	1.8	58
Gold in Circuit	-	-	7	-	-	-	-	-	7
Sub-Total Carosue Dam	7,133	2.1	481	22,120	1.8	1,295	29,252	1.9	1,776
TOTAL KALGOORLIE	133,634	0.9	3,688	189,911	1.8	11,259	323,545	1.4	14,947
PAULSENS PROJECT									
Surface	-	-	-	-	-	-	-	-	-
Underground	186	5.1	31	84	4.0	11	269	4.8	41
Stockpiles	11	1.6	1	-	-	-	11	1.6	1
Gold in Circuit	-	-	-	-	-	-	-	-	-
Sub-Total Paulsens	197	4.9	31	84	4.0	11	281	4.6	42
ASHBURTON PROJECT									
Surface	-	-	-	-	-	-	-	-	-
Stockpiles	-	-	-	-	-	-	-	-	-
Sub-Total Ashburton	-	-	-	-	-	-	-	-	-
CENTRAL TANAMI PROJECT JV									
Underground	-	-	-	-	-	-	-	-	-
Stockpiles	-	-	-	-	-	-	-	-	-
Sub-Total Central Tanami JV	-	-	-	-	-	-	-	-	-
WESTERN TANAMI PROJECT									
Underground	-	-	-	-	-	-	-	-	-
Stockpiles	-	-	-	-	-	-	-	-	-
Sub-Total Western Tanami	-	-	-	-	-	-	-	-	-
NORTHERN STAR TOTAL	146,799	0.9	4,338	241,067	2.1	16,346	387,866	1.7	20,683

Note:

1. Ore Reserves are reported at various gold price guidelines: a. A$1,750/oz Au - All Australian assets, US$1,350/oz Au - USA assets.
2. Rounding may result in apparent summation differences between tonnes, grade and contained metal content.
3. Ounces are estimates of metal contained in the Ore Reserve and do not include allowances for processing losses.
4. Numbers are 100 % NST attributable.

Competent Persons:

1. Jeff Brown

APPENDIX B: DRILL RESULTS

FIMISTON NORTH SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (AKSP3)	Northing (AKSP3)	Drill hole collar RL (AKSP3)	Dip (deg)	Azimuth (deg, Mag North)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
FNUD0028	356076	6594721	255	-36	102	250	247.0	249.0	2.0	4.4	1.8
FNUD0029	356076	6594722	255	-45	95	606	258.9	262.7	3.8	2.2	3.0
						and	311	320	9.0	2.3	7.1
FNUD0032A	356068	6594730	255	-37	79	501	272.1	276.9	4.9	2.7	4.4
FNUD0033	356075	6594722	255	-59	96	509	320.0	324.5	4.5	3.9	3.0
						and	354.5	360.8	6.3	2.2	4.2
						and	378.4	380.7	2.3	4.5	1.5
						and	501.3	508.3	7.0	5.7	4.8
FNUD0034	356076	6594721	255	-66	97	723	330.4	338.0	7.6	4.5	4.6
						and	331.7	338	6.3	5.4	3.8
						and	552.2	570	17.8	1.4	11.2
FNUD0035	356076	6594721	255	-71	99	762	400.3	426.7	26.4	2.7	14.9
						including	408.6	419.8	11.2	4	6.3
						and	615.1	626	10.9	2.1	6.7
						and	729.89	740	10.1	2	6.5
FNUD0036	356076	6594721	255	-78	104	762	155.1	156.4	1.3	45.2	-
						and	155.1	157	1.9	31.1	-
						and	425.4	438.1	12.7	3.1	6.0
						and	633.9	655.	21.2	1.4	12.3
FNUD0042	355918	6594840	222	-8	95	336	272.0	274.2	2.2	4	2.2
						and	285.94	296	10.1	1.8	9.8
FNUD0043	355920	6594839	221	-22	93	780	273.2	285.9	12.6	3.8	12.1
						and	407.	420.6	13.6	3.1	12.9
						including	411	420.6	9.7	4.2	9.2
						and	498	503	5.0	2.5	4.7
						and	639.87	654	14.1	3	13.3
						including	648.0	653.0	5.0	7.7	4.7
						and	734.1	756.6	22.5	1.7	21.3
						including	750.4	756.6	6.2	4.5	5.9
FNUD0044	355920	6594839	221	-29	92	837	285.7	291.2	5.5	1.6	5.2
						and	371.1	373.8	2.7	5.4	2.5
						and	643.4	653.5	10.1	3.4	9.3
						and	728.5	738.1	9.7	2.5	9.0
						and	803.8	816.7	12.8	1.7	-
FNUD0045	355920	6594839	220	-39	92	843	327.3	332.1	4.8	3.1	4.4
						and	333.9	334.7	0.8	22.5	0.8
						and	659.3	691.2	31.9	0.6	-
						and	708	726.2	18.2	1.8	16.9
						including	708.7	715	6.3	4.6	5.8
						and	753.2	780	26.9	0.9	25.0
						including	766.5	771.4	4.9	2.2	-
						and	834.5	842.9	8.5	3.3	7.9
FNUD0046	355920	6594839	220	-48	93	844	716	732.2	16.2	1.3	14.1
						including	724.8	727.1	2.4	6.6	2.1
						and	792	808.9	16.9	2.1	14.9
FNUD0048	355919	6594838	220	-61	93	713	190.	191	1.0	37.6	-
						and	360.4	375.9	15.5	2.7	12.4
						including	369.6	375.9	6.3	5.2	5.0
FNUD0049	355867	6595010	196	7	90	334	141.6	146.4	4.9	22.9	4.7

MT FERRUM MAIN LODE SIGNIFICANT INTERSECTIONS > 20g/m											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, Mag North)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
CCUD010	355136.3	6597647	-4.117	-31.87	116.33	663.25	242.1	248.2	6.1	5.3	6.0
LFUD048	355066.8	6597021	170.542	-9.83	101.51	588.49	594.7	606.11	11.41	7.3	11.1
LFUD049	355385.8	6597193	124.611	-23.58	88.43	405.4	248.15	257.7	9.55	4.1	8.6
LFUD051	355386.1	6597193	124.62	-28.68	82.92	348.48	255.2	260.39	5.19	4.78	3.5
						and	266	268.77	2.77	12.5	2.7
LFUD053	355386	6597193	124.923	-17.17	89.7	294.4	249.4	263.03	13.63	5.2	13.4
LFUD054	355386.5	6597193	124.625	-15.8	101.82	281.96	249.3	256.45	7.15	4.6	7.1
LFUD056	355386.1	6597193	124.934	-18.43	96.31	273.52	240.7	243.4	2.7	13.6	2.7
LFUD058	355386	6597193	124.321	-32.57	106.28	300.22	249.09	253.27	4.18	10.0	4.1
LFUD067	355386	6597193	124.612	-29.02	90.21	303.09	264	267	3	7.8	3.0

APPENDIX B: DRILL RESULTS

MT PERCY/LITTLE WONDER SIGNIFICANT INTERSECTIONS											
Drill Hole	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, Mag North)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
LWGD007	354736	6598454	399	-61	185	811.3	224.5	247.0	22.6	2.0	-
						and	369.0	385.0	16.0	1.3	-
						and	488.0	488.6	0.6	35.4	-
LWGD008	354735	6598454	399	-54	166	943.3	173.0	174.0	1.0	19.8	-
						and	302.0	322.0	20.0	1.8	-
						and	586.6	626.6	40.1	1.3	-
						and	697.0	736.4	39.4	1.0	-
						and	813.2	842.0	28.8	0.8	-
LWGD010	354812	6598533	399	-55	128	622.0	119.6	162.0	42.4	1.0	-
						and	472.0	484.2	12.2	2.3	-
LWGD011	354811	6598535	399	-66	117	551.3	390.8	393.9	3.1	14.7	-
						and	400.6	421.2	20.6	1.3	-
						and	440.9	455.0	14.1	3.9	-
LWGD012	354624	6598875	397	-54	133	853.2	49.0	74.4	25.4	1.6	-
						and	227.5	242.0	14.5	1.9	-
						and	333.0	336.0	3.0	31.5	-
						and	358.0	369.7	11.7	3.9	-
						and	411.0	440.0	29.0	2.7	-
						and	629.6	631.1	1.5	18.2	-
						and	636.4	642.3	5.9	12.4	-
						and	658.0	671.5	13.5	1.5	-
LWGD013	354624	6598873	397	-66	124	505.0	202.9	214.0	11.1	2.0	-
LWGD014	354629	6598877	398	-65	205	671.9	276.0	286.0	10.0	1.8	-
						and	305.0	309.0	4.0	4.5	-
						and	359.0	368.0	9.0	2.6	-
						and	400.0	412.5	12.5	1.5	-
LWGD015	354630	6598877	398	-58	186	443.0	302.5	337.3	34.8	5.0	-
LWGD016	354629	6598878	397	-75	113	425.2	74.5	93.0	18.5	1.0	-
						and	308.0	332.0	24.0	1.1	-
LWGD017	354630	6598878	397	-61	146	778.0	37.9	60.0	22.1	0.9	-
LWGD019	354666	6598695	399	-58	102	484.2	309.0	325.0	16.0	1.0	-
LWGD021	354663	6598693	399	-51	153	861.4	495.9	522.6	26.7	0.7	-
LWGD022	354666	6598687	399	-59	182	754.1	171.0	174.0	3.0	5.9	-
UCGD007	354346	6599732	396	-66	183	763.1	226.0	235.0	9.0	4.2	-
						and	336.8	374.0	37.2	1.7	-
						and	413.0	460.3	47.3	0.7	-
						and	522.0	523.0	1.0	29.6	-
						and	663.1	680.7	17.6	1.3	-
UCGD008	354313	6599792	395	-65	177	197.8	162.4	165.0	2.6	8.3	-
						and	181.2	194.4	13.2	2.9	-
UCGD009	354313	6599793	395	-65	172	675.5	186.5	201.9	15.4	2.6	-
						and	471.1	517.6	46.6	0.7	-
UCGD010	354212	6599885	393	-63	163	439.2	172.0	189.3	17.3	1.3	-
						and	373.6	381.0	7.4	3.9	-
UCGD011	354267	6599861	394	-59	179	682.1	330.1	370.9	40.8	2.5	-
						and	439.0	459.0	20.0	1.0	-
						and	496.1	543.0	46.9	0.8	-
						and	562.0	578.0	16.0	2.2	-
UCGD012	354210	6599884	394	-69	153	541.2	214.0	230.7	16.7	2.1	-
						and	242.0	254.0	12.0	1.7	-
						and	270.0	305.7	35.7	1.8	-
						and	312.0	316.0	4.0	11.4	-
						and	410.7	421.0	10.3	2.4	-
UCGD013	354208	6599883	394	-69	182	511.1	103.4	129.9	26.5	0.9	-
						and	156.1	195.0	38.9	2.0	-
						and	330.0	348.1	18.1	1.1	-
UCGD017	354470	6599036	394	-63	115	505.2	249.4	252.0	2.7	21.7	-
UCGD021	354124	6600057	394	-66	201	397.2	296.0	321.0	25.0	0.7	-
MSGC020	364870	6579359	323	-48	230	84.0	26.0	51.0	25.0	11.7	-
MSGC024	366066	6578634	323	-52	31	150.0	73.0	78.0	5.0	4.6	-

HBJ SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
CVCDT21001A	365847	6566812	364	57	-69	1020.6	971.0	977.3	6.3	1.4	5.2
CVCDT21001AD1	365847	6566812	364	57	-69	1132.0	1024.6	1029.1	4.5	2.4	3.2
HBJEX0001	366042	6567351	-113	5	-48	249.4	229.5	231.3	1.8	4.4	1.0

APPENDIX B: DRILL RESULTS

HBJ SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
HBJEX0003	366042	6567351	-112	350	-42	336.5	318.7	323.6	5.0	3.9	1.8
HBJEX0004	366042	6567351	-112	358	-48	300.5	270.2	274.2	4.0	5.8	1.9
HBJEX0005	366042	6567351	-112	8	-55	255.6	230.0	238.1	8.1	1.6	4.3
HBJEX0007	366042	6567351	-112	46	-65	225.7	211.7	217.1	5.4	1.4	3.4
HBJEX0009	366042	6567351	-112	3	-55	267.2	253.0	259.8	6.8	1.5	3.2
HBJEX0012	366042	6567351	-112	358	-56	300.7	278.8	288.7	9.8	8.1	4.2
HBJEX0026	366107	6567028	-69	90	-57	285.8	246.6	248.8	2.2	14.3	1.7
HBJEX0027	366107	6567028	-69	90	-66	318.8	298.2	300.8	2.6	10.3	1.7
HBJEX0035	366107	6567027	-69	187	-48	548.6	492.2	505.3	13.1	37.1	6.4
HBJEX0036	366107	6567027	-69	135	-55	510.1	454.4	491.6	37.2	1.1	16.9
HBJEX0038	366107	6567026	-69	68	-63	294.6	275.0	283.2	8.1	3.7	5.5
HBJEX0039	366107	6567026	-69	77	-71	393.6	327.0	329.4	2.4	15.4	1.4
HBJEX0040	366102	6567036	-69	52	-68	333.1	319.9	325.4	5.5	1.7	3.2
HBJEX0042	366102	6567037	-69	23	-67	387.1	375.1	376.9	1.9	5.4	1.0
HBJEX0051	366055	6567374	-112	101	-84	384.7	353.3	361.9	8.7	9.2	2.7
MUTRSD21055	366115	6567381	180	27	-65	198.8	138.8	145.6	6.8	1.7	3.5
MUTRSD21079	366096	6567341	141	352	-36	279.9	220.8	234.0	13.3	4.0	5.0
MUTRSD21081	366096	6567341	141	346	-27	285.7	252.1	261.7	9.6	12.0	2.9
MUTRSD21083	366092	6567393	180	353	-42	244.0	185.0	193.1	8.2	4.3	2.9
MUTRT21077	366093	6567393	180	346	-47	379.0	223.2	233.1	9.9	6.9	2.6
MUTRT21078	366092	6567393	180	339	-49	408.5	369.2	381.6	12.4	5.5	2.5
NOZRSD21087	366102	6567037	-69	5	-41	387.7	361.9	369.4	7.5	2.7	4.6
NOZRSD21088	366102	6567037	-69	23	-56	348.9	319.0	327.0	8.0	2.2	5.1
NOZRSD21089	366102	6567036	-69	64	-57	268.6	248.9	259.6	10.6	3.1	7.8
NOZRSD21090A	366102	6567037	-69	36	-68	357.8	337.7	341.1	3.4	5.1	2.0
NOZRSD21091	366102	6567037	-69	48	-65	353.0	300.1	305.2	5.1	5.4	3.2
NOZRSD21092	366103	6567036	-69	69	-68	318.9	307.0	314.3	7.3	12.7	4.4
NOZRSD21093	366107	6567027	-69	92	-68	354.1	320.8	332.1	11.3	0.8	6.6
NOZRSD21142	365930	6567423	-108	10	6	299.9	236.1	243.5	7.4	6.2	4.5
NOZRSD21143	365930	6567423	-109	20	-12	261.2	222.6	231.1	8.5	12.3	6.3
NOZRSD21144	365930	6567422	-109	10	-11	273.0	243.5	260.4	17.0	4.4	11.1
NOZRSD21145	365930	6567423	-109	358	-15	379.4	335.8	346.2	10.4	4.4	4.9
NOZRSD21146	365929	6567422	-110	358	-20	339.7	297.7	306.4	8.8	3.4	5.5
NOZRSD21147	365930	6567423	-109	4	-20	303.4	286.0	292.9	6.9	5.2	3.9
NOZRSD21148	365929	6567422	-110	8	-27	309.7	276.7	287.0	10.4	6.0	6.5
NOZRSD21149	365929	6567422	-110	358	-31	384.8	337.0	340.1	3.1	2.8	1.7
NOZRSD21150	365929	6567422	-110	3	-33	342.8	304.0	308.4	4.4	4.2	2.8
NOZRSD21151	365951	6567401	-108	55	23	211.7	182.1	190.8	8.7	0.9	7.7
NOZRT21001	365930	6567423	-109	15	-1	316.6	228.3	231.9	3.6	8.3	2.5
NOZRT21002	365930	6567422	-110	14	-20	297.2	244.0	249.4	5.3	1.2	3.9
NOZRT21003	365930	6567423	-109	1	-12	336.4	289.1	296.0	6.9	26.7	3.9
NOZRT21004	365930	6567423	-110	1	-26	342.3	303.0	310.4	7.4	7.0	4.2
NOZRT21005	365931	6567421	-110	11	-37	324.7	282.0	293.0	11.0	3.4	7.3
NOZRT21083	366320	6566696	20	97	-78	432.1	399.0	401.8	2.8	13.8	1.2
NOZRT21085	366320	6566696	20	120	-71	444.8	409.0	417.0	8.0	2.6	3.5
NOZRT21139	365930	6567423	-109	356	-2	374.6	313.8	354.3	40.5	12.2	17.9
NOZRT21140	365930	6567423	-109	354	-16	393.0	335.6	350.5	14.8	2.8	6.9

QENA SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
QEEX030	437291	6668899	345	-58.9	229.6	220.0	165.0	188.5	23.5	1.59	17.5
QEEX030	437291	6668899	345	-58.9	229.6	220.0	192.5	199.9	7.4	5.10	5.7
QEEX031	437348	6668895	345	-61.2	231.4	301.0	223.6	262.5	38.9	4.84	29.4
QEEX034	437399	6668846	345	-61.4	230.7	325.0	279.8	297.6	17.8	1.61	13.7
QEEX037	437387	6668736	346	-59.5	232.7	370.0	160.2	171.5	11.3	5.22	7.5
QEEX038	437412	6668784	345	-60.4	232.2	292.0	107.0	114.3	7.3	3.45	6.3
QEEX038	437412	6668784	345	-60.4	232.2	292.0	234.6	246.7	12.1	2.61	8.3
QEEX039	437460	6668799	345	-62.0	230.7	349.0	199.2	210.7	11.5	5.87	9.8
QEEX039	437460	6668799	345	-62.0	230.7	349.0	318.5	331.0	12.5	3.74	9.1
QEEX040	437422	6668704	346	-59.9	232.4	226.0	181.0	196.7	15.7	4.08	10.8
QEEX041	437490	6668716	345	-61.5	231.1	316.0	283.0	288.6	5.6	7.06	4.0
QEEX046	437293	6668901	345	-72.6	233.2	355.0	240.0	275.0	35.0	1.42	21.6
QEEX048	437449	6668951	344	-62.9	228.4	541.0	410.8	417.2	6.5	4.77	4.4
QEEX049	437499	6668904	344	-63.1	227.9	535.0	431.9	463.0	31.1	2.14	22.4
QEEX050	437507	6668830	345	-62.7	228.6	475.0	391.7	417.0	25.3	1.19	17.1

APPENDIX B: DRILL RESULTS

WONDER NTH & GOLDEN WONDER SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
BNRC049	322882	6862845	494	-55	228	154	92.0	99.0	7.0	4.2	5.6
BNRC051	322956	6862748	493	-55	226	94	41.0	63.0	22.0	3.0	17.5
BNRC053	323012	6862805	493	-55	225	202	147.0	161.0	14.0	2.3	11.1
BNRC055	323237	6862577	491	-55	225	130	35.0	48.0	13.0	6.2	10.3
BNRC056	323265	6862603	491	-55	223	190	74.0	114.0	40.0	3.1	31.8
BNRC062	323464	6862578	491	-55	226	364	234.0	243.0	9.0	2.3	7.2
BNRC062	323464	6862578	491	-55	226	364	199.3	208.0	8.7	2.7	6.9
BNRC078	323294	6862632	491	-55	228	278	127.0	151.0	24.0	2.8	19.1
BNRC078A	323296	6862631	491	-56	228	173	136.0	163.0	27.0	3.1	21.4
BNRC080A	323350	6862690	491	-54	223	418	235.6	246.9	11.2	5.6	9.0
BNRC081A	323200	6862769	492	-55	224	364	280.7	304.6	23.9	2.1	19.0
WNRD1071	322469	6863518	499	-55	225	500	423.3	446.1	22.9	1.2	18.2
WNRD1078	322005	6863798	503	-60	218	420	347.5	366.5	19.0	1.4	14.7
WNRD1079B	322011	6863754	503	-60	218	362	299.3	311.0	11.7	3.3	9.0
WNRD1080	322046	6863780	503	-59	219	442	348.2	365.7	17.6	2.8	13.6
WNRD1081	322063	6863739	503	-62	216	421	345.3	356.0	10.7	15.2	8.1
WNRD1083	322113	6863736	503	-61	218	434	364.0	391.0	27.0	3.3	20.7
WNRD1087	322226	6863554	501	-59	218	335	267.2	270.3	3.1	6.8	2.4
WNRD1088	322272	6863628	501	-60	218	450	351.8	368.1	16.3	4.3	12.5
WNRD1089	322282	6863580	501	-60	218	415	315.1	326.0	10.9	2.0	8.4
WNRD1089	322282	6863580	501	-60	218	415	329.0	339.0	10.0	4.1	7.7
WNRD1091	322312	6863535	500	-60	216	401	304.2	317.0	12.8	1.8	9.9
WNRD1092	322347	6863587	500	-61	218	484	381.0	406.0	25.0	1.8	19.2

BANNOCKBURN SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
BBRC0182	292826	6852083	406	-60	252	160	62.0	94.0	32.0	2.7	27.2
BBRC0183	292862	6852097	406	-60	250	238	177.0	184.0	7.0	3.4	6.0
BBRC0183	292862	6852097	406	-60	250	238	80.0	89.0	9.0	7.2	7.7
BBRC0183	292862	6852097	406	-60	250	238	92.0	115.0	23.0	3.8	19.6
BBRC0187	292770	6852232	406	-60	249	146	73.0	84.0	11.0	1.9	9.3
BBRC0188	292807	6852245	406	-61	252	138	82.0	87.0	5.0	6.5	4.2
BBRC0188	292807	6852245	406	-61	252	138	95.0	113.0	18.0	3.6	15.3
BBRC0188	292807	6852245	406	-61	252	138	68.0	77.0	9.0	9.2	7.6
BBRC0191	292790	6852412	406	-60	252	400	279.6	282.0	2.4	14.0	2.0
BBRC0191	292790	6852412	406	-60	252	400	131.0	145.8	14.8	3.1	12.6
BBRC0191	292790	6852412	406	-60	252	400	146.2	151.4	5.2	10.4	4.4
BBRC0193	292966	6851709	406	-60	252	160	93.0	113.0	20.0	2.5	17.0
BBRC0193	292966	6851709	406	-60	252	160	73.0	78.0	5.0	11.2	4.2
BBRC0198	292876	6852019	406	-60	252	130	96.0	109.0	13.0	4.2	11.0
BBRC0201	292832	6852164	406	-63	249	262	60.0	97.0	37.0	4.6	30.8
BBRC0202	292847	6852260	406	-60	248	430	256.6	258.7	2.1	14.2	1.8
BBRC0205	292765	6852318	406	-61	249	238	101.0	126.0	25.0	2.1	21.2
BBRC0206	292804	6852332	406	-60	253	400	112.0	119.2	7.2	3.3	6.1
BBRC0206	292804	6852332	406	-60	253	400	132.4	146.5	14.2	2.7	12.0

CORBOYS SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
NSRYXD0011	298706	7002931	481	-60	257	186.1	127.7	145.3	17.6	1.42	15.8
NSRYXR00164	298175	7003546	482	-60	257	123.0	47.0	53.0	6.0	3.76	5.4
NSRYXR00168	298177	7003422	481	-60	257	82.0	7.0	12.0	5.0	7.27	4.5
NSRYXR00172	298262	7003376	481	-60	257	162.0	60.0	65.0	5.0	7.75	4.5
NSRYXR00174	298253	7003318	481	-60	257	102.0	20.0	31.0	11.0	5.62	9.9
NSRYXR00181	298460	7003304	482	-60	257	282.0	193.0	196.0	3.0	20.09	2.7
NSRYXR00183	298327	7003211	481	-60	257	140.0	65.0	70.0	5.0	5.74	4.5
NSRYXR00188	298392	7003165	481	-60	257	162.0	26.0	38.0	12.0	6.04	10.8
NSRYXR00200	298639	7003098	482	-60	257	242.0	195.0	203.0	8.0	4.37	7.2
NSRYXR00201	298689	7003109	482	-60	257	300.0	244.0	276.0	32.0	2.52	28.8
NSRYXR00209	298630	7002914	481	-60	257	50.0	13.0	19.0	6.0	4.90	5.4
NSRYXR00210	298681	7002922	481	-60	257	250.0	126.0	134.0	8.0	3.92	7.2
NSRYXR00211	298729	7002933	481	-60	257	280.0	146.0	182.0	36.0	1.61	32.4
NSRYXR00212	298775	7002944	482	-60	257	310.0	94.0	99.0	5.0	4.46	4.5
NSRYXR00212	298775	7002944	482	-60	257	310.0	192.0	206.0	14.0	2.37	12.6
NSRYXR00212	298775	7002944	482	-60	257	310.0	220.0	242.0	22.0	1.13	19.8

APPENDIX B: DRILL RESULTS

CORBOYS SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (MGA)	Northing (MGA)	Drill hole collar RL (MGA)	Dip (deg)	Azimuth (deg, MGA)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
NSRYXR00216	298663	7002859	481	-60	257	160.0	47.0	56.0	9.0	4.46	8.1
NSRYXR00217	298686	7002863	482	-60	257	180.0	63.0	78.0	15.0	4.72	13.5
NSRYXR00219	298873	7002904	482	-60	257	320.0	209.0	220.0	11.0	3.29	9.9
NSRYXR00238	298167	7003910	486	-60	257	184.0	112.0	116.0	4.0	7.96	3.6
NSRYXR00262	298211	7003676	482	-60	257	200.0	113.0	114.0	1.0	30.42	0.9
NSRYXR00267	298858	7002385	484	-60	250	50.0	5.0	10.0	5.0	6.99	4.5
NSRYXR00277	298944	7002366	486	-60	250	112.0	88.0	98.0	10.0	2.56	9.0
NSRYXR00318	298856	7002485	484	-70	250	100.0	27.0	32.0	5.0	33.89	4.5

GOODPASTER SIGNIFICANT INTERSECTIONS											
Drill Hole #	Easting (AKSP3)	Northing (AKSP3)	Drill hole collar RL (AKSP3)	Dip (deg)	Azimuth (deg, Mag North)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
21-021	1806163	3827477	1583	-80	101	514.8	399.4	400.0	0.5	45.4	0.5
21-022	1806161	3827477	1583	-66	135	504.0	203.1	211.9	8.8	18.4	6.8
21-024	1805644	3827034	1583	-62	170	471.5	154.7	165.7	11.1	5.6	5.5
21-025	1805659	3827022	1583	-74	298	575.1	337.0	337.9	0.9	44.6	0.8
21-027	1805660	3827021	1582	-69	355	590.9	90.2	91.0	0.8	27.7	0.8
21-027	1805660	3827021	1582	-69	355	590.9	184.7	194.2	9.5	8.3	8.2
21-027	1805660	3827021	1582	-69	355	590.9	425.2	425.9	0.7	46.6	0.5
21-027	1805660	3827021	1582	-69	355	590.9	532.7	541.1	8.4	6.9	6.5
21-033	1804424	3826011	1627	-59	15	701.0	399.2	400.7	1.5	55.0	1.3
21-033	1804424	3826011	1627	-59	15	669.6	586.7	587.9	1.1	70.8	0.3
21-037	1805648	3827035	1582	-54	153	425.8	292.9	293.7	0.8	30.2	0.7
21-073	1804876	3827648	1814	-78	158	687.4	573.6	576.1	2.4	23.3	2.4
21-073	1804876	3827648	1814	-78	158	687.4	621.7	622.9	1.2	19.4	1.1
21-078	1804874	3827648	1814	-77	205	764.3	145.7	146.5	0.8	186.0	0.5
21-078	1804874	3827648	1814	-77	205	764.3	309.7	312.7	3.0	8.7	2.5
21-078	1804874	3827648	1814	-77	205	764.3	475.8	478.5	2.7	39.1	0.7
21-079	1804871	3827647	1814	-87	166	693.3	217.2	225.9	8.8	67.3	2.3
21-079	1804871	3827647	1814	-87	166	693.3	239.6	246.0	6.4	7.1	4.5
21-082	1803690	3825923	1699	-84	240	627.0	540.0	540.7	0.6	44.8	0.6
21-083	1803682	3825912	1699	-81	45	608.1	548.2	548.6	0.4	51.8	0.4
21-084	1804870	3827645	1814	-75	180	685.2	315.8	316.8	1.0	115.1	1.0
21-084	1804870	3827645	1814	-75	180	685.2	600.1	602.5	2.4	17.0	1.7
21-084	1804870	3827645	1814	-75	180	685.2	658.8	660.0	1.2	214.0	1.0
21-085	1804869	3827645	1814	-71	189	690.3	231.9	234.0	2.1	14.5	1.5
21-085	1804869	3827645	1814	-71	189	690.3	239.2	248.4	9.2	10.4	6.5
21-085	1804869	3827645	1814	-71	189	690.3	259.5	265.2	5.7	11.5	3.3
21-085	1804869	3827645	1814	-71	189	690.3	409.3	413.3	4.0	15.3	3.7
21-086	1804107	3826422	1633	-73	188	560.2	351.0	353.9	2.9	9.7	2.9
21-087	1804096	3826413	1635	-71	140	545.0	502.1	502.9	0.8	56.6	0.7
21-094	1804156	3826440	1633	-75	122	548.0	477.1	493.3	16.2	22.8	6.9
21-095	1804877	3827634	1823	-69	100	645.6	553.6	554.2	0.5	118.5	0.5
21-098	1804155	3826440	1634	-70	255	678.9	578.4	578.9	0.5	101.5	0.5

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Jundee (Surface) - 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling is by both diamond drilling (DD) and Reverse Circulation (RC) drilling completed by Northern Star Resources (NSR). DD samples are HQ and NQ core with sample intervals defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length. RC samples are collected via rig-mounted static cone splitter with sample falling though inverted cone splitter, splitting the sample in 88%/9%/3% ratio. 9% split retained for 1m composites and 3% split retained for 4m composites. 1m samples are sent for further analysis if any 4m composites return a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant composite assay result. NSR Resource definition and grade control drilling routinely collects 1m composites.
	Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used.	DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC metre intervals are delineated with spray paint to determine metres drilled. Sample rejects are left on the sample pad to indicate metres drilled for the hole.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond drilling is completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200 gm pulp sub sample to use in the assay process. Diamond core samples are fire assayed (30g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling where ~3-4kg samples are pulverised to produce a ~200 gm pulp sample to utilise in the assay process. RC samples are fire assayed (50 gm charge).
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is carried out using a face sampling hammer and a 130mm diameter bit. Diamond drilling carried used HQ3 (triple tube) and NQ2 techniques. Core is routinely orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond drilling practice results in high core recovery due to the competent nature of the ground. RC drilling recovery is supervised on the rig and any recovery issues are recorded and rectified.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
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.	DD core and RC chip samples have been logged by qualified geologists to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. RC hole logging was carried out on a metre-by-metre basis and at the time of drilling.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and quantitative; all core is photographed wet. Visual estimates are made of sulphide, quartz and alteration as percentages.
	The total length and percentage of the relevant intersections logged.	100% of all DD and RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is halved with an Almonté diamond core saw. The core is quarter cut when metallurgical samples are required. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All mineralised zones are sampled plus associated visibly barren material in contact with mineralised zones. Core is sampled on the width of the geological/mineralised structure with a minimum sample length of 0.3m and a maximum sample length of 1.2m. Total weight of each sample generally does not exceed 5kg.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling uses a cyclone mounted inverted cone splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	DD core is dried at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. The few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		RC samples are dried at 100°C to constant mass, all samples below approximately 3kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. Samples generated above 4kg are crushed to <6mm and cone split to nominal mass prior to pulverisation. For RC samples, no formal heterogeneity study has been carried out or monographed. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results.
	Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples.	Repeat analysis of pulp samples (all sample types) occurs at an incidence of 1 in 20 samples. Analysis of 2mm coarse crush and split has been completed for three RC bulk cone splitter rejects each of them divided into 32 equal splits.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, (i.e., other half of cut core) are routinely assayed. NSR routinely collects field duplicates during RC drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate. No formal nomograph study has been conducted on the RC primary sub sample split. Industry standard practice supports splitting of primary sub samples at particle sizes of <6mm and P_{80} 75µm.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For RC drill samples, gold concentration was determined by fire assay using the lead collection technique with a 50 gm sample charge weight. MP-AES instrument finish was used to be considered as total gold. For DD drill samples, gold concentration was determined by fire assay using the lead collection technique with a 30 gm sample charge weight. AAS or MP-AES instrument finish was used to be considered as total gold. For the majority of drill core samples, gold concentration is determined by fire assay with an AAS or PMAES finish is used to be considered as total gold. In 2021 Photon assay was introduced at Jundee, the sample is crushed to 85% passing 2mm then split with a 500g sub sample taken for analysis. Various multi-element suites are analysed using a four-acid digest with an AT/OES finish.
	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 derived analyses are reported.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: ▪ Field QAQC protocols used for all drill samples include commercially prepared certified reference materials (CRM) inserted at an incidence of 1 in 20 samples. The CRM used is not identifiable to the laboratory with QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. ▪ NSR RC Resource definition and grade control drilling routinely inserts field blanks and monitor their performance. ▪ Laboratory QAQC protocols used for all drill samples include repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples and screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples. ▪ The laboratories' own standards are loaded into the database and the laboratory reports its own QAQC data monthly. ▪ In addition to the above, about 5% of drill samples are sent to a check laboratory. Samples for check -assay are selected automatically from holes based on the following criteria: grade above 0.5g/t or logged as a mineralised zone or is followed by feldspar flush or blank. ▪ Failed standards are generally followed up by re-assaying a second 50g or 30g pulp sample of all samples in the fire above 0.1g/t by the same method at the primary laboratory. Both the accuracy component (CRM's and third-party checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified.
	The use of twinned holes.	There is no purpose drilled twin holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sampling and logging data are digitally entered into a tablet using Logchief software imported into SQL database using semi-automated or automated data entry. Digital assay files are loaded directly into the database. Visual checks are part of daily use of the data in Vulcan.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Mineral Resource estimation except where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay.
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.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the worldwide Global Navigational Satellite System (GNSS) network is used.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortho-linear rectified photogrammetry based on the Map Gird of Australia MGA94. Collar coordinates are recorded in MGA94. Surface collar RL's have been validated utilizing an airborne elevation survey by Arvista. Multi shot cameras and gyro units were used for down-hole survey.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51. The difference between magnetic north (MN) and true north (TN) is 1º 34' 30". The difference between true north (TN) and AMG84 Zone 51 (AMG GN) is 1º 02' 47". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2020, 1m contour data and site surveyed pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing of 25m x 25m and all Mineral Resources are based on a maximum of 60m x 60m. Exploration results in this report range from 25m x 25m drill hole spacing to 60m x 60m.
	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.	Ore Reserves are generally based on 25m x 25m drilling to a maximum of 40m by 40m. Mineral Resources are generally based on 25m x 25m drilling up to a maximum of 60m x 60m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples are taken as 1 m samples and 4 m composites during first pass exploration,1m samples are sent for further analysis if any 4m composites return a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant composite assay result. For RC Resource definition and grade control drilling 1 m samples are routinely collected. No RC samples greater than 1m were used in estimation.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally on a high angle to the main mineralisation trends as these are vertical to sub-vertical. Drill holes are drilled on a 60-degree angle, perpendicular to the strike of the mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Mineral Resource estimation.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory. All sample submissions are documented, and all assays are returned via email and hard copy. Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab. RC samples processed at SGS have had the bulk residue discarded and pulp packets sent to Jundee mine site for long term storage.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Historical audits of all Jundee data were carried out by previous operators. During 2018, 2019, 2020 and 2021 Zaremus Pty Ltd conducted an audit of the site laboratory and audit of the external laboratories. Both audits found the laboratory procedures and performance to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Jundee Project consists of 7 Exploration Licenses, 62 Mining Leases, 1 General Purpose Lease and 1 Prospecting Licence covering a total area of approximately 86,341 Ha. Sixty-three of the Leases are currently registered in the name of Newmont Yandal Operations Pty Ltd but Northern Star Resources Limited are the beneficial owners and transfers will be registered once the Office of State Revenue have completed their assessment to duty. The Project also includes 23 Miscellaneous Licenses, 4 Groundwater Licenses, a Pipeline License and the Jundee Pastoral Lease covering the bore fields, roads, airstrip, and gas pipeline. There are numerous access agreements in place including access rights over part of M53/193 which lies contiguous to, and beneath, the General Purpose Lease on which the Jundee processing plant is located. There are no heritage issues with the current operation. The majority of the Jundee leases are granted Mining Leases prior to 1994 (pre-Mabo) and as such Native Title negotiations are not required. During 2004, two agreements were struck between Ngaanyatjarra Council (now Central Desert Native Title Services (CDNTS)) and Newmont

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Yandal Operations, these agreements being the Wiluna Land Access Agreement 2004 and the Wiluna Claim Heritage Agreement 2004, both agreements were transferred to Northern Star on purchase of the Jundee Operations in 2014.
	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.	All leases and licences to operate are granted and in the order for between 3 and 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	All the exploration work has been completed by NSR.
Geology	Deposit type, geological setting and style of mineralisation.	Jundee is an Archean gold mineralised deposit that is part of the Northern Yandal Greenstone belt. Gold mineralisation is controlled by a brittle fracture-system, is commonly fracture-centred, and is predominantly hosted in dolerite and basalt. Mineralisation can be disseminated or vein style host.
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	No new significant results reported; all the significant results were reported in the ASX release "Exploration Update" dating from the 20th of December 2018.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No new significant results reported.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No new significant results reported.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No new significant results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No new significant results reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No new significant results reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No new significant results reported.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No new significant results reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No new significant results reported.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No new significant results reported.
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 meaningful data to report.
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further extensional, resource definition and grade control drilling are planned for FY2022.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Plans and sections of the Jundee open pit deposits are included in this report.

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 digitally entered into a tablet using Logchief software and then transferred to an SQL based database. Assay results are returned from the laboratory as digital files and loaded directly into the database. A series of verification validations are performed prior to importing the data in the database. There are checks in place to avoid duplicate holes, sample numbers and missing intervals. There is database manager on site who is responsible for the integrity and use of the data. Only the database manager and the database administrator have access to the database. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files.
	Data validation procedures used.	All the electronic log files are reviewed and validated prior to being imported into the database. Drill hole information is loaded in Vulcan and Leapfrog software for verification and validation of collar, lithology and downhole surveys. Database administrators perform a series of verification validations prior to store the information in the database. There is QA/QC geologist that reviews the QA/QC information daily and ensure that the company QA/QC protocols are followed.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this Mineral Resource report has worked on site for extensive periods between 2015 and 2021.
	If no site visits have been undertaken indicate why this is the case.	Regular site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was conducted using a systematic approach to ensure continuity of the geology and estimated Mineral Resource using Leapfrog and Vulcan software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggetty nature of the ore body on a local scale.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling and oxidation surfaces.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Logging and grade distribution were used to create 3D constrained wireframes. A 0.3 g/t Au was used as a guide to model the mineralised envelopes for the open pit resources and a 1.0 g/t Au was used as a guide for the underground resources. The Modelling cut-off was determined after the statistical analysis of the sample population.
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though the main mineralised structures show good continuity downdip and across strike. The geology consists of a stockwork of short range quartz veins with carbonate, chlorite and sulphides hosted by a granite. The splays or small lodes coming of this main trend tend to have a shorter continuity.
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.	Mineralized zones are variable with true width ranging from 0.5m to 20m. They are extensive along strike and down dip, up to 450m and 350m, respectively. Depth from surface is 350m approximately. The mineralised envelope has been extended down dip for targeting purposes any mineralisation modelled beyond the drilling coverage has not been included in the resource classification or reporting.
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.	Domains are set by grouping lodes as dictated by their structural setting, geological, mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variography purposes (by combining groups of lodes). The Mineral Resource estimation utilises 1m composites for all RC and DD sampling data composites residuals smaller than 1m have been weighted by length for the estimation. Modelling was completed using Leapfrog and Vulcan software. Detailed exploratory data analysis, variography, Kriging Neighbourhood analysis (KNA) and model validation is conducted using Snowden Supervisor software. The Mineral Resource was estimated using ordinary kriging (OK). Vulcan software is used for data compilation, calculating and coding composite values, estimating and reporting. Estimation was completed using an oriented search ellipsoid. Three estimation passes were used with increasing search ellipsoid radius. Maximum and minimum number of samples for the estimation and ellipsoid search ranges were derived from KNA analysis, variogram ranges and drill hole spacing. Search ellipsoid radius ranges from 30m to 80m. A minimum of twelve samples and a maximum of twenty-eight was used in the first pass, minimum of ten samples and a maximum of twenty-eight was used in the second pass

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		and minimum of six samples and a maximum of twenty-eight was used in the third pass. Minor variations to the number of samples have been applied in some zones based on drill spacing. Block model volumes were compared to wireframe volumes to validate sub-blocking. For the OK estimates treatment of extreme high grades was dealt with by using a cap grade strategy and high-grade restraining.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Previous estimates are in line with the current estimation for this deposit.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	All open pit Mineral Resource models use a 1m straight composite generation based on RC sample length where the parent block sizes are 10 m in strike, 3m in RL, and 3m across strike direction. Sub-block sizes are 1m in strike, 1m in RL, and 1m across strike direction. Vause block models have a parent block size of 5 m in strike, 2.5 m in RL, and 4m across strike direction. Sub-block sizes are 2.5 m in strike, 1.25m in RL, and 1m across strike direction. Average drill spacing ranges between 25m x 25m and 10m x 10m. Ore Reserves are based on 20m x 20m drilling up to a maximum of 40m x 40m. Mineral Resources are based on 40m x 40m drilling up to a maximum of 80m x 80m.
	Any assumptions behind modelling of selective mining units.	A 2m minimum mining width for open pit environment is assumed.
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralised wireframes are created within the geological shapes based on drill core logs, mapping and grade. An 0.3 g/t Au was used as a guide to model the mineralised envelopes for open pit resources and 1g/t for the underground resources. Low grades can form part of an ore wireframe. Estimations are constrained by the mineralised envelopes. Where required, late intrusives such as the Proterozoic dolerite dyke were used to sterilise the mineralisation.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by a range of statistical techniques including analysis of histogram, Log-probability and Mean- CV plots: ▪ Contained Metal Plots assess contribution of the highest values on the quantity of metal in an estimate, ▪ Coefficient of Variation plots analyse impact top cuts have on CV. A range of top cuts are then selected for each domain utilising the above strategies and an appropriate top cut chosen after further examination to assess sensitivity of selected cap grades and associated risk. Metal estimated in the Mineral Resource models are finally reconciled with production models of like areas to determine the appropriateness of the high-grade treatment on the assays. No top cutting or capping of high grades is done at the raw sample or compositing stage. For OK and ID^2, treatment of the high-grade assays occurs at the estimation stage. A range of top cuts was used in estimation and high-grade restraining for high grade samples, limiting their range of influence in the estimation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes. ▪ Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. ▪ Sensitivity to top-cut values uses a variety of top-cuts which are compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Comparison of nearest neighbour, ID2 and OK estimates to the final estimate (OK & ID2). These comparisons are conducted through visual validation and trend analysis along Northing, Easting and RL slices. ▪ Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent. ▪ Statistical comparison of composites versus all estimates in block model with trend analysis plots for each domain produced by Northing / Easting / RL. ▪ Statistical comparison of composites grades versus lode grades in a lode-by-lode basis. ▪ Change of Support validation The Mineral Resource estimate shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. Where the numbers of samples reduce, the accuracy of the estimation suffers, and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are considered when assigning a Resource classification.

APPENDIX C: TABLE 1

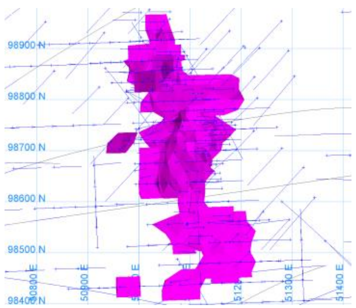
Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Mineral Resources are reported at a 0.6g/t cut-off grade. The pit cut-off grade has been calculated based on the key input components of mining, processing, recovery and administration costs. Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The AUD $2,250 gold price as per corporate guidance. ▪ Mill recovery factors are based on historical data and metallurgical test work. ▪ Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. Variable cut-off grade is used in the evaluation of open pit projects.
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.	A 2m minimum mining width for open pit environment is assumed and incorporated into the modelling and estimation. All Mineral Resources have been reported within $2,250 AUD optimisation shell.
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.	Assumed all material will be trucked and processed in the Jundee Mill. Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. No metallurgical assumptions have been built or applied to the Mineral Resource model.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The Project currently possesses all necessary government permits, licenses and statutory approvals to be compliant with all legal and regulatory requirements.
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.	RC bulk density values used were based on analysis of grab samples obtained during excavation of open cut mines. Calculated averages were applied to density boundaries for each model. DD bulk density values are based on an updated study of the average lithological densities across the mine site completed in 2013. This study consisted of a detailed statistical analysis of 72,634 measurements that have been recorded from all deposits. These values are also in agreement with over 10 years of production data.
	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.	Bulk density measurements for core samples are taken using the water displacement technique, where the samples are dried and weighed in air then weighed in water.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Measured Resources are defined from grade control models based on geological mapping, diamond and RC drill holes which are imported into Vulcan software and modelled in 3D. Indicated Resources are defined by drilling which is generally 25m x 25m and may range up to 40m x 40m maximum. Material classified as Indicated are supported by a minimum of 5 RC and Diamond drill holes or a minimum of 3 drill holes when drill spacing is 25m x 25m or less and there is grade and geological continuity. Inferred Resources are defined on a nominal 40m x 40m drilling pattern and may range up to 80m x 80m. Resources based on less than 40m x 40m spaced drilling, but which have a low level of confidence in the geological interpretation may also be classified as inferred

APPENDIX C: TABLE 1

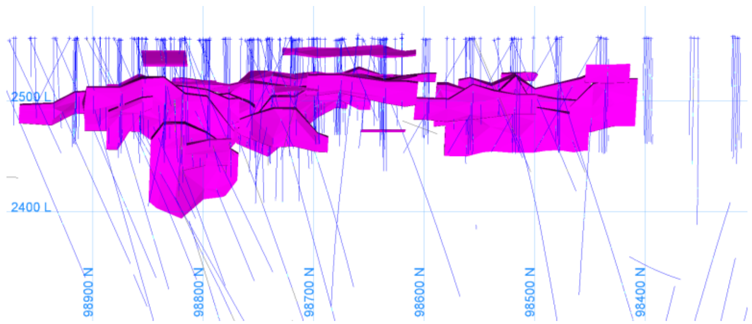
Criteria	JORC Code explanation	Commentary
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is accurate based on a long, successful mining history at the site on this mineralisation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimate have been internally reviewed by NSR personnel. No external audits and reviews have been completed.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Jundee mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the Mineral Resource on a global scale and against actual production reconciliation.
	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 Mineral Resource report relates to the Jundee deposits and is likely to have local variability within a global assessment further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Comparison with previous Mineral Resource estimates and production data was undertaken. Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent.

MENZIES RESOURCE

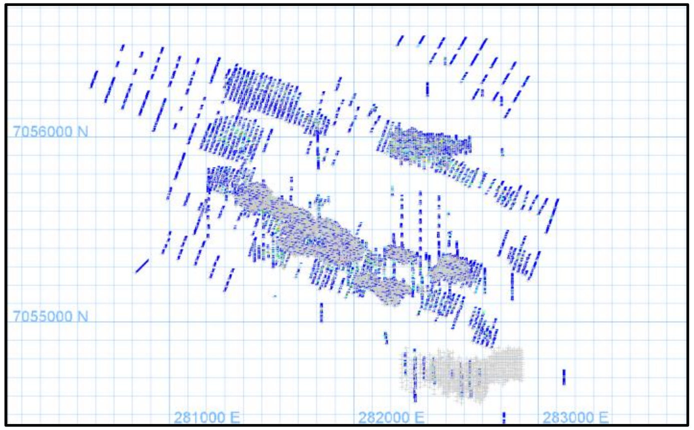
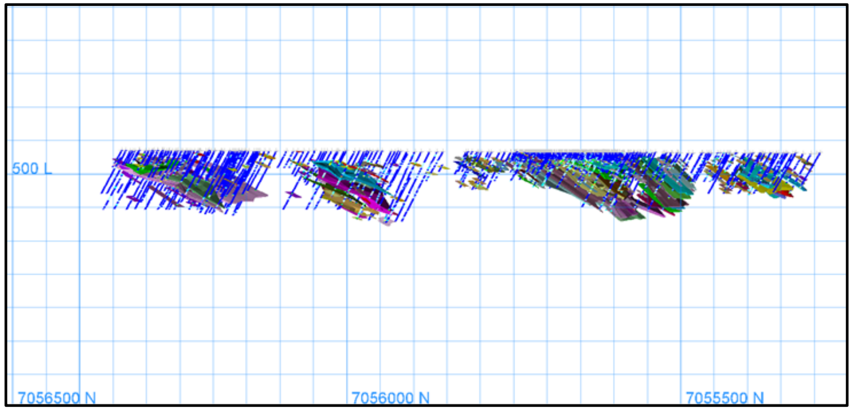
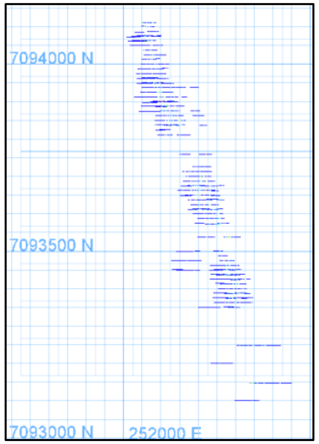
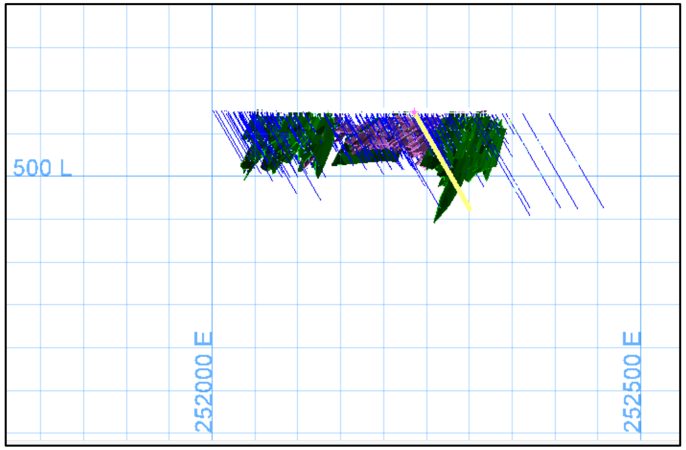
Plan view: Menzies mine area Drill hole collars



Long Section – Menzies mine area drillhole traces and mineralised domains



APPENDIX C: TABLE 1

VAUSE RESOURCE	
Plan view: Vause mine area Drill hole collars 	Long Section – Vause mine area drillhole traces and mineralised domains 
DESERT DRAGON RESOURCE	
Plan view: Desert Dragon mine area Drill hole collars 	Long Section – Desert Dragon mine area drillhole traces and mineralised domains 

APPENDIX C: TABLE 1

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.	The Mineral Resource estimate for the Vause Project used as a basis for the conversion to the Ore Reserve estimate reported was compiled by Northern Star Resources (NSR). Reported Ore Reserves are based on updated or depleted resource models for all project areas.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of Ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Numerous and frequent 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.	The Jundee Gold Project is a fully operational mine and has been in operations for over 25 years. The processing parameters have been based on metallurgical test work and experience from previous and current ore types processed and actual costs of the Jundee processing plant. Mining costs are based on pricing sourced from a reputable mining contractor with considerable experience in mining open pit gold mines. The schedule of rates provided were in a fixed and variable format. There is a high level of confidence in the parameters used.
	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.	Detailed mine design and costing based upon ongoing mine performance. The current study level demonstrates high confidence that the projects can achieve the mine plan and be operated in a technically sound and economically viable manner.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The pit cut-off grade has been calculated based on the key input components (processing, recovery and administration) Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The AUD gold price as per corporate guidance. ▪ Mill recovery factors are based on historical data and metallurgical test work. ▪ Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. Variable cut-off grade is used in the evaluation of open pit projects.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e., either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pits. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used parameters generated from NSR technical personnel and technical consultants.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The Jundee open pits will be mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 120t class excavators and 90t trucks. This method is used widely in mines across Western Australia and is deemed appropriate given the nature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Independent Geotechnical Consultants Dempers & Seymour Pty Ltd completed a geotechnical study for the open pit projects. Recommended wall angles were applied to the Whittle optimisation and subsequent detailed pit designs.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	
	The mining dilution factors used.	A mining dilution factor of 10% of zero grade has been applied for the reporting of Reserve physicals.
	The mining recovery factors used.	A mining recovery of 95% has been applied.
	Any minimum mining widths used.	The SMU dimensions for the Reserve Estimate are 4.0 m Wide x 2.5 m High x 4.0 m Long. A minimum mining width down to 20 m for final pit extraction from the base of pit has been used.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Ore Reserve estimate (treated as waste) but has been considered in LOM planning. It is assumed that Inferred material will be converted to Ore Reserve via grade control drilling which has been provided for and will be carried out ahead of mining.
	The infrastructure requirements of the selected mining methods.	Infrastructure requirements for Jundee open pit projects have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. As there is currently infrastructure in place for the Jundee underground operations and the life of Open Pit Projects are limited, planned infrastructure includes: ▪ Offices, workshops and associated facilities. ▪ Dewatering pipeline. ▪ Waste Dump; and ▪ ROM Pad. Processing will be conducted at the Jundee operation; hence no processing infrastructure is required.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The existing Jundee Processing plant will be utilised to treat the Open Pit ore.
	Whether the metallurgical process is well-tested technology or novel in nature.	Metallurgical test work has been completed on open pit ore and applied to the optimisations and is well understood.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	The metallurgical recoveries for the Vause project were set at 93.9% for oxide, 94.1% for transitional, 92.9% for fresh rock, which corresponds with historic data and metallurgical test work undertaken.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements. Test work indicates there are no deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Milling experience gained from 2Mt of Vause open pit ore previously processed through the Jundee Processing Plant.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Jundee operates under Department of Water and Environmental Regulation (DWER) Licence L6498/1995/11 in accordance with the Environmental Protection Act WA 1986. Jundee holds one groundwater licence GWL 107143. Jundee's mine closure plan has been developed in accordance with the DMIRS and EPA Guidelines for Preparing Mine Closure Plans. The mine closure plan details studies such as waste rock characterisation that are to be completed before closure of the site. Vause is a satellite mining operation to Jundee with past completed open pits nearby and are included in the Jundee Mine Closure Plan. All ore from the Open Pit Projects will be trucked to the Jundee Gold Processing Plant for milling and as such tails storage is included in the current Jundee (DWER) licence. Dempers and Seymour Geotechnical Consultants completed a comprehensive geotechnical study for recommended wall angles and regulatory approval. There are no native title issues, mining areas have been heritage cleared for mining activities. Flora & Fauna and hydrogeological studies have been completed.
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 processing infrastructure is in place at Jundee. Vause Project is a satellite pit operations and extension of the Jundee Gold Mine. The project areas are connected to Jundee by an established haul road constructed for road train haulage. Minor infrastructure will be required at the project areas and has been allowed for in the cost model.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Mining costs are based on mining contract rates supplied by a reputable WA based mining contractor. Contract rates are for open pit mining services as well as drill and blast operations and associated services required to complete the project. Mining costs were built up from first principals on mine designs supplied by NSR. Capital costs were not included in the optimised parameter inputs. Capital costs based on quotes supplied and have been included in the economic cost model.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate. Mining costs supplied by a reputable WA based mining contractor who built up costs from first principles from mine designs supplied by NSR.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected based on metallurgical test work.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a long-term gold price of A$1,750 per ounce as per NST corporate guidance
	The source of exchange rates used in the study.	NST report in Australian dollars. Therefore, no exchange rate is used or required.
	Derivation of transportation charges.	Transportation costs for ore haulage from satellite pits to Jundee have been based on current NSR contractor quotes. Transportation costs also include an allowance haul road maintenance and dust suppression.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on historic and actual Jundee plant processing costs. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%.
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.	All financial analysis and gold price have been expressed in Australian dollars and no direct exchange rates have been applied. Revenue factors within the whittle optimisation process were used. A revenue factor shell was selected and used to complete a detailed pit design. A gold price of A$1,750 per ounce has been used in the optimisation of the Vause Project. 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold doré from the mine is to be sold at the Perth mint.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not Applicable.
	Price and volume forecasts and the basis for these forecasts.	Not Applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model that is reflective of current operational costs and contract conditions. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,750 ± $250 per ounce. Due to the current short life, the project is not seen as highly sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	No issues.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The classification of Open Pit Ore Reserves has been carried out in accordance with the JORC code 2012.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Person's view of the deposit.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve has been internally reviewed in line with Northern Star Resources governance standard for Reserves and Resources. There have been no external reviews of this Ore Reserve estimate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the Vause Ore Reserve Estimate is high based on current mine and historical reconciliation performance. The design, schedule and financial model on which the Vause Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	All modifying factors have been applied to design mining shapes on a global 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.	Not applicable.

JORC Code, 2012 Edition – Table 1 Report

Jundee (Underground) – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by diamond drilling (DD) and reverse circulation (RC) drilling completed by previous operators. DD - Sampled sections are generally NQ2 or BQ. Core sample intervals are defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length. RC - Rig-mounted static cone splitter used, with sample falling through a riffle splitter or inverted cone splitter, splitting the sample in 87.5/12.5 ratio. 12.5% Off-split retained. 87.5% split sampled using 'pipe' or 'spear' sampling tool. Generally sampled as 4m composites. 1m composites (12% split) was sent for further analysis if any 4m composite values returned a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant 4m composite assay result. RC and DD sampling by previous operators are to industry standard at that time often using 1m samples after initial 4m composites. It is unknown what grade threshold triggers the 1m re-samples. The greater majority (>90%) of samples used for Reserve and Resource estimates are DD.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to downhole core blocks consistent with industry practice. RC and surface core drilling completed by previous operators to industry standard at that time.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200 gm pulp sub sample to use in the assay process. Diamond core samples are fire assayed (30 gm charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC – Reverse circulation drilling was carried out using a face sampling hammer and a 130mm diameter bit. Previous operators surface diamond drilling carried out by using both HQ2 or HQ3 or PQ2 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is routinely orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond drilling practice results in high core recovery due to the competent nature of the ground. RC and diamond drilling by previous operators are to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core and chip samples have been logged by qualified geologist to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Percussion holes logging were carried out on a metre-by-metre basis and at the time of drilling. Surface core and RC logging completed by previous operators assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and quantitative, and all core is photographed wet (some older core is pre-digital, photos not all reviewed). Visual estimates of sulphide, quartz and alteration as percentages.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD - Resource definition drilling uses NQ2: Core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. Grade Control drilling uses half core NQ2 or BQ: Whole core sampling. Sample intervals are defined by a qualified geologist to honour geological boundaries. All mineralised zones are sampled, plus associated visibly barren material in contact with mineralised zones. Core is sampled on the width of the geological/mineralised structure in recognized ore zones. The minimum sample length is 0.3m while the maximum is 1.2m. Total weight of each sample generally does not exceed 5kg. For pre-Northern Star Resources (NSR) and prior operator's samples, best practice of the time is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC – Cyclone mounted riffle splitter or inverted cone splitter. Pre NSR, RC sub sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory, and audit of plant samplers. Confirmed that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For RC samples, all drying at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. For RC samples, no formal heterogeneity study has been carried out or monographed. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For pre-NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 1 in 20 samples. RC drilling by previous operators to industry standard at that time.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, i.e., other half of cut core, have not been routinely assayed. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For the majority of drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30 gm sample charge weight with an AAS or PMAES finish is used to be considered as total gold. In 2021 Photon assay was introduced at Jundee, the sample is crushed to 85% passing 2mm then split with a 500g sub sample taken for analysis. RC drilling by previous operators to industry standard at the time.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: ▪ Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 30 samples. The CRM used is not identifiable to the laboratory, ▪ QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. ▪ The laboratory QAQC protocols used include the following for all drill samples: ▪ Repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples, ▪ Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 50 samples, ▪ The laboratories' own standards are loaded into the database, ▪ The laboratory reports its own QAQC data monthly. ▪ In addition to the above, ~ 3% of samples are sent to a check laboratory. Samples for check -assay are selected automatically from holes, based on the following criteria: grade above 1g/t or logged as a mineralised zone or is followed by feldspar flush or blank. ▪ Failed standards are followed up by re-assaying a second 30g pulp sample of samples between the failed standard and the next sequenced standard by the same method at the primary laboratory. Re-assays are dependent on grade above 0.1g/t. Both the accuracy component (CRM's and third party checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for Surface RC and diamond drilling by some previous operators is assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are verified by the Senior Resource Geologist.
	The use of twinned holes.	There are no purpose-drilled twinned holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary Data imported into SQL database using semi-automated or automated data entry. Hard copies of NSR and previous operators, core assays and surveys are stored at site. Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to SQL database.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Mineral Resource estimation. Exceptions occur when evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay. Some minor adjustments have been made to overlapping data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network the worldwide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortholinear rectified photogrammetry based on the Australian Map Grid 1994 (MGA94_51). Collar coordinates are recorded in MGA94 or Local Jundee Grid (JUNL2) dependant on the location and orientation of orebodies. Cross checks were made on the survey control points and data in June 2005. Collar information is stored in both local coordinates and MGA94 coordinate in the drilling database. In-mine drill-hole collars are normally accurate to 10 cm.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Multi shot cameras and gyro units were used for down-hole survey or were validated by Geologists. Previous drilling has been set-out and picked up in both national and local grids using a combination of GPS and Survey instruments and are assumed to be to industry standards.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51 (AMG GN) and Local Jundee Grid (JUNL2) dependant on the location and orientation of orebodies. The difference between Jundee mine grid (GN) and magnetic north (MN) as of 31 March 2021 is 37º 58' 07" and the difference between magnetic north (MN) and true north (TN) is 1º 02' 00". The difference between true north (TN) and MGA94 Zone 51 (AMG GN) is 1º 06' 26". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2010, 1m contour data and site surveyed pit pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing of 40m x 40m. All Mineral Resources are based on a maximum of 80m x 80m.
	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.	Ore Reserves are generally based on 20m x 20m drilling up to a maximum of 40m x 40m, or a maximum of 60m x60m in the case of the Armada Reserve. Mineral Resources are generally based on 40m x 40m drilling up to a maximum of 80m x 80m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites to be replaced by 1 m samples if any 4m composite values returned a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant 4m composite assay result. No RC samples greater than 1m were used in estimation.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally perpendicular to the main mineralisation trends. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Mineral Resource estimation. As the opportunity arises, better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory. All sample submissions are documented and all assays are returned via email. Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab. Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	In 2006, Maxwell conducted an audit of all Jundee data. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory, and audit of plant samplers. Both audits found the sampling techniques and data to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally. Pre NSR data audits found to be minimal regarding QAQC though in line with industry standards of the time. During 2018, 2019, and 2020 Zaremus Pty Ltd conducted an audit of the site laboratory and audit of the external laboratories. Both audits found the laboratory procedures and performance to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Jundee Project consists of 7 Exploration Licenses, 62 Mining Leases, 1 General Purpose Lease and 1 Prospecting Licence covering a total area of approximately 86,341 Ha. Sixty-three of the Leases are currently registered in the name of Newmont Yandal Operations Pty Ltd but Northern Star Resources Limited are the beneficial owners and transfers will be registered once the Office of State Revenue have completed their assessment to duty.

APPENDIX C: TABLE 1

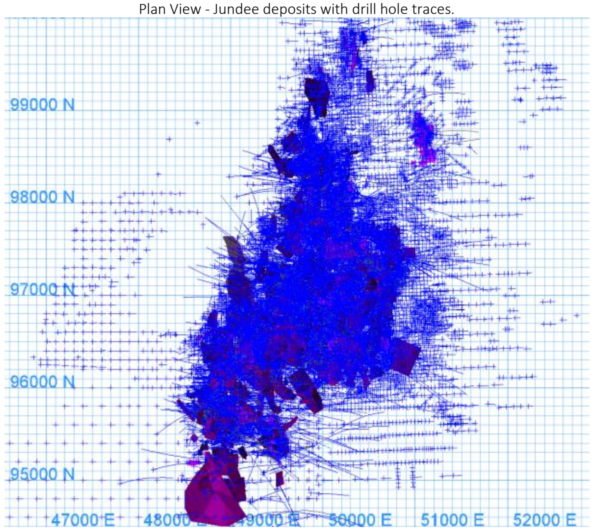
Criteria	JORC Code explanation	Commentary
		The Project also includes 23 Miscellaneous Licenses, 4 Groundwater Licenses, a Pipeline License and the Jundee Pastoral Lease covering the bore fields, roads, airstrip, and gas pipeline. There are numerous access agreements in place including access rights over part of M53/193 which lies contiguous to, and beneath, the General Purpose Lease on which the Jundee processing plant is located. There are no heritage issues with the current operation. The majority of the Jundee leases are granted Mining Leases prior to 1994 (pre-Mabo) and as such Native Title negotiations are not required. During 2004, two agreements were struck between Ngaanyatjarra Council (now Central Desert Native Title Services (CDNTS)) and Newmont Yandal Operations, these agreements being the Wiluna Land Access Agreement 2004 and the Wiluna Claim Heritage Agreement 2004, both agreements were transferred to Northern Star on purchase of the Jundee Operations in 2014.
	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.	All leases and licences to operate are granted and in the order for between 3 and 20 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to this Mineral Resource was predominantly NSR (Northern Star Resources), who have operated the mine since July 1, 2014. The Jundee/Nimary Deposits were discovered in the late 1980's/early 1990's after LAG and soil sampling by Mark Creasy (Jundee) and Hunter Resources (Nimary) identified large surface gold anomalies. The deposits were drilled out over the following years by Eagle Mining (which took over Hunter Resources), and Great Central Mines (which formed a joint venture with Creasy and later purchased his share). Open pit operations commenced in mid-1995, with the first gold poured in December 1995. Great Central Mines assumed full control of the field with its successful takeover of Eagle Mining in mid-1997. Great Central Mines was later taken over by Normandy in mid-2000, which in turn was taken over by Newmont in early-2002. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Jundee is an Archean lode-gold mineralised deposit that is part of the Northern Yandal Greenstone belt. Gold mineralisation is controlled by a brittle fracture system, is commonly fracture-centred predominantly hosted in dolerite and basalt. Mineralisation can be disseminated or vein style host.
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	No exploration results are being released
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results are being released
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being released
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being released
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are being released
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results are being released
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being released
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No exploration results are being released

APPENDIX C: TABLE 1

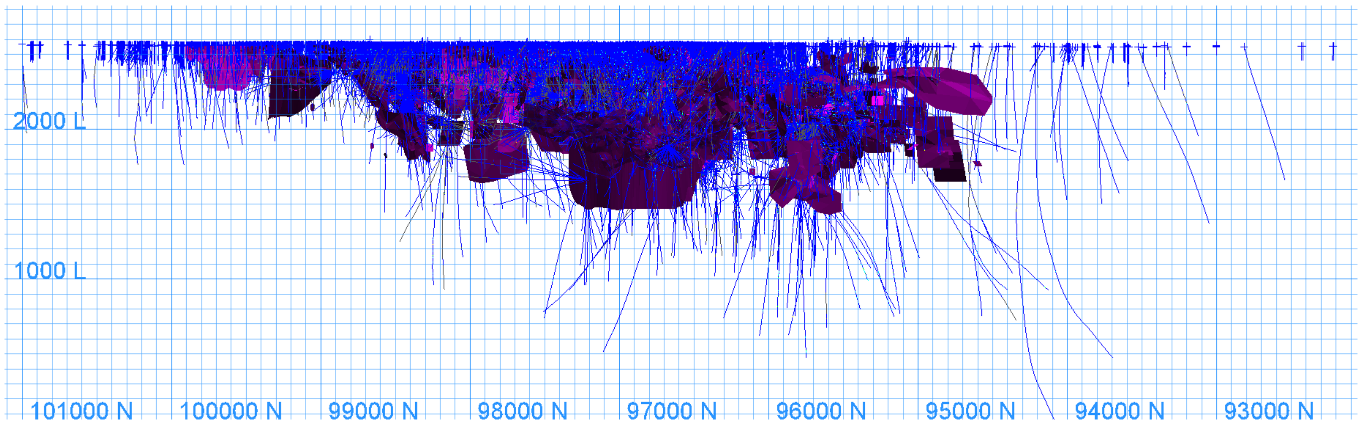
Criteria	JORC Code explanation	Commentary
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results are being released
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other meaningful data to report.
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further extensional and definition drilling is planned for FY21 from both underground and surface positions.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Representative diagrams are attached with this report.

JUNDEE UNDERGROUND - REPRESENTATIVE PLAN & LONG SECTION

Plan View - Jundee deposits with drill hole traces.



Long Section View - Jundee deposits with drill hole traces. Wireframes denote major mineralised structures.



APPENDIX C: 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.	NSR sampling and logging data is digitally entered into a tablet then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. Pre NSR data considered correct.
	Data validation procedures used.	Pre NSR data has been partially validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person's for this Mineral Resource report have worked on site for extensive periods between 2005 and 2020.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was conducted using a systematic approach to ensure continuity of the geology and estimated Mineral Resource using Vulcan software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggety nature of the orebody on a local scale. The confidence is supported by all the information and 21 years of open pit and underground operations.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging, pit mapping, and underground mapping used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though lodes with the greatest continuity are generally sub-parallel to the dolerite and basalt packages in which they are hosted. Splays or link lodes coming off this main trend tend to have a shorter continuity.
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.	Mineralised zones are narrow, with true width ranging from 0.3 to 1m, but can be up to 5m. They are extensive along strike and down dip, up to 1000m and 500m, respectively, but are often highly discontinuous, and generally have a tabular geometry. Depth = surface to ~1710mRl (~845m 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.	Domains are set by grouping lodes as dictated by their structural setting, geological mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variography purposes (by combining groups of lodes). Seam compositing (from hanging wall to footwall) of drill-hole samples is almost exclusively used. A very small proportion of UG lodes, which exhibit a wider disseminated style of mineralisation, use a nominal 1-metre downhole composite. Detailed exploratory data analysis is conducted on each deposit, using Snowden Supervisor software. The majority of the Mineral Resource is estimated using ordinary kriging (OK). A minor proportion of the Mineral Resource is estimated using inverse distance squared (ID^2) or Nearest Neighbor estimation type used is dictated by the dataset size of the domain. Vulcan software was used for data compilation, domain wireframing, calculating and coding composite values, estimating and reporting. Maximum distance of extrapolation from data points was statistically determined and varies by domain. Block model volumes were compared to wireframe volumes to validate sub-blocking. Where OK or ID^2 estimates were used, treatment of extreme high grades were dealt with by using a cap grade strategy.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Reconciled historical production from underground operations is comparable with new estimate.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Most underground models use a parent and sub block methodology where the parent block size is 5m in strike, 5m in RL, and 5m in RL. Sub-block sizes are 0.25m in strike, 0.25m in RL, and 0.25m across strike direction.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions behind modelling of selective mining units.	A 3.2m minimum mining width for underground environment is assumed.
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	"Mineralised" wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were applied in the Estimation stage and determined by a range of statistical techniques including: ▪ Disintegration analysis of Histogram, Log-probability and Mean- CV plots ▪ Contained metal plots: assessment of contribution of the highest values on the quantity of metal in an estimate. ▪ Outlier analysis; removal of outliers and analysis of impact on the CV of domain ▪ Interrogation of Disintegration points of seam composites A range of top cuts were selected for each domain utilising the above strategies and an appropriate top cut chosen after further sensitivity analysis against Nearest neighbour estimations to assess sensitivity of selected top cut grades and associated risk. Metal estimated in the Mineral Resource models are finally reconciled with production models of like areas to determine the appropriateness of the high-grade treatment on the assays. No top cutting or capping of high grades is done at the raw sample or compositing stage. For OK and ID^2, treatment of the high-grade assays occur at the estimation stage. Top cuts vary by domain and range from 10g/t – 1,100g/t.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation style validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes ▪ Visual validation of Mineral Resource estimate against composite data in plan, section, and in 3D. ▪ Sensitivity to top-cut values: a variety of top-cuts are estimated and compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Kriging efficiency and slope of regression interrogated for each material domain. ▪ Comparison of nearest neighbour, inverse distance squared, and ordinary kriged estimates to the final estimate (OK or MIK). These comparisons are conducted through visual validation and trend analysis along Northing, Easting, and RL slices. ▪ Comparison with previous Mineral Resource estimates. Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent. ▪ Comparison of Mineral Resource estimate versus grade control models. Local underground GC models are produced using, in addition to the diamond drill holes used in the Mineral Resource estimate, face chip and drive mapping data. These comparisons are done on a level basis at various cut-offs. ▪ Statistical comparison of composites versus all estimates in block model: trend analysis plots for each domain are produced by Northing / Easting / RL. The Mineral Resource estimate shows a reasonable reflection of the composites where there are high numbers of composites used in the estimate. When the numbers of samples reduce the accuracy of the estimation suffers and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are considered when assigning a Resource classification.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Underground Resources have been reported through MSO generation using a minimum mining width of 3.2m coupled with cut-off grades calculated on a variable cost basis and an AUD$2,250/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.	Underground Resources are reported using a minimum mining width of 3.2m inclusive of 0.5m internal dilution on both the Hangingwall and footwall.
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	Assumed that material will be trucked and processed in the Jundee Mill. Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. No Metallurgical assumptions have been built or applied to the Mineral Resource model.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	
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.	Jundee currently possesses all necessary government permits, licenses and statutory approvals to be compliant with all legal and regulatory requirements.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density values used were based on an updated study of the average lithological densities across the mine site completed in 2013. This study consisted of a detailed statistical analysis of 72,634 measurements that have been recorded from all underground deposits. These values are also in agreement with over 10 years of production data.
	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.	Bulk density measurements are taken daily using the water displacement technique. One bulk density measurement is taken for each lithology in every hole every day. An attempt is made to collect a bulk density measurement from every mineralised zone and each lithology represented in drill hole core. A total of 88,600 bulk density measurements have been taken.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation, and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Measured Resources are defined from grade control models based on geological mapping and surveyed ore outlines in development drives, diamond drill holes and face samples which are imported into Vulcan and modelled in 3D. Indicated Resources are defined by drilling which is predominantly 20m x 20m to 40m x 40m maximum. Lodes classified as Indicated are supported by a minimum of 5 face chips or Diamond drill holes or mapping. Inferred Resources are defined on a nominal 40m x 40m drilling pattern and may range up to 80m x 80m. Resources based on less than 40m x 40m spaced drilling, but which have a low level of confidence in the geological interpretation may also be classified as inferred.
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate backed up by previous successful mining history at the site on this mineralisation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimates, methodology and systems have been subject to one external review through NSR and four internal audits by previous operators and senior technical personnel over the last 10 years.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Jundee mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the Mineral Resource on a global scale and against actual production reconciliation.
	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 Mineral Resource report relates to the Jundee deposit and is likely to have local variability. The global assessment is a better reflection of the average tonnes and grade estimate, further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Comparison with previous Mineral Resource estimates and production data was undertaken. Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent.

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.)

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported Ore Reserve is based on Mineral Resource and Grade Control models.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of the Ore Reserves
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Numerous site visits have been undertaken by the Competent Person. Familiarity with the mine site and historical performance was considered in providing the Ore Reserve Estimate.
	If no site visits have been undertaken indicate why this is the case.	Site visits were undertaken.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Detailed mine design and costing based upon ongoing mine performance. The 2022 Ore Reserve contain a new mining method utilising paste fill to enable access into old mining area. The current study level is consummate with a pre-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.	The Jundee Gold Project is a fully operational mine and has been in operations for over 20 years. As such, for most of the reserve material, current operating design parameters and costs have been used in the generation of these reserves. The reserves associated with paste filling are at a pre-feasibility level, with a practical mine plan and economic assessment underpinning their reserve status.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A cut-off grade is generated, and all potential reserve material is evaluated, based on the direct costs of all tasks involved and corporate gold price guidance. Historic actual costs are relied upon heavily in determining cut-off grades and costs.
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).	Stope shapes are created manually on all Mineral Resource material, using a minimum stope mining width of 2.2m. Access designs are created to allow detailed economic evaluation. Measured Resource material is converted to Proven and Probable Reserve and Indicated Resource is converted to Probable Reserve.
	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.	A top-down narrow vein long hole open stope extraction is currently the primary mining method employed at Jundee. Backfilling of stopes has commenced in the Hampton east orebody to access a high-grade hanging wall lode. Other mining method currently being implemented at Jundee is narrow vein airleg stoping. This method aids in the extraction of flat lying lodes which require uneconomic dilution for effective long hole stoping extraction. Deemed appropriate due to ongoing successful implementation of design assumptions in the current mining operation. Some areas included remnant area assessed using paste fill have utilised the site void model and taken extraction methodologies from existing operations utilising paste fill. Detailed tailing characterisation studies have been conducted to allow paste plant selection, and application of appropriate capital and operating costs.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	2.2m minimum mining width (stopes) with 85% - 95% stope mining recovery to account for internal pillars, in line with historical performance.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	2.2m minimum mining width for stopes. Detailed designs available for each stope. Historical mining costs applied for economic evaluation.
	The mining dilution factors used.	A 7% tonne dilution factor was used for development, whilst 22% was applied for stopes. These values are based on historical mine reconciliation records. For the paste fill assessment areas, a variable dilution factor was applied between 0-15% based on the ore block location in comparison to the fill surface.
	The mining recovery factors used.	85% mining recovery applied to the stope where pillars have not been incorporated into the design and 95% for detailed design where pillars have been considered. For the paste filled areas, a variable recovery of between 70%-100% was applied based on the ore block location in comparison to the fill (next to, encompassed within, or located on top of). Averaging 80% mining recovery factor applied to the paste fill areas.
	Any minimum mining widths used.	The minimum mining width for stopes is 2.2m.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is included within the mine plan however, material is only classified as Ore Reserve when the Measured and Indicated resource material can cover all costs associated with the mining of that material. Designed stopes with greater than 50% Inferred blocks are excluded from the reported Ore Reserve.
	The infrastructure requirements of the selected mining methods.	Infrastructure in place, currently an operating mine. This includes underground capital development, accommodation village, workshop, office, water bores, ROM pad, processing facility, and communication networks. Additional infrastructure would be required for the paste filled areas, comprising a paste plant, surface and underground reticulation and this has been designed and costed to pre-feasibility level.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed in the existing Jundee Mill which is a standard CIP plant with gravity circuit, operating since 1995.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. Recoveries range from 76.1% up to 91.65% depending on the mine area.
	Any assumptions or allowances made for deleterious elements.	No allowances made and considered immaterial to the mineralisation reported.
	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.	All mineralisation systems have significant bulk drill core test work undertaken prior to mining and current resource/reserves have a history of operational experience
	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.	Jundee is an ongoing operation, currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are either granted or in the process of being granted.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	As the Jundee mine has been operating for several years, all required surface and underground access infrastructure is already in place to facilitate mining and processing. A paste fill plant and associated reticulation would be required for the paste fill ore zones.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	All capital costs have been estimated based upon projected requirements and experience of costs incurred through similar activities in the past.
	The methodology used to estimate operating costs.	The operating cost estimates are based upon historical costs incurred. Paste fill costs were determined through benchmarking costs at other paste fill sites, in conjunction with consultant recommended rates.
	Allowances made for the content of deleterious elements.	No allowance made - none expected
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Revenue was based on a gold price AUD $1,750/oz.
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Mining and haulage costs are based on historical costs incurred in the previous cost periods.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs have been set using the forecast costs in line with the recent increase in processing throughput at Jundee, coupled with the historical operating costs data.
	The allowances made for royalties payable, both Government and private.	WA State Govt royalty of 2.5%.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Revenue was based on a gold price of AUD $1,750/oz.
	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 $1,750/oz.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not applicable.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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 plant and quotes from experienced mining contractor. The economic forecast is representative of the current market condition. Paste fill costs were sourced from other paste fill sites and consultant recommendations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The revised business plan, based on the updated Reserves is still in progress, regarding NPV ranges. Jundee Reserves are relatively insensitive to gold price fluctuations due to the higher-grade nature of the mineralised systems.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None.
	The status of material legal agreements and marketing arrangements.	None.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	Jundee is a currently operating mine site with all government and third-party approvals in place for the stated Ore Reserves.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Reserve classifications are derived from the underlying Mineral Resource model, with Measure Resource converting to Proved and/or Probable Reserve and Indicated Resource converting to Probable Reserve where applicable and economically justified.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Person's view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Negligible.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	There have been no external reviews of this Ore Reserve estimate. The Ore Reserve has been prepared and peer reviewed internally within Northern Star Resources.
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 Ore Reserve is 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.	The Ore Reserves are best reflected as global estimates.
	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.	As an operating mine confidence in modifying factors is high.
	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.	Reconciliation results from past mining at Jundee has been considered and factored into the Reserve assumptions where appropriate.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Jundee (Ramone) – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling is by both diamond drilling (DD) and Reverse Circulation (RC) drilling completed by NSR. DD samples are HQ and NQ core with sample intervals defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length. RC samples are collected via rig-mounted static cone splitter with sample falling though inverted cone splitter, splitting the sample in 88%/9%/3% ratio. 9% split retained for 1m composites and 3% split retained for 4m composites. 1m samples are sent for further analysis if any 4m composites return a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant composite assay result. NSR Resource definition and grade control drilling routinely collects 1m composites.
	Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used.	DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC metre intervals are delineated with spray paint to determine metres drilled. Sample rejects are left on the sample pad to indicate metres drilled for the hole.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond drilling is completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200 gm pulp sub sample to use in the assay process. Diamond core samples are fire assayed (30 gm charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling where ~3-4kg samples are pulverised to produce a ~200g pulp sample to utilise in the assay process. RC samples are fire assayed (50 gm charge).
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is carried out using a face sampling hammer and a 130mm diameter bit. Diamond drilling carried used HQ3 (triple tube) and NQ2 techniques. Core is routinely orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond drilling practice results in high core recovery due to the competent nature of the ground. RC drilling recovery is supervised on the rig and any recovery issues are recorded and rectified.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
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.	DD core and RC chip samples have been logged by qualified geologists to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Percussion holes logging were carried out on a metre-by-metre basis and at the time of drilling.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and quantitative; all core is photographed wet. Visual estimates are made of sulphide, quartz and alteration as percentages.
	The total length and percentage of the relevant intersections logged.	100% of all DD and RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is halved with an Almonté diamond core saw. The core is quarter cut when metallurgical samples are required. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All mineralised zones are sampled plus associated visibly barren material in contact with mineralised zones. Core is sampled on the width of the geological/mineralised structure with a minimum sample length of 0.3m and a maximum sample length of 1.2m. Total weight of each sample generally does not exceed 5kg.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling uses a cyclone mounted inverted cone splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	DD core is dried at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. The few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. RC samples are dried at 100°C to constant mass, all samples below approximately 3kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. Samples generated above 4kg are crushed to <6mm and cone split to nominal mass prior to pulverisation. For RC samples, no formal heterogeneity study has been carried out or monographed. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results.
	Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples.	Repeat analysis of pulp samples (all sample types) occurs at an incidence of 1 in 20 samples. Analysis of 2mm coarse crush and split has been completed for three RC bulk cone splitter rejects each of them divided into 32 equal splits.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, (i.e., other half of cut core) are routinely assayed. NSR routinely collects field duplicates during RC drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate. No formal nomograph study has been conducted on the RC primary sub sample split. Industry standard practice supports splitting of primary sub samples at particle sizes of <6mm and P_{80} 75µm.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For RC drill samples, gold concentration was determined by fire assay using the lead collection technique with a 50 gm sample charge weight. MP-AES instrument finish was used to be considered as total gold. For DD drill samples, gold concentration was determined by fire assay using the lead collection technique with a 30 gm sample charge weight. AAS instrument finish was used to be considered as total gold. Various multi-element suites are analysed using a four-acid digest with an AT/OES finish.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: Field QAQC protocols used for all drill samples include commercially prepared certified reference materials (CRM) inserted at an incidence of 1 in 20 samples. The CRM used is not identifiable to the laboratory with QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. NSR RC Resource Definition and Grade Control drilling routinely inserts field blanks and monitor their performance. Laboratory QAQC protocols used for all drill samples include repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples and screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples. The laboratories' own standards are loaded into the database and the laboratory reports its own QAQC data monthly. In addition to the above, about 5% of drill samples are sent to a check laboratory. Samples for check -assay are selected automatically from holes based on the following criteria: grade above 0.5g/t or logged as a mineralised zone or is followed by feldspar flush or blank. Failed standards are generally followed up by re-assaying a second 50 gm or 30 gm pulp sample of all samples in the fire above 0.1g/t by the same method at the primary laboratory. Both the accuracy component (CRM's and third-party checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are verified by the Senior Resource Geologist.
	The use of twinned holes.	There is no purpose drilled twin holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sampling and logging data is digitally entered into a tablet using Logchief software imported into SQL database using semi-automated or automated data entry. Digital assay files are loaded directly into the database.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Visual checks are part of daily use of the data in Vulcan.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Mineral Resource estimation except where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay.
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.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the worldwide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortho-linear rectified photogrammetry based on the Map Gird of Australia MGA94. Collar coordinates are recorded in MGA94. Surface collar RL's have been validated utilising an airborne elevation survey by Arvista in October 2017. Multi shot cameras and gyro units were used for down-hole survey.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51. The difference between magnetic north (MN) and true north (TN) is 1º 34' 30". The difference between true north (TN) and AMG84 Zone 51 (AMG GN) is 1º 02' 47". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2017, 1m contour data and site surveyed pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing ranging from 25m x 25m to 40m x 40m and all Mineral Resources are based on a maximum of 60m x 60m. Exploration results in this report range from 25m x 25m drill hole spacing to 60m x 60m.
	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.	Ore Reserves are generally based on 25m x 25m drilling to a maximum of 40m x 40m. Mineral Resources are generally based on 25m x 25m drilling up to a maximum of 60m x 60m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples are taken as 1 m samples and 4 m composites during first pass exploration,1m samples are sent for further analysis if any 4m composites return a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant composite assay result. For RC Resource definition and grade control drilling 1 m samples are routinely collected. No RC samples greater than 1m were used in estimation.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally on a high angle to the main mineralisation trends as these are vertical to sub-vertical. Drill holes are drilled on a 60 degrees angle perpendicular to the strike of the mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Mineral Resource estimation.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory. All sample submissions are documented, and all assays are returned via email and hard copy. Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab. RC samples processed at SGS have had the bulk residue discarded and pulp packets sent to Jundee mine site for long term storage.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Historical audits of all Jundee data were carried out by previous operators. During 2018 and 2019, Bruce van Blommestein (Zaremus Pty Ltd) conducted an audit of the site laboratory and audit of the external laboratories. Both audits found the laboratory procedures and performance to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally.

APPENDIX C: 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.	Ramone is located on Mining Lease M53/0347 which 100% owned by Northern Star Resources Limited. The tenement in good standing There are no heritage issues with the current operation. The majority of the Jundee leases are granted Mining Leases prior to 1994 (pre-Mabo) and as such Native Title negotiations are not required. During 2004, two agreements were struck between Ngaanyatjarra Council (now Central Desert Native Title Services (CDNTS)) and Newmont Yandal Operations, these agreements being the Wiluna Land Access Agreement 2004 and the Wiluna Claim Heritage Agreement 2004, both agreements were transferred to Northern Star on purchase of the Jundee Operations in 2014.
	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.	All leases and licences to operate are granted and in the order for between 3 and 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Not applicable, all the exploration work has been completed by NSR.
Geology	Deposit type, geological setting and style of mineralisation.	Ramone is Archean gold mineralised deposit that is part of the Northern Yandal Greenstone belt. Gold mineralisation is hosted by a granite and controlled by a brittle stockwork fracture-system within a north-easterly trending shear zone. The mineralisation formed by a stockwork of veins with smoky quartz, sulphides, minor carbonate, chlorite and sericite hosted by a monzonitic granite. The mineralisation is intruded by an east-west striking (about 096 degrees) vertical dolerite dyke that cross cuts the mineralisation and is part of a suite of magnetic dolerite dykes that intrudes the Yandal belt in an east-west direction.
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	No new significant results reported.
	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, no new significant results reported.
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.	Not Applicable, no new significant results reported.
	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.	Not Applicable, no new significant results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not Applicable, no new significant results reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Not Applicable, no new significant results reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Not Applicable, no new significant results reported.
	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').	Not Applicable, no new significant results reported.
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.	Not applicable, no new significant results reported.
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.	Not applicable, no new significant results reported.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other meaningful data to report.
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).	Future planned underground development beneath the existing open pit operation.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Plans and sections of the Ramone deposit are included in this report.

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 digitally entered into a tablet using Logchief software and then transferred to an SQL based database. Assay results are returned from the laboratory as digital files and loaded directly into the database. A series of verification validations are performed prior to importing the data in the database. There are checks in place to avoid duplicate holes, sample numbers and missing intervals. There is database manager on site who is responsible for the integrity and use of the data. Only the database manager and the database administrator have access to the database. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files.
	Data validation procedures used.	All the electronic log files are reviewed and validated prior to being imported into the database. Drill hole information is loaded in Vulcan and Leapfrog software for verification and validation of collar, lithology and downhole surveys. Database administrators perform a series of verification validations prior to store the information in the database. There is QA/QC geologist that reviews the QA/QC information daily and ensure that the company QA/QC protocols are followed.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this Mineral Resource report has worked on site for extensive periods between 2015 and 2020.
	If no site visits have been undertaken indicate why this is the case.	Regular site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was conducted using a systematic approach to ensure continuity of the geology and estimated Mineral Resource using Leapfrog and Vulcan software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggetty nature of the ore body on a local scale.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling and oxidation surfaces.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Logging and grade distribution were used to create 3D constrained wireframes. A 0.3 g/t Au was used as a guide to model the mineralised envelopes for the open pit resources and a 1.0 g/t Au was used as a guide for the underground resources. The Modelling cut-off was determined after the statistical analysis of the sample population.
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though the main mineralised structures show good continuity downdip and across strike. The geology consists of a stockwork of short-range quartz veins with carbonate, chlorite and sulphides hosted by a granite. The splays or small lodes coming of this main trend tend to have a shorter continuity.
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.	Mineralised zones are variable with true width ranging from 0.5m to 20m. They are extensive along strike and down dip, up to 450m and 350m, respectively. Depth from surface is 350m approximately. The mineralised envelope has been extended down dip for targeting purposes any mineralisation modelled beyond the drilling coverage has not been included in the resource classification or reporting.
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.	Domains are set by grouping lodes as dictated by their structural setting, geological, mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variography purposes (by combining groups of lodes). The Mineral Resource estimation utilises 1m composites for all RC and DD sampling data composites residuals smaller than 1m have been weighted by length for the estimation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Modelling was completed using Leapfrog and Vulcan software. Detailed exploratory data analysis, variography, Kriging Neighbourhood analysis (KNA) and model validation is conducted using Snowden Supervisor software. The Mineral Resource was estimated using ordinary kriging (OK). Vulcan software is used for data compilation, calculating and coding composite values, estimating and reporting. Estimation was completed using an oriented search ellipsoid. Three estimation passes were used with increasing search ellipsoid radius. Maximum and minimum number of samples for the estimation and ellipsoid search ranges were derived from KNA analysis, variogram ranges and drill hole spacing. Search ellipsoid radius ranges from 30m to 80m. A minimum of twelve samples and a maximum of twenty-eight was used in the first pass, minimum of ten samples and a maximum of twenty-eight was used in the second pass and minimum of six samples and a maximum of twenty-eight was used in the third pass. Minor variations to the number of samples have been applied in some zones based on drill spacing. Block model volumes were compared to wireframe volumes to validate sub-blocking. For the OK estimates treatment of extreme high grades was dealt with by using a cap grade strategy and high-grade restraining.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Previous estimates and grade control models are in line with the current estimation for this deposit.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Mineral Resource model use a 1m composite generation based on dominant sample length. Ramone block model has a parent block size of 4 m in strike, 2.5 m in RL, and 4m across strike direction and sub-block sizes are 0.5 m in strike, 0.65m in RL, and 0.5 m across strike direction for the open pit resources. For the underground resources, the model has a parent block size of 12 m in strike, 10 m in RL, and 4m across strike direction. Sub-block sizes are 0.5 m to 4 m in strike, 0.625 m to 5 m in RL, and 0.5 m to 4 m across strike direction. Block size is approximately a quarter to half of the drill spacing across strike. Average drill spacing ranges from 25m x 25m to 10m x 5m for the open pit resources. Average drill spacing ranges from 25m x 25m to 40m x 40m for the underground resources. Ore Reserves are generally based on 40m x 40m to 10m x 5m drill spacing. Mineral Resources are generally based on a 40m x 40m drilling up to a maximum of 60m x 60m drill spacing.
	Any assumptions behind modelling of selective mining units.	A 2m minimum mining width for open pit environment is assumed.
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralised wireframes are created within the geological shapes based on drill core logs, mapping and grade. A 0.3 g/t Au was used as a guide to model the mineralised envelopes for open pit resources and 1g/t for the underground resources. Low grades can form part of an ore wireframe. Estimations are constrained by the mineralised envelopes. Where required, late intrusives such as the Proterozoic dolerite dyke were used to sterilise the mineralisation.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by a range of statistical techniques including analysis of histogram, Log-probability and Mean- CV plots: ▪ Contained Metal Plots assess contribution of the highest values on the quantity of metal in an estimate, ▪ Coefficient of Variation plots analyse impact top cuts have on CV. A range of top cuts are then selected for each domain utilising the above strategies and an appropriate top cut chosen with further examination to assess sensitivity of selected cap grades and associated risk. Metal estimated in the Mineral Resource models are finally reconciled with production models of like areas to determine the appropriateness of the high-grade treatment on the assays. No top cutting or capping of high grades is done at the raw sample or compositing stage. For OK and ID^2, treatment of the high-grade assays occurs at the estimation stage. A top cut of 40g/t was used for estimation and a high-grade restraining for samples above 16g/t, limiting their range of influence in the estimation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. ▪ Sensitivity to top-cut values uses a variety of top-cuts which are compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Comparison of nearest neighbour, ID2 and OK estimates to the final estimate (OK & ID2). These comparisons are conducted through visual validation and trend analysis along Northing, Easting and RL slices. ▪ Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent. ▪ Statistical comparison of composites versus all estimates in block model with trend analysis plots for each domain produced by Northing/Easting/RL. ▪ Statistical comparison of composites grades versus lode grades in a lode by lode basis. ▪ Change of Support validation The Mineral Resource estimate shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. Where the numbers of samples reduce, the accuracy of the estimation suffers, and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are considered when assigning a Resource classification.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Mineral Resources are reported at a 0.45g/t cut-off grade. The pit cut-off grade has been calculated based on the key input components of mining, processing, recovery and administration costs. Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The AUD gold price as per corporate guidance. ▪ Mill recovery factors are based on historical data and metallurgical test work. ▪ Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. Variable cut-off grade is used in the evaluation of open pit projects. Underground resources have been reported through MSO generation using a 1.1g/t Au cut-off grade.
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.	A 2m minimum mining width for Open Pit environment is assumed and incorporated into the modelling and estimation. All the resources have been reported at a 0.45g/t Au within the optimisation pit shell using AUD$2,250/oz gold price. Underground resources have been reported through MSO generation using a minimum mining width of 2 m coupled with 1.1g/t Au cut-off grade and an AUD$2,250/oz gold price. It is assumed that the underground resources will be accessed through a portal at the base of the pit.
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.	Ramone ore is currently being trucked and processed in the Jundee Mill. Metallurgical test work was initiated in October 2017 to determine ore characteristics and expected recovery figures from processing material from this ore body. Recovery of gravity recoverable gold increased with a reduction in grind size. The overall recovery also increased with a reduction in grind size. At the current operating range of 106 µm to 150 µm the total recovery can be expected to be 94.9% to 97.2%. Lime consumption is projected to be at 1.9 kg/t. Cyanide consumption is projected to be at 0.9 kg/t. Although no oxygen uptake test work was completed, head assay analysis does not indicate any major oxygen consumers. Therefore, the current Jundee liquid oxygen consumption rate of 0.68 m3/t is projected. The ore from Ramone orebody does not contain any elements of significant quantity which would adversely affect processing by conventional leach and gravity. Current Ramone open pit ore being treated at the Jundee mill, third party mills show plant recoveries above 92%.
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.	The Project currently possesses all necessary government permits, licences and statutory approvals to be compliant with all legal and regulatory requirements.

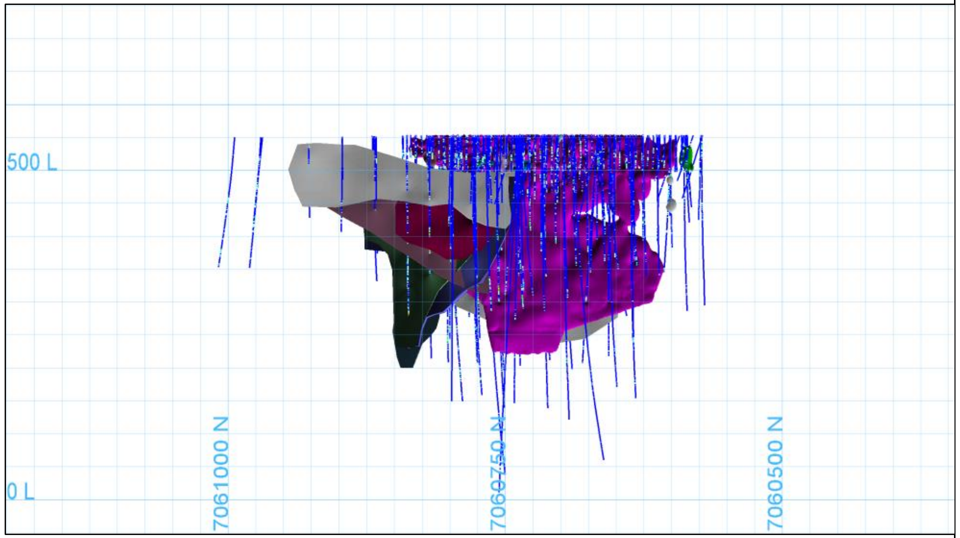
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density values have been obtained from a detailed statistical analysis of 309 measurements that have been recorded from diamond core samples taken at Ramone and nearby Deep Well that is hosted by the same geological formation. Approximately one sample is taken every 5 meters. These values are also in agreement with 72,634 bulk density measurements that been taken in the Jundee district and over 10 years of historical production data from several pits in the regional district.
	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.	Bulk density measurements for core samples are taken using the water displacement technique, where the samples are dried and weighed in air then weighed in water.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The classification of Mineral Resources was based on the geological complexity, drill hole spacing, number of drill samples, sample distribution and estimation performance, The Competent Person is satisfied that the result appropriately reflects his view of the deposit. Indicated open pit Resources are defined by RC drilling which ranges between 10m x 5m and 25m x 25m drill spacing where there is grade and geological continuity. Small lodes or mineralised zones within 25m x 25m drill spacing are classified as Indicated when there is evidence of grade and geological continuity and they intersected by a minimum of 3 drill holes, otherwise inferred. Inferred open pit Resources are defined on a nominal 50m x 50m drilling pattern where there is evidence of grade and geological continuity. Indicated underground Resources are defined by DD drilling which generally in a 40m x 40m or tighter drill spacing where there is grade and geological continuity. Inferred underground Resources are defined by DD drilling that ranges between a 40m x 40m and 60m x 60m drilling pattern where there is evidence of grade and geological continuity. Classification has been extended half the drill hole spacing past the last mineralised intercept in a regular drilling grid for each category. Any mineralised zone not falling within the criteria described in the previous paragraphs have the unclassified resource category.
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed to be accurate. All the relevant factors have been considered in the classification of the Mineral Resource.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimate have been internally reviewed by NSR personnel. No external audits and reviews have been completed.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Ramone mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the Resource on a global scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This Mineral Resource report relates to the Ramone deposit and is likely to have local variability within a global assessment further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Current production and grade control data is line with the model expectations and supports the accuracy and confidence in the resource model.

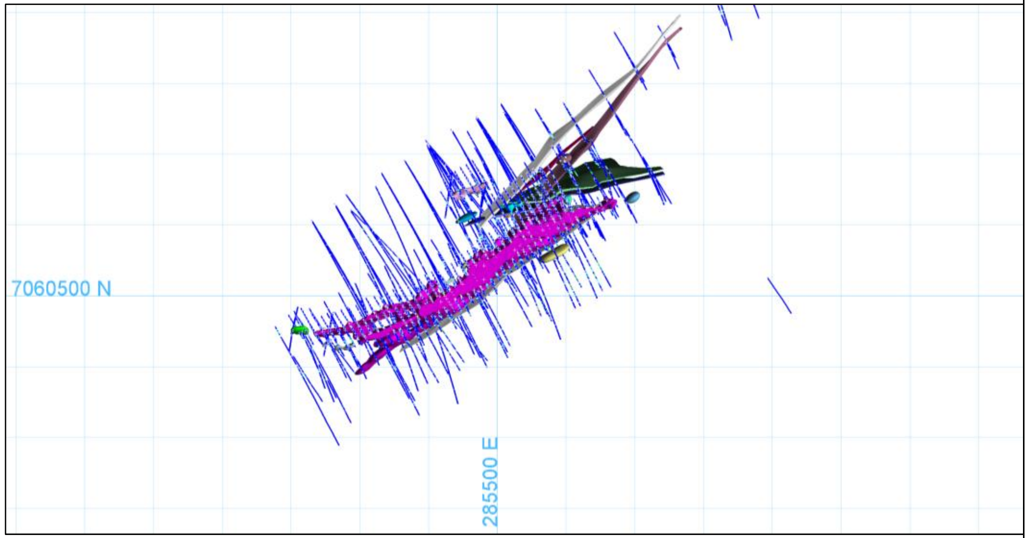
APPENDIX C: TABLE 1

RAMONE - REPRESENTATIVE PLANS & CROSS SECTIONS

Long Section: Ramone resource drillhole traces and mineralised domains



Plan view – Ramone resource drillhole traces and mineralised domains



Section 4: Estimation and Reporting of Ore Reserves

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

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported Ore Reserve is based the 2021 NSR Ramone Resource model.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of the Ore Reserves
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 were 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.	Current Underground Reserves are based on Budget level analysis – with a completed 3D design. Modifying Factors were additionally applied to these designs, based upon complimentary feasibility documents and historical experience.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A cut-off grade is generated, and all potential Reserve material is evaluated, based on the direct costs of all tasks involved and corporate gold price guidance. Historical costs as well as mining contractor tender schedule of rates costs were used.
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.	A top-down long hole open stope extraction is currently the main mining method of Ramone.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Level spacing ranges from 22-27.5m based on rock mass condition with stope strike lengths ranging from 10 – 25m. Pillars are maintained between stopes for stability purposes. Pillars are generally 8.0m in strike length though vary on orebody thickness
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	For Ramone Underground, a 2.5m minimum mining width has been applied.
	The mining dilution factors used.	For Ramone Underground, a 10% Stope dilution factor was applied in line with the geotechnical feasibility study.
	The mining recovery factors used.	For Ramone Underground, a variable mining recovery of 70-95% has been applied to stoping blocks in line with geotechnical parameters.
	Any minimum mining widths used.	For Ramone Underground, a 2.5m minimum mining width has been applied.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is included within the mine plan; however, material is only classified as Reserve when the Measured and Indicated material can cover all costs associated with the mining of that material. Designed stopes with greater than 50% Inferred blocks are excluded from the reported Ore Reserve.
	The infrastructure requirements of the selected mining methods.	Underground infrastructure required includes Mine development, power, water, compressed air and ventilation for the underground workings.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed in the existing Jundee Mill which is a standard CIP plant with gravity circuit, operating since 1995.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Recovery factors vary for the various mining areas and are based on lab testing and recent surface mining operational experience. Recovery factor used is 93%.
	Any assumptions or allowances made for deleterious elements.	No allowances made and considered immaterial to the mineralisation reported.
	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.	All mineralisation systems have significant bulk drill core test work undertaken prior to mining and current resource/Reserves have a history of operational experience
	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.	Ramone is an ongoing operation, currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are either granted or in the process of being granted.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	Most surface infrastructure is currently in place. This includes Workshop, office, water bores, and communication networks. Ramone will utilise existing infrastructure from Jundee such as accommodation village, airstrip, ROM pad, and processing facility. Underground infrastructure required includes Mine development, power, water, compressed air and ventilation for the underground workings. All ore will be hauled to the Jundee Processing Facility
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	All capital costs have been estimated based upon projected requirements and experience of costs incurred through similar activities in the past.
	The methodology used to estimate operating costs.	The operating cost estimates are based upon historical costs incurred and mining contractor tender schedule of rates

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Allowances made for the content of deleterious elements.	No allowance made - none expected
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Revenue was based on a gold price AUD $1,750/oz.
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Mining and Haulage costs are based on historical costs incurred in the previous cost periods.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs have been set using the forecast costs in line with the recent increase in processing throughput at Jundee, coupled with the historical operating costs data.
	The allowances made for royalties payable, both Government and private.	WA State Govt royalty of 2.5%.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Revenue was based on a gold price of AUD $1,750/oz.
	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 $1,750/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 plant and quotes from experienced mining contractor. The economic forecast is representative of the current market condition.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The revised business plan, based on the updated Reserves is still in progress, regarding NPV ranges. Jundee Reserves are relatively insensitive to gold price fluctuations due to the higher-grade nature of the mineralised systems.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None.
	The status of material legal agreements and marketing arrangements.	None.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	Ramone is an ongoing operation, currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are either granted or in the process of being granted.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Reserve classifications are derived from the underlying Mineral Resource model, with Measure Resource converting to Proved and/or Probable Reserve and Indicated Resource converting to Probable Reserve where applicable and economically justified.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Person's view of the deposit.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Negligible.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	There have been no external reviews of this Ore Reserve estimate. The Ore Reserve has been prepared and peer reviewed internally within Northern Star Resources.
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 Ore Reserve is 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.	The Ore Reserves are best reflected as global estimates.
	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.	Reconciliation results from past mining at Ramone has been considered and factored into the Reserve assumptions where appropriate.
	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.	Reconciliation results from past mining at Ramone has been considered and factored into the Reserve assumptions where appropriate.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Jundee (Julius) – 31 March 2022

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>Historic sampling was completed using a combination of Reverse Circulation (RC) and Diamond (DD) drilling. RC samples were collected via rig mounted cone splitter. DD samples were HQ half core with sample intervals defined by the geologist to honour geological boundaries.
Historic and recently completed drilling at the Julius Gold Deposit resulted in the following:
<table><tr><th>Hole Type</th><th>Metres</th><th>Hole Count</th></tr><tr><td>DD</td><td>2,733</td><td>30</td></tr><tr><td>RC</td><td>110,003</td><td>1,752</td></tr><tr><td>RCD</td><td>2,400</td><td>8</td></tr></table>Recently completed drilling by Northern Star Resources (NSR) was by both diamond drilling (DD) and Reverse Circulation (RC).
DD samples are HQ or NQ core with sample intervals defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length.
RC samples are collected via rig-mounted static cone splitter with sample falling though inverted cone splitter, splitting the sample in 88%/9%/3% ratio. 9% split retained for 1m composites.</td></tr>
<tr><td></td><td>Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used.</td><td>Recently completed DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice.
RC metre intervals are delineated with spray paint to determine metres drilled. Sample rejects are left on the sample pad to indicate metres drilled for the hole.</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>Diamond drilling is completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process.
Diamond core samples are fire assayed (30 gm or 50 gm charge).
RC sampling to industry standard at the time of drilling where ~3-4kg samples are pulverised to produce a ~200 gm pulp sample to utilise in the assay process.
RC samples are fire assayed (30 gm charge).</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>Historic work:
RC drilling (5 ¼ inch face sampling hammer) from surface
HQ Triple Tube from surface (78 mm)
Recent Northern Star:
RC drilling is carried out using a face sampling hammer and a 130mm diameter bit.
Diamond drilling carried used HQ3 (triple tube) and NQ2 techniques.
Core is routinely orientated using the ORI-shot device.</td></tr>
<tr><td>Drill sample recovery</td><td>Method of recording and assessing core and chip sample recoveries and results assessed.</td><td>RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample.
DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals.</td></tr>
<tr><td></td><td>Measures taken to maximise sample recovery and ensure representative nature of the samples.</td><td>Diamond drilling practice results in high core recovery due to the competent nature of the ground.
RC drilling recovery is supervised on the rig and any recovery issues are recorded and rectified.</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>There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.</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>DD core and RC chip samples have been logged by qualified geologists to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</td></tr>
</table>

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		RC holes logging were carried out on a metre-by-metre basis and at the time of drilling.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative; all core is photographed wet. Visual estimates are made of sulphide, quartz and alteration as percentages.
	The total length and percentage of the relevant intersections logged.	100% of all DD and RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is halved with an Almonté diamond core saw. The core is quarter cut when metallurgical samples are required. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All mineralised zones are sampled plus associated visibly barren material in contact with mineralised zones. Core is sampled on the width of the geological/mineralised structure with a minimum sample length of 0.3m and a maximum sample length of 1.2m. Total weight of each sample generally does not exceed 5kg.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling uses a cyclone mounted inverted cone splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	DD core is dried at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. The few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. RC samples are dried at 100°C to constant mass, all samples below approximately 3kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. Samples generated above 4kg are crushed to <6mm and cone split to nominal mass prior to pulverisation. For RC samples, no formal heterogeneity study has been carried out or monographed. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results.
	Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples.	Repeat analysis of pulp samples (all sample types) occurs at an incidence of 1 in 20 samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, (i.e., other half of cut core) are routinely assayed. NSR routinely collects field duplicates during RC drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate. No formal nomograph study has been conducted on the RC primary sub sample split. Industry standard practice supports splitting of primary sub samples at particle sizes of <6mm and P_{80} 75µm.
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.	Extractions from previous operators are considered are considered near total. For RC drill samples, gold concentration was determined by fire assay using the lead collection technique with a 50-gram sample charge weight. MP-AES instrument finish was used to be considered as total gold. For DD drill samples, gold concentration was determined by fire assay using the lead collection technique with a 30-gram sample charge weight. AAS instrument finish was used to be considered as total gold.
	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 derived analyses are reported.
	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.	Previous operator's QA/QC involved the use of internal lab standards using certified reference material, blanks, splits and duplicates as part of the in-house procedures. Repeat and duplicate analysis for samples shows that the precision of analytical methods is within acceptable limits. The QAQC protocols used include the following for all drill samples: Field QAQC protocols used for all drill samples include commercially prepared certified reference materials (CRM) inserted at an incidence of 1 in 20 samples. The CRM used is not identifiable to the laboratory with QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. NSR RC Resource definition and grade control drilling routinely inserts field blanks and monitor their performance. Laboratory QAQC protocols used for all drill samples include repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples and screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples. The laboratories' own standards are loaded into the database and the laboratory reports its own QAQC data monthly. In addition to the above, about 5% of drill samples are sent to a check laboratory. Samples for check -assay are selected automatically from holes based on the following criteria: grade above 0.5g/t or logged as a mineralised zone or is followed by feldspar flush or blank.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Failed standards are generally followed up by re-assaying a second 50g or 30g pulp sample of all samples in the fire above 0.1g/t by the same method at the primary laboratory. Both the accuracy component (CRM's and third-party checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified.
	The use of twinned holes.	4 HQ diamond twin holes drilled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sampling and logging data are digitally entered into a tablet using Logchief software imported into SQL database using semi-automated or automated data entry. Digital assay files are loaded directly into the database. Visual checks are part of daily use of the data in Vulcan.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Mineral Resource estimation except where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay.
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.	Previous operators drillholes have been located by DGPS with precision of sample locations considered +/-1m. Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the worldwide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortho-linear rectified photogrammetry based on the Map Gird of Australia MGA94. Collar coordinates are recorded in MGA94. Surface collar RL's have been validated utilizing an airborne elevation survey by Arvista in 2019. Multi shot cameras and gyro units were used for down-hole survey.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51. The difference between magnetic north (MN) and true north (TN) is 1º 34' 30". The difference between true north (TN) and AMG84 Zone 51 (AMG GN) is 1º 02' 47". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Arvista in 2019, 1m contour data and site surveyed pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing of 25m x 25m and all Mineral Resources are based on a maximum of 60m x 60m. Exploration results in this report range from 25m x 25m drill hole spacing to 60m x 60m.
	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.	Ore Reserves are generally based on 25m x 25m drilling to a maximum of 40m by 40m. Mineral Resources are generally based on 25m x 25m drilling up to a maximum of 60m x 60m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples are taken as 1 m samples and 4 m composites during first pass exploration,1m samples are sent for further analysis if any 4m composites return a gold value > 0.1g/t or intervals containing alteration/mineralisation failed to return a significant composite assay result. For RC Resource definition and grade control drilling 1 m samples are routinely collected.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally on a high angle to the main mineralisation trends as these are flat to gently dipping.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Mineral Resource estimation.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory. All sample submissions are documented, and all assays are returned via email and hard copy.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab. RC samples processed at SGS have had the bulk residue discarded and pulp packets sent to Jundee mine site for long term storage.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Previous Operators had no review or audit of sampling techniques or data compilation has been undertaken at this stage. In 2020 Zaremus Pty Ltd conducted an audit of the site laboratory and audit of the external laboratories. Both audits found the laboratory procedures and performance to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Julius Project consists of a single Mining Lease M53/555 covering a total area of approximately 990 Ha. The Mining Lease is currently registered in the name of Northern Star (MKO) Pty Ltd, wholly owned subsidiary of Northern Star Resources Limited. The area is subject to various Heritage and Access agreements with Tarlka Matuwa Piarku Aboriginal Corporation (TMPAC). The tenement is subject to two third party private royalty agreements; the Red Lake Royalty Agreement held by Franco Nevada and royalty provisions under the agreements with TMPAC.
	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.	All leases and licences to operate are granted and in the order for between 3 and 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	All the recent exploration work has been completed by NSR.
Geology	Deposit type, geological setting and style of mineralisation.	Julius is an Archean gold mineralised deposit that is part of the Northern Yandal Greenstone belt. Gold mineralisation is controlled by a shear system and is predominantly hosted in ultramafic and granite. Mineralisation can be lateritic, or supergene or vein style hosted in nature.
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	No new significant results reported;
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No new significant results reported.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No new significant results reported.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No new significant results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No new significant results reported.
Relationship between mineralisation	These relationships are particularly important in the reporting of Exploration Results.	No new significant results reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No new significant results reported.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
widths and intercept lengths	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No new significant results reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No new significant results reported.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No new significant results reported.
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 meaningful data to report.
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further extensional, resource definition and grade control drilling are planned for FY2022.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Plans and sections of the Jundee open pit deposits are included in this report.

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 digitally entered into a tablet using Logchief software and then transferred to an SQL based database. Assay results are returned from the laboratory as digital files and loaded directly into the database. A series of verification validations are performed prior to importing the data in the database. There are checks in place to avoid duplicate holes, sample numbers and missing intervals. There is database manager on site who is responsible for the integrity and use of the data. Only the database manager and the database administrator have access to the database. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files.
	Data validation procedures used.	All the electronic log files are reviewed and validated prior to being imported into the database. Drill hole information is loaded in Vulcan and Leapfrog software for verification and validation of collar, lithology and downhole surveys. Database administrators perform a series of verification validations prior to store the information in the database. There is QA/QC geologist that reviews the QA/QC information daily and ensure that the company QA/QC protocols are followed.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this Mineral Resource report has worked at Jundee between 2019 and 2021.
	If no site visits have been undertaken indicate why this is the case.	Regular site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was conducted using a systematic approach to ensure continuity of the geology and estimated Mineral Resource using Leapfrog and Vulcan software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggetty nature of the ore body on a local scale.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling and oxidation surfaces.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Logging and grade distribution were used to create 3D constrained wireframes. A 0.3 g/t Au was used as a guide to model the mineralised envelopes for the open pit resources. The Modelling cut-off was determined after the statistical analysis of the sample population.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though the main mineralised structures show good continuity downdip and across strike. The geology consists of a stockwork of short-range quartz veins with carbonate, chlorite and sulphides hosted within ultramafic and/or granite. The splays or small lodes coming of this main trend tend to have a shorter continuity.
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.	Mineralized zones are variable with true width ranging from 0.5m to 20m. They are extensive along strike and down dip, and form supergene and laterite horizons, respectively. Mineralisation occurs form near surface and is open at depth >200m approximately. The mineralised envelope has been extended down dip for targeting purposes any mineralisation modelled beyond the drilling coverage has not been included in the resource classification or reporting.
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.	Modelling was completed using Leapfrog and Vulcan software. Domains are set by grouping lodes as dictated by their structural setting, geological, mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variography purposes (by combining groups of lodes). The Mineral Resource estimation utilises 1m composites for all RC and DD sampling data, small intervals up to 0.3m were merged with the nearest composite for the estimation. Detailed exploratory data analysis, variography, Kriging Neighbourhood analysis (KNA) and model validation is conducted using Snowden Supervisor software. The Mineral Resource was estimated using a combination of categorical indicator kriging (CIK) and ordinary kriging (OK). Vulcan software is used for data compilation, calculating and coding composite values, estimating and reporting. CIK Parameters: • 3 Bin CIK was utilised to define internal subdomains (low grade, medium grade and high-grade populations) • Indicator thresholds were determined from log probability analysis and indicator estimation parameters optimised for the X1m x Y1m x Z1.25m sub blocks. • The search ellipse orientation used the Dynamic anisotropy (DA) orientations as calculated by HW and FW surfaces of lodes 3001, 3002 and 4001 in Vulcan. • Vulcan's coalesce function was used to optimise sub domain blocks up to the parent cell size (X5m x Y10m x Z2.5m) where possible. • Low grade, medium grade and high-grade subdomains are back flagged onto the composite and parent cell Ordinary kriging is performed with individually optimised estimation parameter sets, variograms and top cuts applied. OK Parameters: • Estimation was completed using an oriented search ellipsoid. • Three estimation passes were used with increasing search ellipsoid radius. • Maximum and minimum number of samples for the estimation and ellipsoid search ranges were derived from KNA analysis, variogram ranges and drill hole spacing using Supervisor software. • Search ellipsoid radius ranges from 30m to 80m. A minimum of twelve samples and a maximum of twenty-eight was used in the first pass, minimum of ten samples and a maximum of twenty-eight was used in the second pass and minimum of six samples and a maximum of twenty-eight was used in the third pass. Minor variations to the number of samples have been applied in some zones based on drill spacing. Block model volumes were compared to wireframe volumes to validate sub-blocking. For the OK estimates treatment of extreme high grades was dealt with by using a cap grade strategy and high-grade restraining.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Previous estimates are in line with the current estimation for this deposit.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The Julius Mineral Resource model uses a 1m straight composite generation based on RC and DD sample length where the parent block sizes are 10 m in strike, 2.5m in RL, and 5m across strike direction. Sub-block sizes are 1m in strike, 1m in RL, and 0.5m across strike direction. Average drill spacing ranges between 25m x 25m and 5m x 10m. Ore Reserves are based on 20m x 20m drilling up to a maximum of 40m x 40m. Mineral Resources are based on 40m x 40m drilling up to a maximum of 80m x 80m.
	Any assumptions behind modelling of selective mining units.	A 5.0m minimum mining width for ore blocks is assumed.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralised wireframes are created within the geological shapes based on drill core logs, mapping and grade. A 0.3 g/t Au was used as a guide to model the mineralised envelopes for open pit resources and. Low grades can form part of an ore wireframe. Estimations are constrained by the mineralised envelopes.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by a range of statistical techniques including analysis of histogram, Log-probability and Mean- CV plots: ▪ Contained Metal Plots assess contribution of the highest values on the quantity of metal in an estimate, ▪ Coefficient of Variation plots analyse impact top cuts have on CV. A range of top cuts are then selected for each domain utilising the above strategies and an appropriate top cut chosen after further examination to assess sensitivity of selected cap grades and associated risk. Metal estimated in the Mineral Resource models are finally reconciled with production models of like areas to determine the appropriateness of the high-grade treatment on the assays. No top cutting or capping of high grades is done at the raw sample or compositing stage. For OK and CIK, treatment of the high-grade assays occurs at the estimation stage. A range of top cuts were used for estimation and a high-grade restraining for high grade samples, limiting their range of influence in the estimation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes. ▪ Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. ▪ Sensitivity to top-cut values uses a variety of top-cuts which are compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Comparison of nearest neighbour, ID2 and OK estimates to the final estimate (OK). These comparisons are conducted through visual validation and trend analysis along Northing, Easting and RL slices. ▪ Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent. ▪ Statistical comparison of composites versus all estimates in block model with trend analysis plots for each domain produced by Northing / Easting / RL. ▪ Statistical comparison of composites grades versus lode grades in a lode-by-lode basis. ▪ Change of Support validation The Mineral Resource estimate shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. Where the numbers of samples reduce, the accuracy of the estimation suffers, and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are considered when assigning a Resource classification.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Open pit resources have been reported through MSO generation using a 0.68 g/t Au cut-off grade. The cut-off grade has been calculated based on the key input components of mining, processing, recovery and administration costs. Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The AUD $2,250 gold price as per corporate guidance. ▪ Mill recovery factors are based on historical data and metallurgical test work. ▪ Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. Variable cut-off grade is used in the evaluation of open pit projects.
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.	A 5.0m minimum mining width for ore block environment is assumed and incorporated into the modelling and estimation.

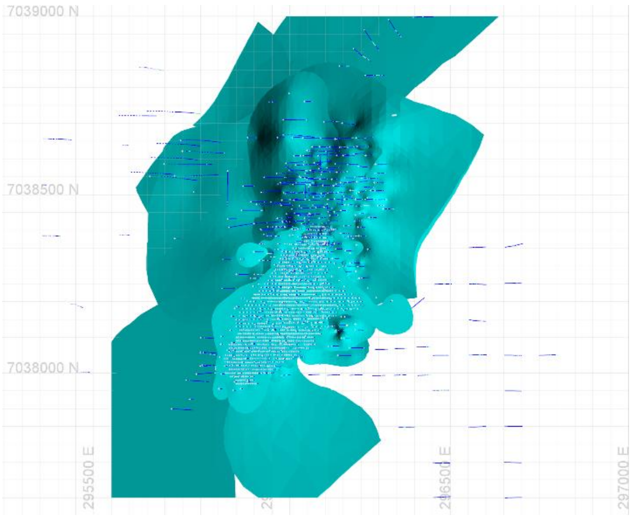
APPENDIX C: TABLE 1

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.	Assumed all material will be trucked and processed in the Jundee Mill. Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. No metallurgical assumptions have been built or applied to the Mineral Resource model
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The Project currently possesses all necessary government permits, licenses and statutory approvals to be compliant with all legal and regulatory requirements.
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.	RC bulk density values used were based on analysis of grab samples obtained during excavation of open cut mines. Calculated averages were applied to density boundaries for each model. DD bulk density values are based on an updated study of the average lithological densities across the mine site completed in 2013. This study consisted of a detailed statistical analysis of 72,634 measurements that have been recorded from all deposits. These values are also in agreement with over 10 years of production data.
	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.	Bulk density measurements for core samples are taken using the water displacement technique, where the samples are dried and weighed in air then weighed in water.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Measured Resources are defined from grade control models based on geological mapping, diamond and RC drill holes which are imported into Vulcan software and modelled in 3D. Indicated Resources are defined by drilling which is generally 25m x 25m and may range up to 40m x 40m maximum. Material classified as Indicated are supported by a minimum of 5 RC and Diamond drill holes or a minimum of 3 drill holes when drill spacing is 25m x 25m or less and there is grade and geological continuity. Inferred Resources are defined on a nominal 40m x 40m drilling pattern and may range up to 80m x 80m. Resources based on less than 40m x 40m spaced drilling, but which have a low level of confidence in the geological interpretation may also be classified as inferred
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is accurate based on a long, successful mining history at the site on this mineralisation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimates, methodology and systems have been subject to reviews by senior technical personnel.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Jundee mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the Resource on a global scale and against actual production reconciliation.
	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 Mineral Resource report relates to the Jundee deposits and is likely to have local variability within a global assessment further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Comparison with previous Mineral Resource estimates and production data was undertaken. Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent.

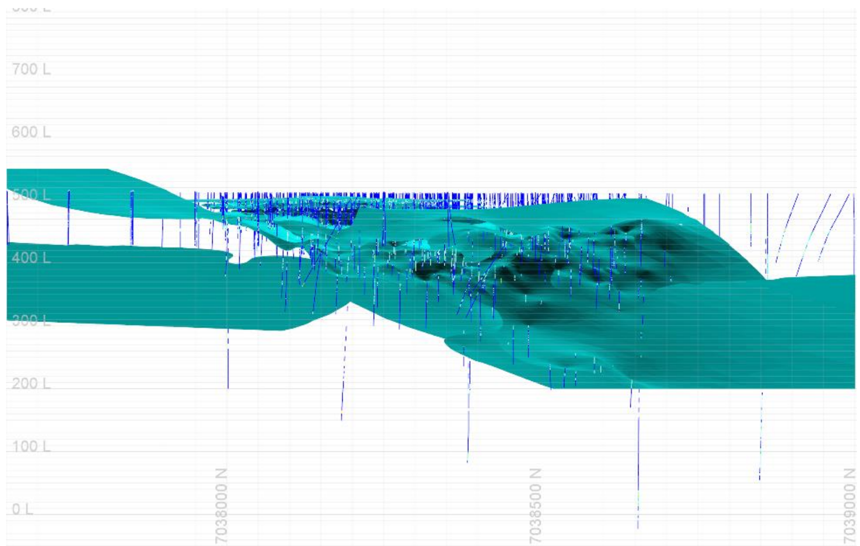
APPENDIX C: TABLE 1

JULIUS RESOURCE

Plan view: Julius mine area Drill hole collars



Long Section – Julius mine area drillhole traces and mineralised domains



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.	The Mineral Resource estimate for the Julius Project used as a basis for the conversion to the Ore Reserve estimate reported was compiled by Northern Star Resources (NSR). Reported ore reserves are based on updated or depleted resource models for all project areas.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Numerous and frequent 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.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into ore Reserve.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	The processing parameters have been based on metallurgical test work and actual costs of the Jundee processing plant. Mining costs are based on current contract schedule of rates provided in a fixed and variable format. A detailed mine schedule and cost model has been generated and appropriate ore dilution and recoveries have been applied within the model.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The current study level demonstrates high confidence that the projects can achieve the mine plan and be operated in a technically sound and economically viable manner.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The pit cut-off grade has been calculated based on the key input components (processing, recovery, and administration) Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. The AUD gold price as per corporate guidance. Mill recovery factors are based on metallurgical test work.
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 complete with a detailed financial assessment. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. Ore Reserves have been calculated by generating detailed mining shapes for detailed mine design. Open pit planned and unplanned dilution (waste material that is located within the minable shape) has been modelled within the mining shapes.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining method for the Julius deposit is of a bench mining open pit method. The open pit is mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 120 t-200 t class excavators and 90t trucks. This method is used widely in mines across Western Australia and is deemed appropriate given the nature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Independent Geotechnical Consultants Dempers & Seymour Pty Ltd completed a geotechnical study for the Julius project. Recommended wall angles were applied to the Whittle optimisation and subsequent detailed pit designs.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	
	The mining dilution factors used.	Physicals are reported within the generated mining shapes for the open pit Ore Reserve. SMU shapes have been generated for the reporting of Ore Reserve physicals. Dilution is accounted for within the SMU; that is waste material carried within the mining shape.
	The mining recovery factors used.	A mining recovery factor of 95% has been applied reporting of Open pit Reserve physicals.
	Any minimum mining widths used.	The SMU dimensions for the Reserve Estimate are 3.5 m Wide x 2.5 m High x 5.0 m Long. A minimum mining width down to 20 m for final pit extraction from the base of pit has been used.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Reserve estimate (treated as waste) but has been considered in LOM planning. The amount of inferred material has no impact on the sensitivity of the project.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the Julius Project has been accounted for and included in all work leading to the generation of the Ore Reserve estimate. Offices, workshops and associated facilities, dewatering pipeline, Waste Rock Storage Dump; and ROM Pad are established at Julius. Ore from the Julius Project will be processed through the Jundee Processing Plant; hence no processing infrastructure is required.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed in the existing Jundee Mill which is a standard CIP plant with gravity circuit, operating since 1995
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	The metallurgical recoveries for the Julius project were set at 93% for oxide, 93% for transitional, 93% for fresh rock, which corresponds with metallurgical test work undertaken.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements. Test work indicates there are no deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Based on metallurgical test work carried out and milling experience gained through processing similar material through the Jundee Processing Plant.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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.	Jundee is an ongoing operation, currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are either granted or in the process of being granted. The Mining Proposal and Mine Closure Plan for the Julius project has been approved by DMIRS.
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 processing infrastructure is in place at Jundee. The Julius Project is a satellite pit operation and extension of the Jundee Gold Mine. The project areas are connected to Jundee by an established haul road constructed for road train haulage. Minor infrastructure will be required at the project areas and has been allowed for in the cost model.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Mining costs are based on mining contract rates supplied by a reputable WA based mining contractor. Contract rates are for open pit mining services as well as drill and blast operations and associated services required to complete the project. Mining costs were built up from first principals on mine designs supplied by NSR. Capital costs were not included in the optimised parameter inputs. Capital costs based on quotes supplied and have been included in the economic cost model.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate. Mining costs supplied by a reputable WA based mining contractor who built up costs from first principles from mine designs supplied by NSR.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected based on metallurgical test work.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a gold price of A$1,750 per ounce as per NST corporate guidance
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Transportation costs for ore haulage from Julius to Jundee have been based on current NSR contractor quotes. Transportation costs also include an allowance haul road maintenance and dust suppression.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on historic and actual Jundee plant processing costs. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. Private royalty totalling 2.1% (Native Title, Red Lake).
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.	All financial analysis and gold price have been expressed in Australian dollars and no direct exchange rates have been applied. Revenue factors within the whittle optimisation process were used. A revenue factor shell was selected and used to complete a detailed pit design. A gold price of A$1,750 per ounce has been used in the optimisation of the Julius Project. 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold doré from the mine is to be sold at the Perth mint.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not Applicable.
	Price and volume forecasts and the basis for these forecasts.	Not Applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model that is reflective of current operational costs and contract conditions. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,750 ± $250 per ounce. Due to the current short life, the project is not seen as highly sensitive to cost inputs.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	No issues.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The classification of Open Pit Ore Reserves has been carried out in accordance with the JORC code 2012.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Reserve has been internally reviewed in line with Northern Star Resources governance standard for Reserves and Resources. There have been no external reviews of this Ore Reserve estimate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The design, schedule and financial model on which the Julius Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	All modifying factors have been applied to design mining shapes on a global 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.	Not applicable.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Corboys Resource – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by diamond drilling (DD) and reverse circulation (RC) drilling completed by Northern Star and by previous operators. A total of 1,056 drillholes for a total of 89,999m at depths ranging from 6 to 540.6m. This includes 1015 RC (83,546m), 21 DD (2,010m) and 20 DD with RC pre-collar (4,443m). Included within these figures, Northern Star Exploration drilled 131 RC (22,478m) and 21 DD (2010m). Northern Star RC samples are collected via rig-mounted static cone splitter with sample falling though inverted cone splitter, splitting the sample in 88%/12% ratio. 12% split retained for 1m composites. 1m samples are sent for further analysis. DD sample intervals are based on geological observations. Minimum core width sampled was 0.3m and maximum 1m. Half HQ diamond drill core was submitted for analysis. RC and DD sampling by previous operators assumed to be to industry standard at that time. Four metre composites taken in a portion of historic drillholes were re-sampled to 1m. It is unknown what grade threshold triggered the 1m re-samples.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to downhole core blocks consistent with industry practice. RC metre intervals are delineated to determine metres drilled. Sample rejects are left on the sample pad to indicate metres drilled for the hole.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200 g pulp sub sample to use in the assay process. RC sampling to industry standard at the time of drilling where ~3-4kg samples are pulverised to produce a ~200g pulp sample to utilise in the assay process. RC samples are fire assayed (50g charge).
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is carried out using a face sampling hammer and a 130mm diameter bit. Majority of diamond drilling has been carried out in recent times by Echo Resources and Northern Star. DD core is exclusively HQ size, with diamond tails ranging in depth from 119m to 540.6m, and core oriented by ori tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. Historic reports state that RC recovery and meterage were assessed by comparing drill chip volumes for individual metres with good recoveries recorded. Routine checks of correct sample depths undertaken every rod (6m) noted. DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC drilling recovery is supervised on the rig and any recovery issues are recorded and rectified. Previous operators visually checked for recovery, moisture and contamination. The cyclone was routinely cleaned ensuring no material build up. Diamond drilling shows high core recovery due to the competent nature of the ground.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade. Drilling conditions have been noted to be dry and competent in historical reports.
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.	DD drillholes have been logged by qualified geologists for recovery, RQD, geology and structure. Structural measurements are taken using a kenometer to record alpha and beta angles relative to a bottom of hole line marked on the oriented core. A sub-set of structural readings are checked with the use of a core orientation device. Logging of RC chips record lithology, mineralisation, weathering, colour and other features of the samples. All samples are wet-sieved and stored in chip trays. These trays are stored on site for future reference. The level of logging detail is considered sufficient to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. RC hole logging were carried out on a metre-by-metre basis at the rig by the geologist. Surface core and RC logging completed by previous operators assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative; all chip and core trays are photographed wet. Visual estimates are made of sulphide, quartz and alteration as percentages.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The total length and percentage of the relevant intersections logged.	100% of all RC and DD drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core was cut, with half core sampled and taken, leaving half core remaining. The entire length of hole sampled by Northern Star. View Resources sampled only visibly mineralised sections of core in 6 drillholes.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling uses a cyclone mounted inverted cone splitter installed directly below a rig mounted cyclone. A 2-3 kg sub-sample is collected in a calico bag. Most samples were dry. Previous operators have used riffle splitters.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	RC and DD samples are dried at 100°C to constant mass, crushed to <10mm, and pulverised to nominally 85% passing 75µm. For pre-NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Repeat analysis of pulp samples (all sample types) occurs at an incidence of 1 in 20 samples. Analysis of 2mm coarse crush and split has been completed for three RC bulk cone splitter rejects each of them divided into 32 equal splits. Mostly undocumented for previous operators, assumed to be to industry standard at the time.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, (i.e., other half of cut core) are routinely assayed. NSR routinely collects field duplicates during RC drilling at a rate of 1/20. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate. No formal nomograph study has been conducted on the RC primary sub sample split. Industry standard practice supports splitting of primary sub samples at particle sizes of <6mm and P80 75µm
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For RC and DD drill samples, gold concentration was determined by fire assay using the lead collection technique with a 50-gram sample charge weight. AAS finish was used to be considered as total gold. Where documented by previous operator's fire assay with AAS finish was carried out.
	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 derived analyses are reported.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: ▪ Field QAQC protocols used for all drill samples include commercially prepared certified reference materials (CRM) and blank material inserted at an incidence of 1 in 20 samples. The CRM used is not identifiable to the laboratory, with QAQC data assessed on import to the database and reported monthly, quarterly and yearly. ▪ Laboratory QAQC protocols used for all drill samples include repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples and screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples. ▪ The laboratories' own standards are loaded into the database and the laboratory reports its own QAQC data monthly. ▪ Failed standards are generally followed up by re-assaying a second 50g or 30g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. QAQC for previous operators is assumed to be to industry standard at the time.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections verified by alternative Northern Star Geologists.
	The use of twinned holes.	There are no purpose-drilled twin holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sampling and logging data are digitally entered into a tablet using Logchief software imported into SQL database using semi-automated or automated data entry. Digital assay files are loaded directly into the database. Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to SQL database.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Resource estimation except where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay.

APPENDIX C: 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.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the worldwide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortho-linear rectified photogrammetry based on the Map Gird of Australia MGA94. Collar coordinates are recorded in MGA2020. Surface collar RL's have been validated utilizing a DGPS survey. Multi shot cameras and gyro units were used for down-hole survey. Previous drilling has been set-out and picked up in both national and local grids using a combination of GPS and Survey instruments and are assumed to be to industry standards. Significant work surveying previous drilling was documented by Navigator Resources.
	Specification of the grid system used.	Collar coordinates are recorded in MGA2020 Zone 51. The difference between magnetic north (MN) and true north (TN) is 1º 34' 30". The difference between true north (TN) and AMG84 Zone 51 (AMG GN) is 1º 02' 47". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2021 and site surveyed DGPS pickups. A portion of drill collars where collar RL clearly incorrect were updated to match the flyover surface.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing of 30m x 15m and all Mineral Resources are based on a maximum of 60m x 30m.
	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.	Ore Reserves are generally based on 15m x 15m drilling to a maximum of 30m x 15m. Mineral Resources are generally based on 15m x 15m drilling up to a maximum of 60m x 30m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples are taken as 1 m samples during first pass exploration,1m samples are sent for further analysis. For RC Resource definition and grade control drilling 1 m samples are routinely collected. No RC samples greater than 1m were used in estimation. RC samples initially taken as 4m composites by previous operators replaced by 1m samples where composite values returned anomalous results.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally on a high angle to the main mineralisation trends. Drill holes are generally drilled on a 60-degree angle, perpendicular to the strike of the mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures is not thought to make a material difference in the Resource estimation as intercept widths are interpreted to be close to true width.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied, numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory. All sample submissions are documented, and all assays are returned via email and hard copy. Sample pulp splits from the site lab are stored at the Jundee mine site for long term storage. Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Regular reviews of RC and DD sampling techniques are completed by Senior Exploration Geologists and Resource Geologists and conclude that sampling techniques are satisfactory and industry standard. All recent NSR sample data has been extensively QAQC reviewed internally and externally. Pre NSR data audits mostly undocumented but expected to be in line with industry standards of the time.

APPENDIX C: 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.	The Bronzewing Project consists of 41 Exploration Licenses, 35 Mining Leases, 32 Prospecting Leases and 1 General Purpose Lease covering a total area of over 203,000 Ha. Tenements are variously registered (via Northern Star or wholly owned subsidiaries), with Northern Star Resources Limited being the 100% registered owner. The Project also includes 53 Miscellaneous Licenses covering the bore fields, roads, airstrip, and gas pipeline. The Corboys Resource is located on M53/15, M53/144 and M53/145, the tenements are registered in the name of Northern Star (MKO) Pty Ltd a wholly owned subsidiary of Northern Star Resources Ltd. The Tenements have a 21-year life (held until 2026, 2031, 2031), renewable for a further 21 years on a continuing basis. M53/15 is subject to a 2% NSR royalty, M53/144 is subject to a 1.5% NSR royalty both payable to Franco-Nevada Australia Pty Ltd. Various Tenements within the Project area lie within the Darlot, Kultju and Tjiwarl#2 Native Title Claim areas.
	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.	All leases and licences to operate are granted and in the order for between 1 and 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Previous exploration has been completed in recent times by Great Central Mines (2004-2005), View Resources (2007), Navigator Mining (2010), Metalliko Resources (2016) and Echo Resources (2018-2019).
Geology	Deposit type, geological setting and style of mineralisation.	The Corboys gold project is located within the Eastern Goldfields Province of the Archaean Yilgarn Block. It lies over a complex north-north-westerly trending shear zone which follows the contact between metamorphosed mafic volcanics of the Yandal greenstone belt to the east and a granitic batholith to the west. This zone is referred to as the Barwidgee Tectonic Lineament. The granodiorite-basalt contact is thought to have provided a focus for structural dilation and fluid flow. Where this contact forms a 130° jog off the NNW regional trend dextral kinematics have created transpressive deformation resulting in complex uplift/pop-up structures and reverse faulting and localised extension/dilation zones favourable to gold deposition in veins. Four mineralisation styles have been recognised: ▪ Moderately to steeply E dipping shear veins ▪ ESE dipping granodiorite hosted extensional vein arrays ▪ Shallowly ESE dipping supergene enriched veins ▪ Bulk granodiorite hosted stockwork veins
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	Too many holes to practically summarise all drill information used. (See diagram). Selected ore grade holes are reported
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
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 significant intercepts have been length weighted. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. High grade inclusions are identified
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	This announcement includes sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible
	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').	All results are reported as downhole lengths and estimated true width
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.	Plan view and long section view of Corboys showing drill collars is attached.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All material results are reported
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 meaningful data to report.
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further extensional and resource definition drilling are planned for FY23.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Representative diagrams are attached with this report.

Section 3: Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	NSR sampling and logging data is digitally entered into a tablet then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files.
	Data validation procedures used.	All holes used in the resource estimate have been validated individually for collar, downhole survey, geology and sample integrity by the Competent Person.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person visited the deposit site in August 2021. The visit confirmed that the topography resembled the DTM surface used in the MRE, no historic depletion existed that had not been accounted for and that no physical impediments were noted for the reasonable prospects of eventual economic extraction.
	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 confidence in the geological interpretation is reasonable, a significant amount of new diamond drilling with structural data has helped to better understand the mineralisation styles enabling more confident wireframing of individual mineralisation domains. Domains were created based on a lower cut-off of 0.25 g/t Au. This is supported by a weak inflection point in the sample data as well as by contact analysis comparison across a range of cut-offs. In some cases, lower grades were included to produce geological continuity.
	Nature of the data used and of any assumptions made.	All available drilling data was used to inform the interpretation including lithological, weathering, mineralisation and structural logging. AC, RAB and costean data were used during wireframing but excluded from the grade estimation.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	A Leapfrog mineralisation inventory model based on the same drillhole dataset was constructed using a numeric model – RBF interpolant to create a single grade envelope. The result was an unclassified resource containing 857,000 ounces.
	The use of geology in guiding and controlling Mineral Resource estimation.	The granodiorite unit was used to constrain the stockwork envelope for estimation purposes. Diamond core enabled characterisation of mineralisation and vein orientation measurements helped to inform orientation of lodes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Supergene enrichment along shallowly dipping structures is mostly restricted to above the top of fresh rock surface. Stockwork and extension veins restricted to inside granodiorite due to brittle nature of the unit. Shear zone veins vary in continuity, splays or link lodes coming off shear zones tend to have a shorter continuity.
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 extent of mineralisation is 2,200m long, 300m wide and to a depth of 350m. The mineralisation is contained within a bulk stockwork envelope and 41 individual tabular lodes that vary between 1 to 20m thick. The deposit remains open at depth with strike potential.
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.	Leapfrog software was used for geology, weathering and mineralisation domain wireframing. Domains are set by grouping lodes as dictated by their structural setting, geological mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and high-grade trends and then further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variography purposes (by combining groups of lodes). The Mineral Resource estimation utilises 1m composites for all RC and DD sampling data, composite residuals smaller than 1m have been weighted by length for the estimation. Detailed exploratory data analysis, variography, Kriging Neighbourhood analysis (KNA) and model validation is carried out using Snowden Supervisor software. Tabular lodes are estimated using ordinary kriging (OK). The stockwork envelope was estimated using multiple indicator kriging (MIK) as this non-linear technique is better suited for grade distributions that have skewed data and a high CV. Vulcan software was used for data compilation, calculating and coding composite values, estimating and reporting. OK estimation was completed using an oriented search ellipsoid. Three estimation passes were used with increasing search ellipsoid radius. Maximum and minimum number of samples for the estimation and ellipsoid search ranges were derived from KNA analysis, variogram ranges and drill hole spacing. Search ellipsoid radius ranges from 30 to 65m. A minimum of 6-10 samples and a maximum of 28-30 samples was used in passes 1 to 3. MIK estimation was completed using a search ellipsoid oriented along the NNW trending stockwork envelope. Search ellipsoid radius of major 70m, semi-major 40m, min 35m were used for all thresholds. Thirteen thresholds were defined with major variogram ranges from 145 to 15m. Block model volumes were compared to wireframe volumes to validate sub-blocking Where OK estimates were used, treatment of extreme high grades were dealt with by using a cap grade strategy and high-grade restraining.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No large-scale historical mining has taken place at Corboys. Previous resource reports and wireframes have been located and studied to understand the progression of the interpretation. This resource estimate shows a 51% increase in ounces from the previous MRE completed in 2016, related to the extensive drilling that has been carried out in the time since.
	The assumptions made regarding recovery of by-products.	No by-products were considered.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements are present.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes of 5m(X) x 10m(Y) x 5m(Z) represents 30 to 50% of the average drill spacing in the zone classified as indicated/inferred. Parent blocks have been sub-celled to 1.25m x 2.5m x 1.25m. Search radius was selected based primarily from the variogram range.
	Any assumptions behind modelling of selective mining units.	A 4 x 4 x 5m regularised model was created based on a standard open pit SMU.
	Any assumptions about correlation between variables.	There was no correlation between variables (only gold estimated).
	Description of how the geological interpretation was used to control the resource estimates.	Discrete, high-grade tabular structures were modelled in Leapfrog using the vein system tool based on interval flagging where drillholes intersect the structure. The stockwork envelope was also modelled in Leapfrog using the intrusion tool based on interval flagging. Both the stockwork domain and extensional lode domains were constrained to the granodiorite unit using the Leapfrog Boolean function. The domains acted as a hard boundary to control the gold estimation. Each mineralisation wireframe was used to code the database and the block model, from which the block grade estimate was constrained to only the corresponding top-cut composites for that domain.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were applied in the Estimation stage and determined by a range of statistical techniques including: Disintegration analysis of Histogram, Log-probability, Mean-CV and Cumulative metal plots. No top cutting or capping of high grades is done at the raw sample or compositing stage. Top cuts vary by domain and range from 12 to 30. Top cuts were not applied to domains that lacked obvious high-grade outliers where the CV was less than 2.

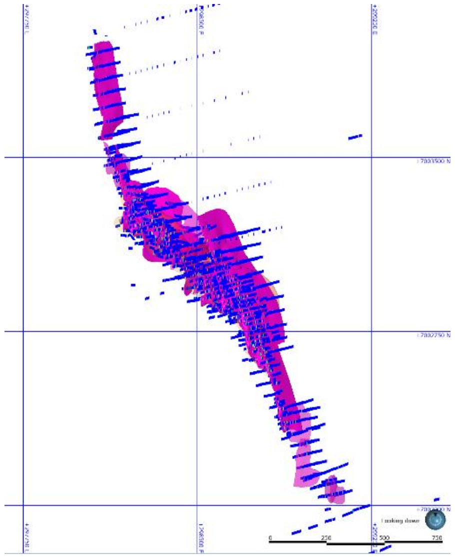
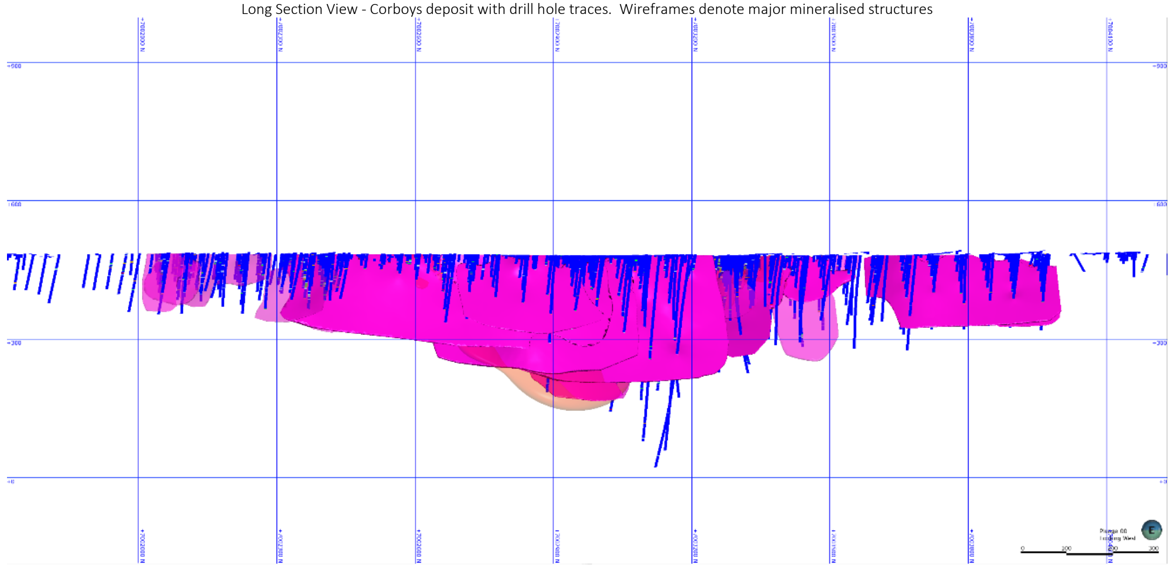
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		High-yield restrictions were applied to selected domains. The high yield value was based on population dispersal in the cumulative metal plot, typically equating to 60-70% of the top cut selected. A range was chosen based on the 90% threshold variogram generally corresponding to 30 -50% of the major direction variogram range. More severe high yield restrictions were enacted on Pass 2/3 for selected domains in order to deal with smearing of grade associated with sparse drilling.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource Estimate was validated using processes that are based on a combination of visual, graphical and reconciliation style validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes. ▪ Visual validation of Mineral Resource Estimate against composite data in plan, section, and in 3D. ▪ Sensitivity to top-cut values: a variety of top-cuts are estimated and compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Kriging efficiency and slope of regression interrogated for each material domain. ▪ Comparison of nearest neighbour, inverse distance squared, and ordinary kriged estimates to the final estimate (generally OK or MIK). ▪ Comparison with the previous Mineral Resource Estimate. Statistical comparison of composites versus all estimates in block model: trend analysis plots for each domain are produced by Northing / Easting / RL. The Mineral Resource Estimate generally shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. When the numbers of samples reduce the accuracy of the estimation suffers and a more significant deviation is noted between the Mineral Resource Estimate and associated composite 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 reported on a dry basis with sampling and analysis having been conducted to avoid water content density issues.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The cut-off grade of 0.5 g/t has been calculated based on the key input components of mining, processing, recovery and administration costs. Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The AUD $2,250 gold price as per corporate guidance. ▪ Mill recovery factors are based on historical data and metallurgical test work. ▪ Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. ▪ Variable cut-off grade is used in the evaluation of open pit projects.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed mining would be by open cut. A 2m minimum mining width for ore block environment is assumed and incorporated into the modelling and estimation. UG potential is to be looked at in a future review.
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 analysis was completed by NSR in 2020. Four composite samples taken from granodiorite and basalt lithologies underwent standard gravity separation and leach test work. Recoveries returned ranging from 77 to 88.4 % in the basalt and 89.7 to 94.7% in the granodiorite when the grind size was P80 passing 150 or 106µm. It was concluded that arsenopyrite contains some refractory fine gold unrecoverable at the grind size evaluated. Granodiorite had lower sulphur and arsenic grades, appearing to be more free milling.
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.	It is considered that there are no significant environmental factors, which would prevent the eventual extraction of gold from the Corboys deposit. The project currently possesses all necessary government permits, licenses and statutory approvals to be compliant with all legal and regulatory requirements.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density data was derived from core collected by both NSR and previous operators (402 measurements). An assumed value was used for oxide due to the shallowness (1 to 3m depth) of this material in the profile resulting in no data able to be collected.
	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.	Bulk density measurements for core samples are taken using the water displacement technique, where the samples are dried and weighed in air then weighed in water.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, and weathering states based on calculated averages of the overall density dataset.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Mineral Resources have been classified on the basis of confidence in the geological and grade continuity using the drilling density, pass in which the gold was estimated and the distance to sample selections. These were evaluated individually for east mineralisation domain. Indicated Mineral Resources have been defined generally where the OK interpolation made 1 pass and drill density up to 30 x 15m. Inferred Mineral Resources were classified as mostly 1 – 2 passes with a drill density up to 60 x 30m. MIK estimated stockwork was defined as Inferred Mineral Resources where drill density up to 30 x 15m and number of samples used to estimate greater than 20.
	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).	This classification is considered appropriate given the confidence that can be gained from the existing data density and results from drilling. Greater confidence has been allowed for lodes where intersected by diamond drilling.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The reported resource appropriately reflects the Competent Person's view of the deposit and the current level of risk associated with the project to date.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The mineralisation domaining, estimation parameters, classification and reporting have all been internally peer reviewed.
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.	There is good confidence in the data quality, drilling methods and analytical results. The available geology and assay data correlate well, and the geological continuity has been demonstrated. Local variations can be expected such as weathering variations causing density differences or pinch and swell of the mineralised domains. Density test work of the transitional zone within basalt requires further measurements to increase confidence in the reported resource.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The Mineral Resources constitute a global resource estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production has been undertaken at Corboys deposit.

APPENDIX C: TABLE 1

CORBOYS - REPRESENTATIVE PLAN & LONG SECTION	
Plan View - Corboys deposit with drill hole traces 	Long Section View - Corboys deposit with drill hole traces. Wireframes denote major mineralised structures 

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Thunderbox – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star Resources at Thunderbox include diamond drilling (DD), reverse circulation (RC) drilling and underground face chip sampling. Sampling methods undertaken by previous owners have included rotary air blast (RAB), DD and RC drilling and blast hole sampling within the pit. Limited historical data has been provided by previous owners.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling is carried out as specified within Northern Star Resources sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis Historic RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1999- 2007).
	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.	RC chips are cone split and sampled into 4m or 1m intervals with total sample weights under 3kg Diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Underground faces are chip sampled to geological boundaries (0.2-1m). Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star Resources core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS. All historic RAB, RC and DD and sampling is assumed to have been carried out to industry standard at that time. RC grade control drilling was used to obtain 1m samples or 2m composite samples from which 3 kg was pulverised to create a 50g charge for fire assay, while blast hole samples were composited into 2.5m before a 3kg sample was obtained for pulverising to a final 50g charge for fire assay.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit was initially sampled by 470 RAB holes. Further drilling included 306 RC holes (assumed standard 5 ¼ ''bit size) 216 HQ, NQ and PQ diamond drillholes, approximately 15,400 blast holes and 2,400 RC grade control holes. Some diamond drilling carried out for geotechnical studies was oriented (the method is unknown), it is unknown if other core was oriented. In the period since the previous resource estimate release Northern Star Resources completed 9 RC drillholes, 7 diamond drillholes, 207 underground DD holes, 390 underground faces and 706 RC grade control holes. The RC drilling was completed with a 5.5-inch diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary booster. Diamond drilling was HQ or NQ diameter. Drill core was oriented utilising an ACT II core orientation tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for RC drillholes and pre-collars are recorded as a percentage based on a visual weight estimate. Recoveries for some grade control drilling and blast hole sampling have been recorded based on a visual weight estimate. No other recoveries have been provided; it is unknown if they were recorded
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Measures were taken to supress groundwater. UG faces are sampled from left to right across the face at the same height from the floor Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. Historical drilling is assumed completed to industry standard at that time
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Chips from all RC holes are stored in chip trays for future reference while remaining core is stored in core trays and archived on site.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All faces are photographed and mapped. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All drillholes completed by Northern Star Resources have been logged in full and all faces are mapped.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Duplicate core samples are quarter cored. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration RC samples are cone split. Occasional wet samples are encountered. UG faces are sampled using a hammer. The sampling method for historic RAB and RC drilling is unknown. Grade control RC drilling has been cone split while blast hole sampling has been riffle split. Wet drilling was rarely encountered, and extra care was taken to clean the splitter after encountering wet samples. Drillholes in puggy, wet clays were abandoned and redrilled once dewatering of the pit had commenced. Care was taken to adjust the splitter orifice for grade control drilling to ensure the sample weight did not exceed 3kg, meaning no subsampling was needed at the preparation stage.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC and face chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. The sampling techniques for historic exploration RAB, RC and DD drilling are unknown, best practice is assumed. The sample preparation of RC grade control drilling and blast hole sampling involved oven drying, coarse crushing and total grinding in an LM5.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Best practice is assumed at the time of historic RAB, DD and RC sampling. Procedures adopted to ensure sample representivity for RC grade control and blast hole sampling included weight analysis to determine split ratio (at least 2 holes per program) and sizing analysis of every 25th sample, with an expected return of 90% passing 75um.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. It is unknown if duplicate sampling was performed on historic exploration RAB, RC and DD drilling. Field duplicates were carried out on RC grade control drilling at a rate of one per hole, collected from the second sample port on the cone splitter. Duplicates were carried out at a rate of 1 in 20 for blast hole sampling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC and UG face chip samples and diamond core are analysed by an external laboratory using a 40g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method.
	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.	A 50-gram fire assay with AAS finish was used to determine the gold concentration for all grade control samples. This method is considered suitable for determining gold concentrations in rock and is a total digest method.
	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.	Methods for exploration RC, RAB and DD drilling included fire assay with AAS finish, BAAS and unknown methods.
	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	A number of exploration RC holes were drilled to twin original RAB holes and verify results.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star Resources AcQuire database
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using a hired Reflex EZ-gyro by the respective drilling companies on a regular basis, between 10-30m.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used
	Quality and adequacy of topographic control.	Kevron Geomatic Services flew and processed aerial photography and provided ortho images at 1:5000 scale over the Thunderbox deposit and environs.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for drilling is varied from 20mx20m to 40mx40m
	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 drilling is distributed and spaced such that geological and grade continuity can be established to estimate the mineral resource and ore reserve appropriately. The mineralisation is continuous over a 2km strike length, therefore the 80m x 80m exploration drill spacing effectively defines the continuity.
	Whether sample compositing has been applied.	RC pre-collar sampling was composted into 4m samples. Historic RAB drilling was sampled with 4m composite samples. Historic Grade control RC drilling was carried out on 2m composite samples, while blast hole sampling was carried out on 2.5m composites. Any RC Grade Control conducted by Northern Star Resources was sampled at 1m intervals
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 bulk of the drilling has been oriented to the east in order to provide the best intersection angles possible for the steeply west dipping orebody.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star Resources geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Thunderbox Project consists of 4 Exploration Licences, 83 Mining Leases and 7 Prospecting Licences, the Project also includes 26 Miscellaneous Licences covering the bore fields and roads and a Pipeline Licence. The Thunderbox resource is located on M36/504 which has a 21-year life (held until 2042), renewable for a further 21 years on a continuing basis. The tenements are all held by Northern Star (Thunderbox) Pty Ltd, Northern Star (SR Mining) Pty Ltd and Northern Star (Talisman) Pty Ltd which are all wholly owned subsidiaries of Northern Star Resources Ltd. All production from the Project is subject to the Western Australian state government NSR royalty of 2.5%. The tenements lie within the Darlot Native Title Claim area.

APPENDIX C: 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.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Extensive nickel exploration was undertaken in the area during the 1960s and 1970s. Grassroots gold and PGE exploration was undertaken during and since the 1980s by BHP, Dominion, Dalrymple Resources and Forrestania Gold. Thunderbox was discovered in 1999.
Geology	Deposit type, geological setting and style of mineralisation.	Thunderbox is a mesothermal lode gold deposit located at the southern end of the Yandal greenstone belt in an area where several major shear zones converge and join with the Perseverance Fault. The shear zone dips at 30° to 60° WSW, with the exception in the vicinity of the mineralisation, where the shear is vertical to steeply dipping. Mineralisation is hosted by strongly deformed, silicified and carbonate altered albite-quartz porphyry in the hangingwall of the shear zone. The shear juxtaposes foliated basalts and intrusive porphyries in the hangingwall against sedimentary rocks in the footwall. The zone of shearing is over 200m wide. An ultramafic unit occurs within the shear, in the footwall of the deposit and is attenuated along the shear. The main gold related hydrothermal alteration assemblage comprises quartz-ankerite-arsenopyrite-pyrrhotite-galena and gold. This assemblage has been overprinted by a retrograde chlorite-epidote-white mica-biotite-quartz and pyrite assemblage. Syn-mineralisation veins have a continuum of vein textures ranging from laminated to pseudo-breccias. Throughout the Thunderbox Deposit, elevated grades occur within southerly plunging ore shoots that are more evident in the lateral extents of the orebody. Whilst the shoots persist centrally, the gold distribution is for more uniform and ubiquitous than in other areas.
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	It is not practical to summarise all of the holes here in this release. Exclusion of the drilling information will not detract from the reader's view of the report. Previously data was periodically released by Saracen on the ASX: 11/11/2019, 30/7/2019, 30/04/2019, 18/02/2019, 27/11/2018, 31/07/2018, 01/05/2018, 13/07/2017, 21/02/2017, 07/12/2016, 25/11/2015, 29/04/2015, 23/03/2015
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results reported in this release
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results reported in this release
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No exploration results reported in this release
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Drilling intersects the mineralisation perpendicular and at an average intersection angle of 45 degrees.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results reported in this release
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No exploration results reported in this release
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All material results are reported, irrespective of success or not.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Historic activities have included drilling to obtain samples for metallurgical test work, bulk density analyses and geotechnical analyses. A number of geophysical surveys including dipole-dipole IP, Gradient array IP and TEM were carried out over known mineralisation to determine effectiveness in delineating mineralisation/alteration. None were deemed effective. An environmental survey investigated the erosional characteristics of the soil, surface hydrology and groundwater and identified no issues. A partial leach soil sampling program carried out over the deposit was deemed effective in identifying anomalous gold values associated with the deposit. A detailed structural review of the mineralisation has been conducted by Model Earth
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).	Northern Star Resources is currently working on establishing exploration opportunities which will extend the known mineralisation at depth. This will primarily focus on understanding the key geological relationships and critical continuity directions to target depth extensions.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	NA

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.	The historic database provided to Northern Star Resources was an extract from an acquire SQL database. For the majority of the historic database, the process used to record the primary data was unknown. All data collected and drilled by Northern Star Resources is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. The rigour of the database is such that transcription or keying errors are identified and amended prior to loading and storage. Typical collection methods are manual capture and translation of logging and other data into tough books (digital format) and subsequent import of csv tables through an automated data import scheme where data is validated upon import into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. Validation of data includes visual checks of hole traces, analytical and geological data. IMAGO photogrammetry of drill hole logs and RC chips were also used to further validate the geological logging, whereby high-resolution photographs were compared to each other and to known geological codes to ensure consistency and accuracy. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person together with other Northern Star Resources geology personnel have carried out site visits to the Thunderbox deposit on numerous occasions. The competent person has inspected the deposit and has built a sound understanding of the deposit geology. All geological processes undertaken by Northern Star Resources concerning the Thunderbox Resource are done using Northern Star Resources' standard procedures.
	If no site visits have been undertaken indicate why this is the case.	n/a
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation has been based on the detailed geological work completed by a series of previous owners of the project and Northern Star Resources geological personnel. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping, XRF data and assay data. The gross architecture of the deposit is simple and the interpretation is robust. Northern Star Resources also engaged the services of an independent geological consultant to assist in creating a base geological model. The geological model is systematically updated to reflect the new drilling information and improved geological understanding of the deposit. The geology model was used to guide the estimation of resources.
	Nature of the data used and of any assumptions made.	The interpretations are constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, veining, structure, mineral assemblages and alteration.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Interpreted cross cutting faults are observed and are used to guide disruptions in the position of the key mineralised domains.
	The use of geology in guiding and controlling Mineral Resource estimation.	Open pit mapping was historically included in the interpretation.
	The factors affecting continuity both of grade and geology.	At the deposit scale the gold distribution is largely ubiquitous. However elevated grades occur within southerly plunging ore shoots that are more clearly defined in the lateral pepperitic margins of the orebody. Centrally, the shoots persist however the gold distribution is far more consistent and uniform than in the margins. The mineralisation terminates abruptly at the lithological contacts of the intermediate (dacite) porphyry or the "hybrid" zone. Internal to the mineralised dacite are barren waste andesite lenses. In the lateral pepperitic extents, mineralisation focuses along the contacts between the changing dacite and mafic lithologies. Gold mineralisation in these zones crosses both lithologies. The gold distribution is the result of the pervasive brittle fracturing of the porphyry and subsequent pervasive alteration. Infrequent higher-grade zones are associated with either narrow laminated quartz veins or irregular zones of intense brecciation at the contacts of the porphyry host. Gold mineralisation appears to be related to the type and abundance of sulphides and carbonate alteration. Grades are generally higher in arsenopyrite and ankerite rich zones and lower in pyrite and dolomite rich zones. Pyrite is generally coarse, euhedral and late. The presence of pre-, syn-, and post deformational sulphides suggests multi-phase episodes of deformation and 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.	Thunderbox mineralisation extends from 6879000mN to 6881000mN, 304000mE to 304400mE and 500 meters below surface (MGA-Zone51). The Thunderbox shear generally strike NNW and dips 60° towards the WSW. In the vicinity of the strongest gold mineralisation the shear is vertical to steeply west dipping. The shear and mineralisation is offset across a series of dextral, NE trending faults.
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 domain wireframes are constructed in Leapfrog and used as hard boundaries for the estimations. Block estimation using a combination of ordinary kriging (OK) and categorical indicator kriging (CIK) has been completed in Datamine. CIK is utilised to define subdomains in all active mine areas and/or where the drill density (=<20m by 20m) supports the estimation method. Grade is estimated into parent blocks, meaning all the sub-cells within a parent cell assumed the grade of the parent cell. Univariate statistical analysis of length weighted (1m) domain coded downhole composites are completed for all domains and top cuts applied where applicable. Extreme grades are not common in the data set and all domains are analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Variogram modelling is completed with Snowden's Supervisor software to determine the spatial variance of the gold grade within the domains that have sufficient data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. The parameters from this analysis are used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The maximum distance of extrapolation from last known data points for the inferred material is dependent on the geological continuity and confidence across the Thunderbox deposit. Extrapolation is 40m for D Zone, 60m for C Zone and <60m for A Zone.
	The assumptions made regarding recovery of by-products.	Historical mine production and mill reconciliation records suggest that the estimation method and parameters used result in a highly accurate estimate of the resource. Over the historic 6-year life, the resource reconciled at 98.5%. Over the 5 years Northern Star Resources has mined and processed ore at Thunderbox, the resource has reconciled at approximately 101%. There is no evidence in the geology to suggest this trend would not continue.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No assumptions are made with respect to the recovery of by-products.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 5m(X) by 20m(Y) by 5m (Z). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 40m x 40m. In active mining areas where drill spacing is on average 10m x 10m (but up to 20m x 20m in the underground), a block size of 5m(X) by 5m(Y) by 2.5m (Z) is utilised during the estimation process. Parent blocks are sub-celled to 1m(X) by 2m(Y) by 1m(Y) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges are derived from the variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. The 3rd pass aims to satisfy the complete estimation of all blocks within a domain. A kriging neighbourhood analysis study conducted ensured that the block size and the search volume used in the resource estimate are optimal after considering all the relevant factors (i.e., drill spacing, geometry and dimensions of mineralisation). GC scaled estimation parameters are used in the grade control areas (active mining areas) during grade estimation.
	Any assumptions behind modelling of selective mining units.	A block size of 5 x 5 x 2.5 m is used in the estimation of grade in the active mining areas and is deemed appropriate as a Selective Mining Unit (SMU) which matches the current mining equipment. Current successful ongoing mining activities at Thunderbox support this as an appropriate SMU.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables. Gold is the only mineral of economic significance at Thunderbox at this stage.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to the porphyry intrusion (dacite) and its contacts with other mafic to ultramafic units (& pepperitic zones). The geological units are described in the block model. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging is utilised to define sub-domains in lodes with mixed grade populations that correspond to the internal andesite waste zones. This controls the extents of high-grade mineralisation and waste zones. Boundary analysis indicates hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlights that there are very few grades within the domain populations that require top-cutting. If necessary, top cuts are employed to reduce the risk of overestimating in the local areas.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes. ▪ Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. ▪ Kriging efficiency and slope of regression interrogated for each material domain. ▪ Sensitivity to top-cut values uses a variety of top-cuts which are compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Comparison with the previous Mineral Resource Estimate. ▪ Statistical comparison of composites versus all estimates in block model: trend analysis plots for each domain are produced by Northing / Easting / RL. The Mineral Resource Estimate generally shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. When the numbers of samples reduce the accuracy of the estimation suffers and a more significant deviation is noted between the Mineral Resource Estimate and associated composite data. ▪ Change of Support validation
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star Resources' current economic operations at Carosue Dam and Thunderbox, and the natural grade distinction above background, a grade of 0.5g/t has been chosen for Open Pits and 1.2g/t for underground operations.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Thunderbox deposit is amenable to mining by both open pit and underground methods.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The deposit has successfully been mined by open pit in the past between 2002 and 2007. Saracen/Northern Star Resources has successfully mined the C-Zone and D-Zone pit using Open pit methods, since 2015 and the C-Zone and A-Zone using underground methods.
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.	Beneath the mined C Zone pit is a portion of the mineral resource that will be extracted by a bulk underground method. It was discussed that wider potions of the resource may utilise an underground caving approach as an efficient means of economic extraction. It will be supplemented with traditional long hole stoping in areas with narrower widths.
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.	Previous owners took routine density measurements when drilling diamond core, along with a comprehensive grab sampling regime during the mining of the pit. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. From the recent drilling done by Saracen early 2015, 237 fresh mafic samples, 196 fresh porphyry samples, 348 fresh sedimentary rock samples

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		and 47 tectonite shear samples were measured for bulk density. In addition, density samples are routinely taken in the active mining areas and are used to adjust the weathering profile surfaces. 10cm length NQ core samples were taken in one metre intervals in the ore zones and every 30m in waste zones.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	The procedure the previous owners utilised, included the coating of dried samples in paraffin wax where the samples had some degree of weathering, were porous or clay rich. These coated samples were then tested using the water displacement technique as previously mentioned. Northern Star Resources applies the same procedure in its routine bulk density determinations.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of bulk densities collected for each lithology type in each regolith zone has been uniformly applied to the modelled geological/regolith zones. The regolith zones include the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the digitising of a “cookie cutter” string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a robust resource estimate can be achieved.
	Whether the result appropriately reflects the Competent Person’s view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star Resources has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Northern Star Resources undertake an extensive review of the model that covers; ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams. The last external review by Entech was completed in April 2020 on the entire Thunderbox resource estimate, with no fatal flaws identified.
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 has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical mining operation reports suggest that the estimated tonnes were within 0.4% and grade within -2.3%. Since Saracen/Northern Star Resources started mining and processing ore at Thunderbox the Mine Call Factor (MCF) has been close to 100% for tonnes and grade for the duration of the project.

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	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	The Mineral Resource estimate for the Thunderbox deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
conversion to Ore Reserves		the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The model was depleted to the 24th of January 2022 survey pickup for Ore Reserve Estimation. Reserve shapes were trimmed to as builts as of 31/03/22.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Open Pit Reserve Competent Person is conducting frequent ongoing site visits to the Thunderbox operations. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition. Underground Reserve The Northern Star competent person has visited site a number of times in the past year and works directly with the mining team onsite. Northern Star has an onsite Senior Geotechnical Engineer.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Open Pit Reserve The Thunderbox Gold Mine operations has open pit, underground mine and a processing facility that treats material from Thunderbox deposit and other within the tenement package. A full-scale feasibility study was conducted prior to commencement of the operation by Northern Star and subsequently it came into full operation in 2015. The 2022 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, modifying factors, operating costs of mining, processing, general administration, and environment management related costs. Underground Reserve The 2022 Ore Reserve has included all aspects of operational inputs including actual production parameters, modifying factors, operating costs of mining, processing, general administration and environment management related costs. The current contractor costing as per current contract was used to estimate the mining costs.
	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.	Open Pit Reserve Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been used from actual and ongoing mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate Underground Reserve Modifying factors were applied in the reserve and life of mine plan to ensure the rigor of the economic analysis. All the parameters assumed and adopted, as well as the financial analysis completed, have their basis on the feasibility study, have been internally peer reviewed, and adjusted to be in line with reconciled mine performance.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Open Pit Reserve The Ore Reserve estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate. Underground Reserve For the TBUG Ore Reserve Estimate a variable cut-off grade of 1.01g/t was calculated based upon an assumed gold price of AUD$1750/oz, and applicable mining, processing, and administration costs. A spatial economic assessment of each mining block was also completed to ensure all costs required to extract that mining block a covered by the revenue generated A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
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).	Open Pit Reserve The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Thunderbox Reserve. Underground Reserve The TBO UG Ore Reserve Estimate is based on a three-dimensional mine design, geotechnical numerical modelling, mine scheduling, and cost estimation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	Open Pit Reserve Mining method employed at Thunderbox mine is conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operations. That way it provides good operating dataset for production and productivity rate measurement and financial modelling. Thunderbox Reserve pit is currently in operation and designed as successive cutbacks to achieve final life of mine Reserve such that it meets the operation efficiency, safety and production rate. Appropriate mine schedule, operating cost and lead time have been considered to maintain efficient mining operations. Underground Reserve Underground mechanised mining for development, ground support, and open stoping is utilised at Thunderbox. Mining and geotechnical studies have determined open stoping (both transverse and longitudinal) with paste fill is appropriate for the deposit. Some stoping locations will utilise remnant rib and sill pillars for either geotechnical reasons and/or availability of paste fill. This mining method of open stoping and backfilling with paste fill is widely used throughout the Western Australian Goldfields and Australia.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Open Pit Reserve Life of mine Reserve pit has been designed following appropriate geotechnical recommendation. The geotechnical guidelines were prepared by site geotechnical team using wall stability performance data and update or modify as required through continuous monitoring program. Analysis includes inspection of drill core, review of the geotechnical data, slope monitoring results and probability testing. The geotechnical team oversees all geotechnical aspect of technical study and provide ongoing site support. The Grade control method currently employed at Thunderbox uses RC drilling and sampling method. The method and practice have been utilised successfully at all current and past mining operations at Saracen. Underground Reserve Assumptions are based upon actual mining conditions. A review of the previous analysis and assessment of the designed stopes were performed by Northern Star's geotechnical team. Several external consultants have also reviewed the deposit and results / analysis found assumptions were acceptable. Sub-level open stoping (SLOS) with paste fill, and LHOS have been selected as the preferred mining methods. Geotechnical assessments based on rock mass characterisation, empirical methods and numerical modelling analysis have been undertaken to assess mining methods and sequencing, stope spans and dilution expectations, pillar stability in both up-hole stoping and crown pillars and development ground support and reinforcement requirements, and stand-off distances for underground infrastructure. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been included in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Open Pit Reserve The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised. Underground Reserve The resource model used for the ore reserve calculation was 240122_TBX_UG.dm
	The mining dilution factors used.	Open Pit Reserve To determine dilution the MSO method was implement. The model was then created using the mineable MSO shapes with the element of minimum mining width and mineralisation width to determine planned and unplanned dilution. The final estimated mining dilution is approximately 14%. Underground Reserve An allowance for mining dilution has been incorporated into the mine designs. The dilution factors used have been based on geotechnical parameters in different areas of the deposits, these range from 15-40% at 0.5g/t has been applied for stoping.
	The mining recovery factors used.	Open Pit Reserve A mining ore loss factor of 4% is estimated using the MSO method. The resultant estimation reflects the mining performance based in ore body characteristic, mining method and equipment utilised. Underground Reserve The mining recovery used ranges from 88-95% and is based on stope width. These factors applied are based on historic stope performance.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any minimum mining widths used.	Open Pit Reserve A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across all open pit operations and reflects the suitability and efficiency of the mining performance. Underground Reserve Minimum mining widths of 3 m, this is based on the current stope performance to date, and mining method considerations.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Open Pit Reserve Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources. Underground Reserve Inferred material is excluded from the ore reserves. The Life of Mine Plan (LOMP) design includes Inferred Resources representing <1% of the mining inventory, contained within the stopes and development in the periphery of the indicated resource. This amount contributes to a minor amount of metal (<1% of ounces). Ongoing grade control drilling is also part of the LOMP.
	The infrastructure requirements of the selected mining methods.	Open Pit Reserve Thunderbox Gold Mine is in operation and operates both open pit, underground mines along with 2.9mt process plant. All adequate infrastructure is in place and available to support current and future mine plan. Underground Reserve The selected mining method requires the development of an access decline, ventilation raises, and associated electrical, paste fill plant and dewatering infrastructure. Some of the infrastructure is currently operational.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Thunderbox processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 95% for deposits around Thunderbox operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Open Pit Reserve An average gold recovery for Thunderbox deposit is estimated at 94.0%. The recovery estimation is based on actual average recovery data collected from ongoing test work at Thunderbox plant. Underground Reserve An average plant processing recovery of 93.5% has been assumed in the TBUG Ore Reserve Estimate.
	Any assumptions or allowances made for deleterious elements.	Arsenopyrite is present in the ore and minor levels of arsenic are solubilised in the plant solutions. The arsenic levels are monitored on a regular basis and infrastructure exists for the addition of ferric sulphate where the levels impact the environment/exceed the environmental limits. The ferric sulphate is added to precipitate the free arsenic as ferric arsenate thereby locking the arsenic in the plant tailings for storage.
	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.	All Thunderbox ore mined by Northern Star and previous operator has been processed through the current processing plant hence it represents Thunderbox mineralisation characteristics as a whole. Processing plant regularly carries out bulk sample/pilot test for continuous improvement and check balance.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	Thunderbox Gold Mine is in operation, and all required Environmental studies have been completed. Mining Proposal and management plan for both open pit and underground operation has been granted. All other statutory government approvals including clearing permit and groundwater licences have been in place. The existing Thunderbox mine, the processing facility, waste rock landform, TSF, and the accommodation village are all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip are all on granted miscellaneous licences.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Waste rock characteristic study has been carried out and is representative of Thunderbox waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future waste landform expansion.
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.	The site is well established with all adequate infrastructure is in place and operational. These include well equipped offices, workshop, storage facilities and a CIL ore processing plant that has name plate capacity of 2.9mtpa situated adjacent to the Thunderbox pit. A modern accommodation camp is located within a few kilometres of the pit, and a well maintained gravel airstrip services the camp. The mine site is connected to Goldfields highway and the Gas Transmission Line and runs on dual fuel (diesel/gas) power generator.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Open Pit Reserve All major capital works relate to mine site infrastructure and development of the cutback have been completed. Underground Reserve Mining capital costs are estimated from first principles and submitted contractor costs based on equipment, labour and development requirements indicated in the mine schedule. Mining capital costs also consider paste plant and underground reticulation, ventilation, electrical and dewatering requirements.
	The methodology used to estimate operating costs.	Open Pit Reserve Operating costs for open pit mining have been derived from a combination of actual mining costs for Thunderbox Operations and costs supplied by various contract mining companies, and independent consultants. Underground Reserve Mining operating costs are estimated from first principles, actuals and the current scheduled contract. Operating costs for ore processing, haulage and administration have been derived from known parameters and budgeted cost.
	Allowances made for the content of deleterious elements.	Appropriate allowance has been made in the processing cost to compensate the additional treatment required for the high presence of Arsenopyrite in the ore and arsenic in the plant solutions.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Thunderbox operation.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Thunderbox operations.
	The allowances made for royalties payable, both Government and private.	The WA state government royalty of 2.5% has been applied. No third party royalty exists.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
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.	Open Pit Reserve The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis. Underground Reserve The Ore Reserve Estimate is based on detailed underground design using $1,750/oz. gold price. A discount rate of annual 5% was assumed in all NPV calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Open Pit Reserve A full financial model is developed with sensitivities applied to all key inputs and assumptions (+/- 15%). Underground Reserve Sensitivities were assessed on a variety of gold prices to test the impact of inventory from external factors.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Thunderbox mine is located on lease-hold pastoral land with regular community engagement and communication of the mining lease and operation. Compensation agreements are in place with the local pastoralist and Northern Star has a good relationship with neighbouring stakeholders, including local pastoralists and the traditional owners. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	Gold produced from Thunderbox Mine will be sold on the spot market. A royalty of 2.5% is payable to the W.A. State government. No third party royalty is applicable.
	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.	Thunderbox Gold Mine is in operation and all required Statutory Approvals including Mining, Environment approvals have been granted.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve estimate classification for Thunderbox has been in accordance with the JORC code 2012. The Ore Reserve estimate is classified as being Proved and Probable has been derived from the Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation, Underground Feasibility Study and subsequent designs were derived from current operational data relating to Thunderbox operations and supplied by contract mining companies and independent consultants. Results of these optimisations, reserve designs and the resultant analysis reflect the Competent Person's view regarding the Thunderbox deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Open Pit Reserve 100% of Probable ore from Ore Reserve Estimate has been derived from Indicated ore of the Mineral Resource. 100% of Proved ore from Ore Reserve Estimate has been derived from Measured ore of the Mineral Resource. Underground Reserve 18% of Probable ore from Ore Reserve Estimate has been derived from Measured ore of the Mineral Resource. This ore is associated with crown pillar extraction and has been placed into the probable category due to this style of mining has yet to be executed at Thunderbox underground however has been completed at other projects in the goldfields in Western Australia. 100% of Proved ore from Ore Reserve Estimate has been derived from Measured ore of the Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.

APPENDIX C: 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 Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, Open Pit Reserve The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. All of the parameters assumed and adopted in the financial analysis have been based on current and past Thunderbox operations mining performance. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. Thunderbox operation uses the same grade control methods that are widely utilised at other Northern star open pit operations. Underground Reserve Stope dilution and recovery are based upon assumptions including: the stress regime (based on the numerous mines in the region), stress modelling, reconciled hanging wall and footwall failure, and paste fill dilution. Hydrogeological assessments have not been conducted for the project, though costs have been allowed in the cost estimate for reasonable levels of ground water inflow and underground operations to date have encountered minimal groundwater inflows. The project is sensitive to factors that affect revenue (gold price, dilution and recovery)
	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.	As above
	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.	As above
	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.	As above

JORC Code, 2012 Edition – Table 1 Report

Orelia: Mineral Resource Estimation – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling is by both diamond drilling (DD) and Reverse Circulation (RC) drilling completed by NSR. DD samples are HQ and NQ core with sample intervals defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length. Core was orientated where possible. RC samples are collected via rig-mounted static cone splitter with sample falling though inverted cone splitter, splitting the sample in 91% / 9% ratio. 9% split retained for 1m composites. NSR Resource definition and grade control drilling routinely collects 1m composites. Approximately 3-4kg samples, collected via the onboard cone splitter. Drilling completed by the previous owners Echo Resources was in line with the Northern Star sampling techniques and protocols.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Historical drilling at Orelia completed between 1988-2013 targeted in the current Resource area appears to have followed the sampling industry standards.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC metre intervals are delineated with spray paint to determine metres drilled. Sample rejects are left on the sample pad to indicate metres drilled for the hole.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond drilling is completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. Diamond core samples are fire assayed (30g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling where ~3-4kg samples are pulverised to produce a ~200g pulp sample to utilise in the assay process. RC samples are fire assayed (30g charge). Northern Star diamond core samples of were routinely assayed by multielement ICP-MS/OES and XRF.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is carried out using a face sampling hammer and 5 ¼ inch or 133mm diameter bit. Diamond drilling carried used HQ3 (triple tube) and NQ2 techniques. Core is routinely orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond drilling practice results in high core recovery due to the competent nature of the ground. RC drilling recovery is supervised on the rig and any recovery issues are recorded and rectified.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
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.	DD core and RC chip samples have been logged by qualified geologists to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies Percussion holes logging were carried out on a metre-by-metre basis and at the time of drilling.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative with relevant features recorded, lithology, mineralogy, mineralisation, structural, weathering, alteration, colour and other features of the samples. Visual estimates are made of sulphide, quartz and alteration as percentages. All core is photographed dry and wet, RC chips are photographed wet.
	The total length and percentage of the relevant intersections logged.	100% of all DD and RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is halved along orientation lines with an Almonté diamond core saw. The core is quarter cut when metallurgical samples are required. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All mineralised zones are sampled plus associated visibly barren material in contact with mineralised zones. Core is sampled on the width of the geological/mineralized structure with a minimum sample length of 0.3m and a maximum sample length of 1.2m. Total weight of each sample generally does not exceed 5kg.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling uses a cyclone mounted inverted cone splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	DD core is dried at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		RC samples are dried at 100°C to constant mass, all samples below approximately 3kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. Samples generated above 4kg are crushed to <6mm and cone split to nominal mass prior to pulverisation. For RC samples, no formal heterogeneity study has been carried out or monographed. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Repeat analysis of pulp samples (all sample types) occurs at an incidence of 1 in 20 samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, (i.e., other half of cut core) are routinely assayed. NSR routinely collects field duplicates during RC drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate. No formal nomograph study has been conducted on the RC primary sub sample split. Industry standard practice supports splitting of primary sub samples at particle sizes of <6mm and P80 75µm.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For RC drill samples, gold concentration was determined by fire assay using the lead collection technique with a 30-gram sample charge weight. MP-AES instrument finish was used to be considered as total gold. For DD drill samples, gold concentration was determined by fire assay using the lead collection technique with a 30-gram sample charge weight. AAS or MP-AES instrument finish was used to be considered as total gold. Various multi-element suites are analysed using a four-acid digest by ICP MS/OES.
	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.	Determination of elements by pXRF was completed at SGS laboratory using the Olympus Vanta instrument following loose / pressed pellet preparation of pulp. SGS' geochemical laboratory group inserts QA/QC materials in all analytical jobs in a programmed way. SGS's routinely completes calibration in the instrument and their laboratories have been accredited to the ISO/IEC 17025 standard.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: ▪ Field QAQC protocols used for all drill samples include commercially prepared certified reference materials (CRM) inserted at an incidence of 1 in 20 samples. The CRM used is not identifiable to the laboratory with QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. ▪ NSR RC Resource definition and grade control drilling routinely inserts field blanks and monitor their performance. ▪ Laboratory QAQC protocols used for all drill samples include repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples and screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples. ▪ The laboratories' own standards are loaded into the database and the laboratory reports its own QAQC data monthly. ▪ In addition to the above, about 5% of drill samples are sent to a check laboratory. Samples for check -assay are selected automatically from holes based on the following criteria: grade above 0.3gpt or logged as a mineralized zone or is followed by feldspar flush or blank. ▪ Failed standards are generally followed up by re-assaying a second 50g or 30g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and third-party checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. Historical reports by previous operators have been reviewed and no major red flags have identified Coffey Mining completed a review all the historical QAQC data in 2011 with the following summary. "Coffey Mining considers that the available quality control assay data show acceptable levels of precision for the field duplicates with the standards data indicating within tolerance accuracy." Coffey Mining noted that an incomplete standards database exists, notably lacking some of the Arimco data, however Arimco data is broadly consistent with other exploration phases, and assay quality was not flagged as an issue during production.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	The significant intersections have been reviewed and verified by alternative Northern Star geologists.
	The use of twinned holes.	There is no purpose drilled twin holes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sampling and logging data is digitally entered into a tablet using Logchief software imported into SQL database using semi-automated or automated data entry. Digital assay files are loaded directly into the database. Visual checks are part of daily use of the data in Vulcan and Leapfrog. The historical data had been established and verified by Maxwells Geoservices in 2005 and regenerated by CSA Global as part of their QA/QC work on behalf of Echo Resources.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Resource estimation except where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay.
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.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the worldwide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortho-linear rectified photogrammetry based on the Map Gird of Australia MGA94. Collar coordinates are recorded in MGA94. Surface collar RL's have been validated utilizing an airborne elevation survey by Arvista in September 2020. Multi shot cameras and gyro units were used for down-hole survey.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2020, 1m contour data and site surveyed pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing of 25m x 25m and all Mineral Resources are based on a maximum of 50m x 50m. Exploration results in this report range from 25m x 25m drill hole spacing to 50m x 50m.
	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.	Ore Reserves are generally based on 25m x 25m drilling. Mineral Resources are generally based on 25m x 25m drilling up to a maximum of 50m x 50m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples are taken as 1 m samples and 4 m composites during first pass exploration,1m samples are sent for further analysis if any 4m composites return a gold value > 0.1ppm or intervals containing alteration/mineralisation failed to return a significant composite assay result. For RC Resource definition and grade control drilling 1 m samples are routinely collected. No RC samples greater than 1m were used in estimation.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally perpendicular to the main mineralisation trends as these strike northwest and dip approximately 60 degrees to the west. Drill holes are drilled on perpendicular to the strike of the mineralisation. Some early historical drill holes were drilled in a sub optimal orientation to the mineralisation before there was clear understating of the mineralisation controls. A small number of modern holes with suboptimal orientation to the mineralised structures are due to the lack to available drilling platforms but ensuring that the drill spacing is maintained.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. Potentially biased drillholes have been identified and this has been factored during the modelling and estimation stages.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory All sample submissions are documented, and all assays are returned via email and hard copy. Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		RC samples processed at SGS have had the bulk residue discarded and pulp packets sent to Jundee mine site for long term storage.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Numerous reviews and audits of the historical sampling techniques and data validation has been undertaken by many independent consulting groups over the years, including CSA, Snowden, RSG, Coffey and Widenbar and Associates, with no major concerns identified. All recent NSR sampling data has been QAQC reviewed internally.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Orelia gold deposit is situated within M36/146 and is 100% owned by Norther Star Resources Ltd The tenement is in good standing. The Tenement is subject to a Pastoral Compensation agreement and lies within the Darlot Native Title Claim area
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No impediments to operating on the permit are known to exist.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Gold production began at Orelia-Cockburn in 1991 by Arimco Mining Pty Ltd, who had previously operated under the name of Australian Resources Limited, who were subsequently purchased by Great Central Mines. Normandy Mining acquired Great Central Mines in 1998 who acquired the Orelia-Cockburn mine at the same time, although it had closed only a short time previously. The Orelia-Cockburn operations were continued under the ownership of Normandy Mining until 2002 when Newmont Mining acquired the whole package. View Resources acquired the operation in 2004 and began developing an open pit and underground mine that took in a number of ore bodies including Orelia-Cockburn, but the low price of gold and the shortage of capital forced the closure of the project in early 2008. Navigator (Bronzewing) Pty Ltd, completed the purchase from the administrators in September 2009 and they re-commissioned the processing plant in April 2010, with production continuing until 2013. The Bronzewing Gold Project (along with the Mt. McClure project) was acquired by Metaliko Resources in 2014, and no further activities were completed between 2014 and 2017. In February 2017, MKO and Echo completed a merger that included the entirety of the Mt McClure operation. Echo resources completed ~13,700 metres of reverse circulation and diamond drilling to assess the full potential of the Orelia deposit. Echo Resources conducted these drill programs to produce a robust resource estimate in preparation for mining. In February 2019, a mining proposal was submitted.
Geology	Deposit type, geological setting and style of mineralisation.	Orelia is Archean gold mineralized deposit that is part of the Yandal Greenstone belt. The stratigraphy dips approximately 60 degrees towards the west and strikes north south. The oldest and the most western unit is the ultramafic sequence, towards the east, the komatiite unit has a sharp contact with a 2-5m massive sulphide/breccia unit. This contact is the Calista shear. The stratigraphic sequence east of the Calista shear and massive sulphide unit consists of a series of basaltic units. This includes massive and pillowed tholeiitic basalt, basaltic lithic lapilli tuff, and interflow sedimentary rocks. In the middle of this sequence lies the Orelia dolerite that has been classified as an ophitic basalt. Further towards the east the next unit is a felsic zone dominated by sandstones, siltstones and mudstones with intercalations poorly sorted volcaniclastics tuffs of dacitic composition. This felsic unit is intruded by 2 dolerites Cumberland in the east and Lotus in the west. The whole Orelia stratigraphy is intruded by a suite of late intermediate dioritic to lamprophyre dykes ranging from 0.5m to 2-3m in width. The sequence appears to be upright with the older Ultramafic member thrusted over the basaltic and felsic units. The main host rocks of mineralisation at Orelia-Cockburn are deformed and altered tholeiitic basalts, and intermediate to felsic volcaniclastic rocks. It appears that the structures in the main mineralised corridors exploit the rheological contacts between the different units' geological units. There are three main mineralised zones within the Archaean sequence, Orelia, Cumberland, and Calista. Calista has two styles of mineralisation one shear hosted within the massive sulphides breccia unit in the contact between the ultramafic unit and the basalt and a stockwork of quartz-carbonate-sulphide veins within the basalt. Orelia mineralisation consist mainly in a stockwork of quartz-carbonate-sulphide veins along the contacts of the Orelia dolerite and interflow sediment units that form a cigar/pipe like ore shoots. Cumberland has two styles of mineralisation: the narrow high-grade often presenting boudinage and inch and swell withe quartz veins with minor sulphides and low grade stockworks of quartz and quartz-carbonate veins related to the main veins.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	No new significant results reported
	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, no new significant results reported.
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.	Not Applicable, no new significant results reported.
	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.	Not Applicable, no new significant results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not Applicable, no new significant results reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	Not Applicable, no new significant results reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Not Applicable, no new significant results reported.
	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').	Not Applicable, no new significant results reported.
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.	Not Applicable, no new significant results reported.
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.	Not Applicable, no new significant results reported.
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.	A BFS was completed by Echo Resources in 2018 there showing positive results for the development of Orelia.
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).	The project is well drilled only a small program of infill drilling is planned to be completed to bring some inferred resources to the indicated category.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Plans and sections of the Orelia deposit are included in this report.

APPENDIX C: 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 is digitally entered into a tablet using Logchief software and then transferred to an SQL based database. Assay results are returned from the laboratory as digital files and loaded directly into the database. A series of verification validations are performed prior to importing the data in the database. There are checks in place to avoid duplicate holes, sample numbers and missing intervals. There is database manager on site who is responsible for the integrity and use of the data. Only the database manager and the database administrator have access to the database. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files.
	Data validation procedures used.	All the electronic log files are reviewed and validated prior to being imported into the database. Drill hole information is loaded in Vulcan and Leapfrog software for verification and validation of collar, lithology and downhole surveys. Database administrators perform a series of verification validations prior to store the information in the database. There is QA/QC geologist that reviews the QA/QC information daily and ensure that the company QA/QC protocols are followed. Historical data validation has been undertaken by many independent consulting groups over the years, including CSA, Snowden, RSG, Coffey and Widenbar and Associates, with no major concerns identified.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this Resource report has worked on site for extensive periods between 2020 and 2022.
	If no site visits have been undertaken indicate why this is the case.	Regular site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral Resource using Leapfrog and Vulcan software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggetty nature of the ore body on a local scale.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling and oxidation surfaces.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	NSR has generated a new interpretation superseding the previous interpretation completed by Widenbar and Associates after completing a full geological review and including 169 RC and 6 DD additional drillholes.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geochemistry, mapping and geological logging have been used to assist identification of lithology and mineralisation contacts. Logging and grade distribution were used to create 3D constrained mineralisation wireframes. A 0.25g/t Au was used as a guide to model the mineralised envelopes for the open pit resources. The Modelling cut-off was determined after the statistical analysis of the sample population. The lithological units were used as guide for the modelling on the mineralisation wireframes.
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though the main mineralized structures show good continuity downdip and across strike.
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 Orelia Mineral Resource has an overall north-south strike, the mineralised corridor length is approximately 2,000m. The overall mineralised width of Orelia ranges between 100m and 400m, the majority is approximately 200m wide. Mineralized zones are variable with true width ranging from 0.5m to 20m. They are extensive along strike and down dip, raging 100m up to 1000m along strike in case of the Cumberland mineralisation. The down dip extends range from 50m to 300m. Some of the lode present cigar like shapes. Depth from surface is form 100m up to 500m approximately as the mineralisation plunges 30 degrees towards the south. The mineralised envelope has been extended down dip and long strike for targeting purposes any mineralisation modelled beyond the drilling coverage has not been included in the resource classification or reporting.
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.	Twenty-eight mineralisation enveloped were completed in Seequent Leapfrog software and imported into Maptek Vulcan software to guide the estimation. The estimation was completed using Vulcan Maptek software while the geostatistical analysis was completed using Snowden's Supervisor software. Sample data was composited to 1 metre intervals, small intervals up to 0.3m were merged with the nearest composite. After are review of the composite orientation and distribution a weight factor was applied to composites drilled in a suboptimal orientation as a conservative measure to reduce the effect of potential sampling bias. A review of the summary statistics for the mineral domains indicated skewed data and high coefficients of variation for the majority of the lodes confirming Multiple Indicator Kriging (MIK) is an appropriate modelling technique. No top cuts were applied to the composite except for one small lode with extreme outliers. The MIK modelling process is designed to work with skewed data. CIK was used in one of the lodes as was the most appropriate technique due the exitance of localised high-grade zones within the broader low grade zones.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		CIK was used in Lode 2 as was the most appropriate technique due the exitance of localised high-grade zones within the broader low grade zones. MIK parameters: ▪ 10 to 13 bins or grade intervals were used for the indicators depending on the grade distributions of each lode. ▪ The median was used for the top interval in the MIK estimates as it is more conservative than the mean, more sensitive to extreme grade values. ▪ A two pass search strategy was completed with a maximum of twenty-eight samples and minimum of eight for the first pass and a maximum of twenty-eight samples and minimum of 6 to 8 for the second pass. A maximum of three composites per drill hole was used. ▪ The first pass used a search ellipse with X, Y and Z dimensions of 60 by 50 by 14m and the second pass a search ellipse with X, Y and Z dimensions of 100 by 90 by 20m. Minor adjustments were applied to individual lodes to suit drill density and orientation. ▪ The search ellipse orientation was adjusted for each individual lode based in the lode geometry, visual inspection of the composites informing the blocks, grade trends and variogram ranges The Dynamic anisotropy (DA) search was used for lode 1 and lode 15 in Vulcan, where a variable search orientation is produced to mimic the local orientation changes in in the lode. ▪ No volume variance correction was applied to the MIK estimation, the MIK E-type mean was used for this MRE for a potential bulk open pit mining scenario. ▪ Ordinary kriging was used to estimate lodes with low drilling density and wide drill spacing, variograms from the adjacent lodes within the domain were used for the estimation where there were not enough samples to produce a variogram. All the lodes completed under this procedure fall within the sub inferred resource category. ▪ CIK Parameters (lode 2 domain): ▪ 3 Bin CIK was utilised to define internal subdomains (low grade, medium grade and high-grade populations) ▪ Indicator thresholds were determined from log probability analysis and indicator estimation parameters optimised for the X1m x Y1m x Z1.25m sub blocks. ▪ The search ellipse orientation used the Dynamic anisotropy (DA) orientations as calculated by HW and FW surfaces of the lode 2 domain in Vulcan. ▪ Vulcan's coalesce function was used to optimise sub domain blocks up to the parent cell size (X8m x Y12m x Z5m) where possible. ▪ Low grade, medium grade and high-grade subdomains are back flagged onto the composite and parent cell Ordinary kriging is performed with individually optimised estimation parameter sets, variograms and top cuts applied.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Estimates were compared against previous estimated completed by Echo resources there, the current MRE is within a 20% of the previous estimate and is considered reasonable due to the updated geological model, mineralisation wireframes and additional drilling. The MRE was compared to previous production data, grade and total metal are within 2-10% of past production data, tonnage around 10 to15 % depending on the cut-off. It needs to be noted that over the last 25 years the project was intermittently mined and modelled at different cut-off grades depending on the gold price at the time, so these comparisons are only indicative.
	The assumptions made regarding recovery of by-products.	No by-products were modelled.
	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 case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A parent block size of 8 mE x 12 mN x 5 mRL was chosen for the Orelia MRE, which is about half the drill hole spacing. The parent blocks were then sub-blocked down to 1 mE x 1 mN x 1.25 mRL for accurate volume representation of the lodes. Estimation was completed on parent blocks, with sub blocks assigned the parent block grade. The model was rotated 60° to the west, about the Z axis so that the Y axis blocks are parallel to the mineralised lodes.
	Any assumptions behind modelling of selective mining units.	A 4 m minimum mining width for open pit environment is assumed with an expected minimum size SMU of 4 mE x 4 mN x 5 mRL.
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised wireframes are created within the geological shapes based on drill core logs, mapping and grade. A 0.25 gpt Au was used as a guide to model the mineralised envelopes for open pit resources. Geological domains were used to guide the strike a geometry of the mineralised envelopes. Estimations are constrained by the mineralised envelopes.
	Discussion of basis for using or not using grade cutting or capping.	No top cuts were applied to the composite data in the MIK estimate except for lode 3 where extreme values where identified. The MIK modelling process is designed to work with skewed data. CIK estimation applied top cuts to internal subdomains (low grade, medium grade and high-grade) based on a range of analysis completed in supervisor software.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation validations summarised as: ▪ Visual validation of the lode and lithology coding of both the composite data and the block model. ▪ Comparison of lode wireframe volumes to block model volumes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. ▪ Sensitivity to top-cut values uses a variety of top-cuts which are compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. ▪ Comparison of nearest neighbour, ID2, OK, LUC, CIK and MIK estimates to the final estimate (MIK & CIK). These comparisons are conducted through visual validation and trend analysis along Northing, Easting and RL slices. ▪ Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and given the changes in support data, were consistent. ▪ Statistical comparison of composites versus all estimates in block model with trend analysis plots for each domain produced by Northing / Easting / RL. ▪ Statistical comparison of composites grades versus lode grades in a lode by lode basis. ▪ Change of Support validation The Mineral Resource estimate shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. Where the numbers of samples reduce, the accuracy of the estimation suffers, and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are considered when assigning a Resource classification.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Mineral Resources are reported at a 0.5gpt cut-off grade. The pit cut-off grade has been calculated based on the key input components of mining, processing, recovery and administration costs. Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The AUD gold price as per corporate guidance. ▪ Mill recovery factors are based on historical data and metallurgical test work. ▪ Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects.
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.	A 4m minimum mining width for Open Pit environment is assumed and incorporated into the modelling and estimation. All the resources have been reported at a 0.5 gpt Au within the optimisation pit shell using $2,250 AUD gold price.
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 has confirmed good gold recoveries, via conventional CIP/CIL gold treatment. Test work to date has shown that the gold mineralisation is amenable to conventional recoveries via gravity and leaching with approximately 30% to 40% of the total gold content recovered via gravity separation. A total gold recovery of 88% to 95% was achieved after cyanidation of gravity tails, which is consistent with previous recoveries from the Orelia deposit through the Bronzewing mill, during previous treatment regimes. Historical plant gold recovery ranges from 88% to 93% The gold extraction was good with +92% of the gold recovered by gravity separation followed by 18-24 hours of cyanide leaching. No recovery factors are applied to the MRE.
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.	The Orelia open pit was last mined in April 2013. All relevant permits have been complied with and an updated Mining Proposal has been lodged following pit design and scheduling. The open pit is on a granted mining lease. No impediment to mining and ore processing is envisaged, and an updated design is due in the coming months.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density values have been obtained from a detailed statistical analysis of 1,628 bulk density values for the Orelia mine deposit were reviewed using data gathered from 7 diamond drillholes drilled between 2020-2021 geological formation. Approximately 2 samples were taken for bulk density for every 6 meters or core. These values are also in agreement with 167 historical bulk density measurements.
	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.	Bulk density measurements for core samples are taken using the water displacement technique (Archimedes Method), where the samples are dried and weighed in air then weighed in water.

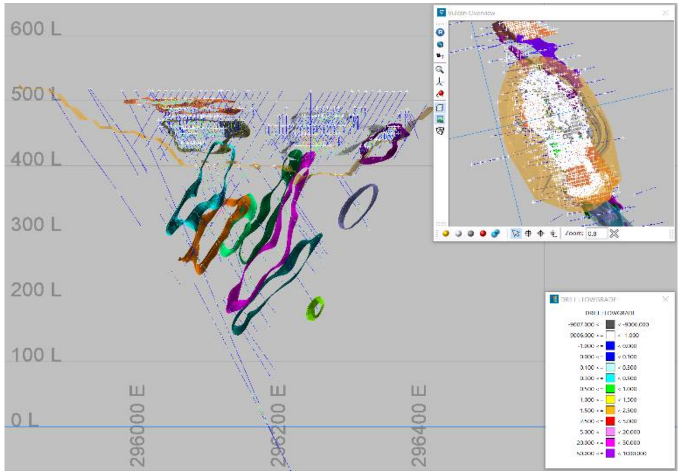
APPENDIX C: TABLE 1

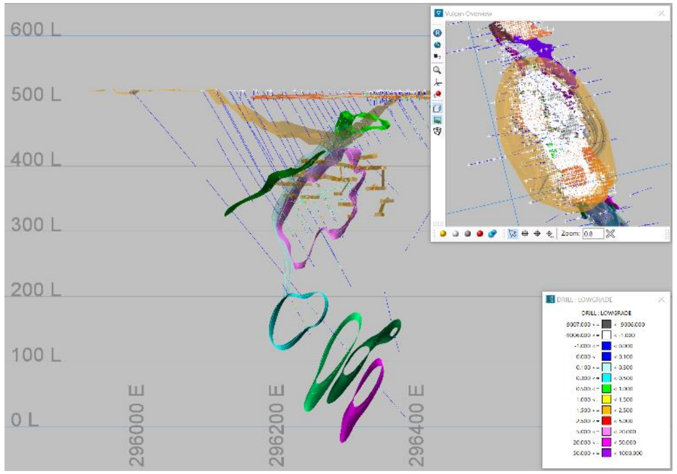
Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with each of the specific lithologies, mineralisation and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Mineral Resource estimate is reported here in compliance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' by the Joint Ore Reserves Committee (JORC) The classification of Mineral Resources was based on the geological complexity, drill hole spacing, number of drill samples, sample distribution and estimation performance, The Competent Person is satisfied that the result appropriately reflects his view of the deposit. Indicated Resources are defined by drill spacing which ranges between 7.5m x 5m and 25m x 25m, where there is grade and geological continuity. Small lodes or mineralised zones within 25m x 25m drill spacing are classified as Indicated when there is evidence of grade and geological continuity and they intersected by a minimum of 4 drill holes, otherwise inferred. Inferred Open Pit Resources are defined on a nominal 50m x 50m drilling pattern where there is evidence of grade and geological continuity.
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed to be accurate. All the relevant factors have been considered in the classification of the Mineral Resource.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimate have been internally reviewed by NSR personnel. No external audits and reviews have been completed.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Ramone mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the Resource on a global scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This Resource report relates to the Orelia deposit and is likely to have local variability within a global assessment further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical production data is line with the model expectations and supports the accuracy and confidence in the resource model.

APPENDIX C: TABLE 1

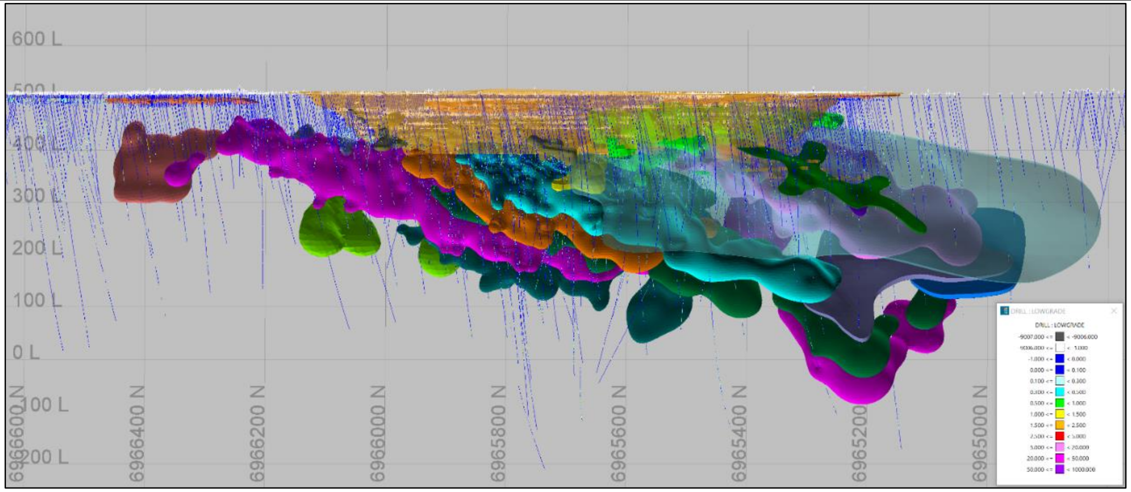
ORELIA - REPRESENTATIVE PLANS & LONG SECTIONS

Orelia cross sections with mineralised envelopes, mined pit shell and drillhole traces, northern section on the left, southern section on the right.





Orelia long section looking east with mineralised envelopes, mined pit shell and drillhole traces.



APPENDIX C: TABLE 1

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.	The Mineral Resource estimate for the Orelia Project was used as a basis for the conversion to the Ore Reserve estimate reported and was compiled by Northern Star Resources (NSR). Reported ore reserves are based on updated or depleted resource models for all project areas.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Numerous and frequent 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.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into ore Reserve.
	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.	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pits. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used parameters generated from NSR technical personnel and technical consultants. A detailed mine schedule and cost model has been generated using an excel spreadsheet model. Appropriate ore dilution and recoveries have been applied within the excel spreadsheet model. The processing parameters have been based on metallurgical test work and actual costs of the Thunderbox processing plant. The current study level demonstrates high confidence that the projects can achieve the mine plan and be operated in a technically sound and economically viable manner.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The pit cut-off grade has been calculated based on the key input components (processing, recovery, and administration) Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. The AUD gold price as per corporate guidance. Mill recovery factors are based on metallurgical test work.
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 complete with a detailed financial assessment. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used costs and inputs derived from current operational data, contractors, and independent consultant recommendations. Ore Reserves have been calculated by generating detailed mining shapes for the proposed pit design. Open pit planned and unplanned dilution (waste material that is located within the minable shape) has been modelled within the mining shapes.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining method for the Orelia deposit is of a bench mining open pit method. The proposed open pit cutback will be mined using conventional open pit mining methods (drill, blast, load and haul) utilising similar class excavators and trucks used in other NSR open pit mining operations. This provides good operating dataset for production and productivity rate measurement and financial modelling.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Independent Geotechnical Consultants Dempers & Seymour Pty Ltd completed a geotechnical study for the Orelia project. Recommended wall angles were applied to the Whittle optimisation and subsequent detailed pit designs. The Grade control method to be employed at Orelia will use Reverse circulation drilling to obtain samples.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	
	The mining dilution factors used.	Physicals are reported within the generated mining shapes for the open pit Ore Reserve. SMU shapes have been generated for the reporting of Ore Reserve physicals. Dilution is accounted for within the SMU; that is waste material carried within the mining shape.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The mining recovery factors used.	A mining recovery factor of 95% has been applied reporting of Open pit Reserve physicals.
	Any minimum mining widths used.	The SMU dimensions for the Reserve Estimate are 4 m Wide x 5m High x 4.0 m Long. A minimum mining width down to 25 m for final pit extraction from the base of pit has been used.
	The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Reserve estimate (treated as waste) but has been considered in LOM planning. The amount of inferred material has no impact on the sensitivity of the project.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Orelia Project has been accounted for and included in all work leading to the generation of the Ore Reserve estimate. Ore from the Orelia Project will be processed through the Thunderbox Processing Plant; hence no processing infrastructure is required. The Orelia Project will be connected by internal private haul road to Thunderbox. Required infrastructure will be established at Orelia and will include Offices, workshops and associated facilities, dewatering pipeline, Waste Rock Storage Dump; and ROM Pad.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed at the established Thunderbox processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	The metallurgical recoveries for the Orelia project were set at 94% for oxide, 94% for transitional, 94% for fresh rock, which corresponds with metallurgical test work undertaken.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements. Test work indicates there are no deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Based on metallurgical test work conducted and milling experience gained through processing similar material through the Thunderbox Processing Plant.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	All required Environment studies have been completed and relevant vegetation clearance, dewatering permit has been granted. The Mining Proposal and Mine Closure Plan for the Orelia project has been approved by DMIRS. The Orelia operation will utilise the existing Thunderbox processing facility, and TSF storage facilities that are all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip at Thunderbox are all on granted miscellaneous licences. Waste rock characteristic study has been conducted is expected to be representative of overall waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future waste landform expansion.
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 processing infrastructure is in place at Thunderbox. The Orelia Project is a satellite pit operation and extension of the Thunderbox Gold Mine. The project areas will be connected to Thunderbox by a private haul road constructed for road train haulage. Minor infrastructure will be required at the project areas and has been allowed for in the cost model.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the establishment, mobilisation and pre striping of the pit is included in the financial modelling. A haul road connecting Orelia to the Thunderbox operation will be in place before commencement of mining.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate. The estimation of Open pit mine operating costs was based on a dry-hire mining, contract drilling, and contractor maintenance operation using first principles to determine equipment productivities and associated operating hours to generate mine schedules. Provided contract pricing were than applied to the schedule to calculate all unit costs.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected based on metallurgical test work.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a gold price of A$1,750 per ounce as per NSR corporate guidance
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Transportation costs for ore haulage from Orelia to Thunderbox have been based on current NSR contractor quotes. Transportation costs also include an allowance haul road maintenance and dust suppression.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on historic and actual Thunderbox plant processing costs. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. Private royalty totaling 2.0% Private royalty of $2/ounce.
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.	All financial analysis and gold price have been expressed in Australian dollars and no direct exchange rates have been applied. Revenue factors within the whittle optimisation process were used. A revenue factor shell was selected and used to complete a detailed pit design. A gold price of A$1,750 per ounce has been used in the optimisation of the Orelia Project.
	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.	Gold doré from the mine is to be sold at the Perth mint.
	A customer and competitor analysis along with the identification of market windows for the product.	Not Applicable.
	Price and volume forecasts and the basis for these forecasts.	Not Applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model that is reflective of current operational costs and contract conditions. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,750 ± $250 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 / under final negotiation with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	No issues.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The classification of Open Pit Ore Reserves has been conducted in accordance with the JORC code 2012.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Reserve has been internally reviewed in line with Northern Star Resources governance standard for Reserves and Resources. There have been no external reviews of this Ore Reserve estimate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The design, schedule and financial model on which the Orelia Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	All modifying factors have been applied to design mining shapes on a global 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.	Not applicable.

JORC Code, 2012 Edition – Table 1 Report

Bannockburn – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star at Bannockburn include diamond drilling (DD), reverse circulation (RC) drilling and aircore (AC) drilling. Sampling methods undertaken at Bannockburn by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Limited historical data has been provided by previous owners.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for DD, RC and AC drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1990- 2008).
	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.	RC chips are cone split, while AC samples are spear sampled, with both sampled into 4m or 1m intervals with total sample weights under 3kg. Diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS. Initial RC drilling in the early 1990s included single stage mix and grind sample preparation to create a 300g pulp from which a 50g charge was used for assay determination. More recent RC drilling involved total preparation of a 4m composite sample to provide a 40g charge for fire assay. No other information has been found or supplied so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Historic drilling activities at Bannockburn have included 684 RAB holes, 1694 RC holes (some with diamond tails) and 78 DD holes (HQ, NQ, and unknown diameter). Northern Star has completed 148 RC drillholes, 6 DD drillholes and 1132 AC holes. The RC drilling was completed with a 5.5-inch diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary booster. Diamond drilling was HQ or NQ sized and core was orientated using an ACT III core orientation tool.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Some historic HQ core was oriented by unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for RC and AC drillholes are recorded as a percentage based on a visual weight estimate. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database No other recoveries have been provided; it is unknown if they were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC and AC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Measures were taken to supress groundwater. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. It is unknown what, if any, measures were taken to ensure sample recovery and representivity
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC or AC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC and AC chips and DD core record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Chips from all RC holes are stored in chip trays for future reference. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Some historic diamond drilling has been photographed and geotechnically logged. Core is photographed in both dry and wet state. It is unknown if all diamond core was photographed.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Qualitative and quantitative logging of historic data varies in its completeness
	The total length and percentage of the relevant intersections logged.	All drillholes completed by Northern Star have been logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. The sampling method for most historic drill core is unknown. Some historic core was half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples were cone split. Occasional wet samples were encountered. AC drillholes were spear sampled RC drilling carried out in the 1990s includes spear sampled composites and riffle split 1m samples. RAB drilling was spear sampled. More recent RC drilling has been riffle split or spear sampled. Some sampling methods remain unknown.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC and AC chips and DD core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. The sample preparation of 1990s RC drilling involved a single stage mix and grind method, more recent RC drilling involved a total preparation method. The sampling techniques for much of the remaining historic RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory Best practice is assumed at the time of historic RAB, DD and RC sampling.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions It is unknown if duplicate sampling was performed on historic RAB, RC and DD drilling. Limited field duplicates were carried out on some more recent RC grade control drilling at a rate of one per hole.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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.	RC chip samples and DD core samples are analysed by an external laboratory using a 40g fire assay with AAS finish. AC samples are analysed using a 25g aqua regia digest. Both methods are considered suitable for determining gold concentrations in rock and are total digest methods. Limited historic samples were assayed using a Leachwell digest and AAS finish in the onsite laboratory. More recent RC drilling has been assayed using a 50g aqua regia or 40g fire assay with AAS finish. Other assay methods for exploration RC, RAB and DD drilling included fire assay with AAS finish, aqua regia with AAS finish and unknown methods.
	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.	It is unknown if any instruments of this nature have been used at Bannockburn.
	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 material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for RC, DD and AC. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent. However, grade control from both open pit and underground operations have confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
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.	Northern Star drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using a hired Reflex EZ-gyro by the respective drilling companies on a regular basis, between 10-30m. Collar locations for early 1990s RC, RAB and DD drilling were surveyed using an EDM theodolite. The precision of this equipment in unknown. Downhole surveys were carried out using a CHAMP downhole electronic multishot system. More recent drilling has collar locations surveyed by unknown GPS and DGPS equipment, while downhole surveys have been carried out at regular intervals by unknown methods.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	No detail of topographic control was supplied or found.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	AC drilling was carried out on a broad 400x200m to 600x800m grid, with some closer spacing (50x50m) designed to test geophysical and geochemical targets
	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 drilling is distributed and spaced such that geological and grade continuity can be established to estimate the mineral resource and ore reserve appropriately. The mineralisation is continuous over a 2km strike length, therefore the 25m x 25m exploration drill spacing effectively defines the continuity. The tight drill spacing at the exploration and mineral resource definition stage highlight the complex nature of some areas of the resource.
	Whether sample compositing has been applied.	RC and AC sampling was composited into 4m samples with mineralised areas resampled to 1m intervals Historic 1990s RC drilling was sampled on 6m composites due to the depth of overburden, with significant gold results being resampled in 1m intervals. Historic RAB drilling was generally 4m composite sampled with anomalous zones resampled to 1m intervals. Some more recent RC drilling was composited into 3m or 4m samples with areas of interest resampled to 1m.
Orientation of data in relation to	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Due to the variability in the dip direction of the various lodes at Bannockburn, drilling has been orientated in multiple directions to ensure all mineralisation has been tested effectively. This ensures that minimal bias is introduced when sampling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
geological structure	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. Multiple drill orientations have been used to test the variably orientated mineralisation.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Bannockburn pit and associated infrastructure is located across M37/339, M37/340, M37/360, and M37/361. The tenements are 100% held by Northern Star (Thunderbox) Pty Ltd, a wholly owned subsidiary of Northern Star Resources Ltd. The mining leases have a 21 year life and are all held until 2034. All are renewable for a further 21 years on a continuing basis. The tenements are all subject to a royalty of $25 p/oz over 33,000 and up to 73,000 oz of gold produced from the Resources, and $1 p/oz on each ounce of gold after 73,000 oz of gold produced from the Resource payable to Challenger Gold Operations Pty Ltd. All production from the Tenements is subject to a Western Australia state government NSR royalty of 2.5%. There are two registered heritage sites located over the tenements: Bannockburn 1 site (Place ID 1119) located over M37/361 and Koara Camp site (Place ID 1522) located over M37/339 and M37/340. There are no caveats relating to the tenements. The tenements lie within the Darlot Native Title Claim area.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Gold was discovered at Bannockburn in the late 1800s with small, scaled working of the deposit until the 1950s. Modern exploration began in the late 1970s with initial exploration targeting nickel sulphides before gold exploration began in 1979. Exploration activities by numerous companies including Freeport of Australia, Kulim Limited and Arboyne took place until Dominion purchased the project and commenced mining in 1991. Dominion pushed brownfields exploration which included aeromagnetic surveys, soil sampling, and RAB and RC drilling and led to the discovery of neighbouring deposits North Well, Blue Tank and Slaughter Yard. The Bannockburn mine was placed on care and maintenance in 1995 and by 1996 was back up and running under the management of Consolidated Gold Mines. Subsequent liquidation of the parent company to CGM, saw Arrow Resources continue on with mining until the reserves were exhausted in 1998. They re-evaluated the nickel sulphide potential. Breakaway Resources acquired the project which was then purchased by LionOre Australia in 2005. LionOre Australia NL retained the ground prospective for gold and divested ground considered prospective for nickel to Jubilee Mines. LionOre was then taken over by Norilsk Nickel Australia Pty Ltd in August 2007. Norilsk carried out diamond and RC drilling programmes, geochemical and geophysical surveys and reviews. Review of the base metal potential was carried out in 2010 and Bannockburn AU resource review and geological review was completed in 2011.
Geology	Deposit type, geological setting and style of mineralisation.	The Bannockburn deposit is located along the western margin within the central portion of the Norseman-Wiluna greenstone belt. Locally the project area is dominated by an extensive sequence of tholeiitic, high-Mg and komatiitic basalts with intercalated sedimentary and intermediate volcaniclastic horizons. Dolerite and gabbro sills intrude the sequence. The deposit is complex with multiple controlling factors. The gross geometry of the deposit is controlled by the Bannockburn fault, a steeply dipping NNW trending fault that is continuous over at least 2.3km on the western margin of the orebody. The fault separates an ultramafic unit in the west from the Bannockburn host sequence in the east. It dips steeply east, rolling to vertical and steep west dipping in the northern part of the orebody. The Bannockburn fault is effectively the western boundary to the orebody with very little mineralisation penetrating the western side of the fault. The Central fault which hosts the Central orebody has a shallow northerly plunge and is the orebody on which the majority of the underground workings is focused. There are a series of steeply east dipping lodes in the hangingwall of the central lode; these are interpreted as tensional veins of reverse faults with shearing present along the veins. Black graphic shale units present within the stratigraphy have acted as a localised control on the mineralisation. The black shale units have taken up some of the deformation with stratigraphy parallel shearing and mafic sequences between the shales have extended to form steep east dipping extension veins.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	A total of 2064 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report. Material data has been previously released to the ASX: 30/04/2019, 18/02/2019, 27/11/2018, and is included in this release.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	All significant intercepts have been length weighted with a minimum Au grade of 1ppm for RC and DD drilling or 20ppb for AC drilling. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher-grade interval is reported also
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Estimated true widths of the intercepts are reported as well as down hole lengths
	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').	Drilling has been orientated to intersect the various orebodies at most optimum angle where possible. This has not always been achieved. Where holes have drilled parallel to or within a lode, additional holes have been drilled at a more suitable orientation to account for the poor angle.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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.	Various geophysical surveys have been carried out over the Bannockburn deposit in an effort to delineate structure and mineralisation including magnetics, gravity, CSMAT (Controlled Source Audio Magneto Telluric), radiometrics and SAM (sub-audio magnetics). CSMAT was deemed ineffective due to penetration issues while other methods returned varying results.
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).	Northern Star is currently reviewing its recent exploration programs and identifying further opportunity to extend the Bannockburn deposit both proximal and distal to the known mineral 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.	Included

APPENDIX C: 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.	The historic database provided to Northern Star was an extract from an acquire SQL database. For the majority of the historic database, the process used to record the primary data was unknown. All data collected and drilled by Northern Star is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. The rigour of the database is such that transcription or keying errors are identified and amended prior to loading and storage. Typical collection methods are manual capture and translation of logging and other data into tough books (digital format) and subsequent import of csv tables through an automated data import scheme where data is validated upon import into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. All Northern Star data was validated and collars and surveys cross referenced with the planned data. The geological data is further cross referenced with IMAGO core photos which ensure consistent and accurate logging. It is unknown at this stage how the historic data was managed and who was responsible for its maintenance. It is also unknown if there was any built-in functionality around pass/fail checks on assay importing. The historic data was initially cross validated with the database provided by Norilsk Nickel Australia LTD PTY during the due diligence process, and also the database supplied to Golder by Norilsk Nickel Australia LTD PTY. Such cross validations highlighted variances that were reconciled against, surface, pit and underground surveys. This reconciled database was further validated by Northern Star drill programs. These programs successfully targeted voids, mineralised pillars, and tested for geological consistency.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent person together with Northern Star's technical team has conducted numerous site visits with core inspections, pit visits and remapping exercises. All observations and data collection were used to improve and validate the geological knowledge and subsequent estimation.
	If no site visits have been undertaken indicate why this is the case.	n/a
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation has been based on the detailed geological work completed by a series of previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping, underground mapping and assay data. The gross architecture of the deposit is well known however the local scale structural controls are complex. Confidence can be taken from the fact that the deposit has since been drilled, validated and reviewed by Northern Star, but also as it has been mined previously by open pit and underground methods.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Open pit and underground observations, mapping and face maps have all been included in the interpretation; whilst this data only assists the delineation of the domain boundaries and structures locally, it does highlight both mineralogical and structural trends, and timing relationships between lodes that can be applied throughout the deposit. These relationships and observations are honoured in the creation of the geological and ore lode models (3D hard boundaries) within Leapfrog.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No other interpretations have been tested at this point. The tightness of the drilling restricts the possible options of the interpretations particularly about the main Bannockburn fault and Central thrust. These are highly continuous and predictable structures. The shorter scale extensional lodes in the hanging wall or footwall of the central thrust are more variable. Whilst they can still be interpreted between sections more definitive structural work will help to improve the local scaled variability and timing.
	The use of geology in guiding and controlling Mineral Resource estimation.	The geology has been used to assist controlling the mineral resource estimation. The main mineralised shear zones have been domained such that the geological characteristics have been honoured and validated against historic and current sections and logging. This includes discriminating between the main shear zones and the extensional vein arrays splaying off the shear zones and mineralisation associated with black shale zones.
	The factors affecting continuity both of grade and geology.	At the deposit scale laminated quartz veins have higher grades than bucky and coarsely brecciated quartz veins. Highly silicified mafic schist is the main locus for mineralisation. The stronger the silicic and biotite alteration the higher the grade. It is estimated that 75% of the gold is located in the alteration halos and 25% in the veins themselves. Additionally, it has been noted that mineralisation is strong where increased percentages of arsenopyrite are present. A small amount of remobilised mineralisation can be found on the margins of porphyry and lamprophyre intrusives. The interplay of apparent cross cutting NE trending structures locally displaces (few metres at most) the mineralisation. The Bannockburn Shear itself limits the mineralisation to the west. To the south the geology is complex and structurally complicated with minimal mineralisation. The plunge of the of the central thrust limits the mineralisation in the south and to the north it appears to terminate or weaken along a NE trend. Increasing distance away from the Central thrust and the Bannockburn shear tends to weaken the mineralisation, however at this stage the deposit remains open to the North and Northeast.

APPENDIX C: TABLE 1

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.	Bannockburn mineralisation extends from 6849500mN to 6852000mN, 292750mE to 294500mE and 150 meters below surface. The Bannockburn gold deposit has a strike of 340° (NNW) and has a shallow plunge 5-10° to the NNW. The Bannockburn Shear dips steeply to the east, whilst the Central thrust varies from 30°dip to the west and east but is predominantly flat.
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.	Block estimation is completed in Datamine software. All wireframes are constructed in leapfrog. All estimation uses these wireframes as hard boundaries. Ordinary Kriging is chosen as the estimation method. Dynamic Anisotropy is used to improve the estimation of domains that have variable dip and plunge orientations. A total of 100 domains are defined in the deposit. Estimation of parent blocks are interpolated and assigned to sub-cells. The maximum distance of extrapolation is less than 40m. Univariate statistical analysis of length weighted, (1m), domain coded down hole composites are completed for all domains and top cuts applied where applicable. Extreme grades are appraised in each domain and are analysed to determine specific top-cut values. Log-probability plots are used supplementary to the histogram analysis. KNA is performed on the major domains to determine appropriate block size, sample support, search dimensions and block discretisation values.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The OK model has been compared to the due diligence inverse distance cubed resource estimate with similar global results, (<2% variance in tonnes, grade and ounces). This comparison suggests a robust estimation. Since the due diligence the underground void and open pit mined surfaces have been scrutinised. Updated void models have been sourced and surfaces updated to include last stages of production that correlate with grade control production holes. Globally the OK estimate and total production reconcile within 5% of the ounces.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Recently, within the 2018/2019 drill programs asbestos form was identified (tremolite and actinolite) within the footwall ultramafic unit of the Bannockburn Shear. Mine safety and mine designs will need to consider this deleterious element.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the rock model are X (10m) by Y (20m) by Z (10m) and for resource domain model are X (5m) by Y (10m) by Z (5m). These are deemed appropriate for the majority of the resource, where KNA and drill spacing is in the order of 20m x 15m to 25m x 20m and less than in the underground GC area. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (0.5m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by the KNA, knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. The minimum and maximum samples for search 1 range from 6-10 to 20-30 respectively, dependant on sample density and KNA for +80 domains. The minimum samples were sequentially reduced for Search 2 and Search 3, on average to 6 and 4, whilst the maximums were similar to Search 1.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation correlates with the mineralised domains. Specifically, the steeply dipping mineralised domains correspond with the key mineralised fault zone, the Bannockburn Fault. Similarly, the main Central Lode mimics the thrust plane of the Central Fault. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced. Data selection and estimation are domain controlled.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlights that there are very few grades (1% of the total samples) in the domain populations that require top-cutting. Top-cut have been employed to eliminate the risk of overestimating in the local areas where high grade samples exist.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. These steps include; • The volume variance between the estimate and the wireframed domains with the expectation that the variance is<1% • The metal variance between composited values and non-composited values. • The composited declustered grades are compared to the estimate mean grade for each individual domain. Within +-10% is an acceptable result. The comparison of the model mean grade, the composite grades and their informing sample numbers are further investigated by appropriate northing, easting and bench interval slices displayed as swathe plots. Visually the mineral resource model is stepped through in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Kriging efficiency and slope results also gave an indication of the quality of the estimate, which deteriorated as the search increased.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Thunderbox Operations, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Bannockburn deposit is amenable to mining by both open pit and underground methods. The deposit has been mined by open pit and underground methods historically. There are reasonable grounds to assume that in the future this deposit will again be mined by conventional open pit load and haul operations. It is unlikely that the mineralisation would be accessed by underground methods. Any open pit operations that may interact with historical underground workings would need to assume a higher ore loss factor around the margins of voids. This is particularly important to consider if underground voids have not been filled as is the majority of the case at Bannockburn. To best capture "reasonable expectation of extraction" as an open pit, the mineral resource was cut to an optimised pit shell at $2250 at a 0.5g/t cut off.
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.	It is expected that any future mining of the Bannockburn deposit will be processed at the Thunderbox processing facility which is currently on care and maintenance. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Ammtec completed historically suggests Bannockburn mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox.
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.	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high-rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is affected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
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.	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Northern Star does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Northern Star at this time.
	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.	As stated above the frequency and distribution is unknown at this point in time. It has assumed from the very good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate. Recent drill campaigns were predominantly RC. The density data gathered from the few diamond holes drilled by Northern Star returned similar values to those currently applied to the estimate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combinations of these factors together guide the formation of 3D wireframes that code the appropriate blocks with the nominated resource classification category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a reasonable resource estimate can achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. CSA global completed an external audit on Bannockburn in June 2019. It found no fatal flaws or any issues that could affect the resultant estimation.
	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 mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	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.	Analysis, cross checks and validation of the acquired database occurred prior to the construction of this detailed mineral resource update. The previous sections of this table identify the areas that require further update and validation. It is unlikely that these minor checks would have any material effect on the results of mineral resource. It was highlighted in the initial review process that the surfaces supplied by the previous owners were incomplete. As the in-pit water depletes, the final pit surface is resurveyed and the model surfaces updated in the estimate. The clear line between potential backfill and what was previously mined is still unclear, and as such where logic prevails (historic GC drilling), the estimation within these "unsurveyed zones" has been preferentially depleted, assuming mining has occurred. The underground void shape is currently in the best shape that can be expected. It is likely that there will be local variations in this. Within the block model and estimate, a 5m skin is flagged about the voids to ensure this material is duly factored and treated conservatively.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous mining operation reports suggest that the estimated metal is within 5%.

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.	The Mineral Resource estimate for the Bannockburn gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. Zones around underground workings, and areas highlighted as backfill and/ or contain water were flagged in the estimate to allow for conservative evaluations during the optimisation. The block model was depleted with end of February 2021 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person has conducted several site visits to the Bannockburn open pit operation since the inclusion in Thunderbox operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Bannockburn deposit has been mined as both open pit and underground method in the past and processed ore through nearby processing facility. Since being acquired by Northern Star, a full-scale feasibility study was conducted with a view to bring Bannockburn open pit into operation. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Bannockburn Reserve.
	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.	Mining method to be employed at Bannockburn deposit is conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operations. That way it provides good operating dataset for production and productivity rate measurement and financial modelling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Bannockburn reserve pit is designed as large pit and will be mined in couple of stages to improve the stripping ratio. The Reserve pit will be mined such that it meets the operation efficiency, safety and production rate. Appropriate mine schedule and lead time have been applied to maintain effective operation delay and production rate between stages.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Life of Mine geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to assist geotechnical aspect of technical studies. It is expected that once the pit is in operation there may be some need for additional geotechnical input and reflect any changes into life of mine pit design. The Grade control method to be employed at Bannockburn will use RC drilling and sampling method. The method and practice have been utilised successfully at all current and past mining operations at Northern Star.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 15% is applied in the Ore Reserve estimation and reflect the mining performance based in ore body characteristic, mining method and equipment utilised. The dilution factor applied takes into account of old underground working. Material that located within the closed proximity of underground void will have higher potential for dilution and ore loss compared to other ore loads away from underground void.
	The mining recovery factors used.	A mining ore loss factor of 5% is applied in the Ore Reserve estimation and reflect the mining performance based in ore body characteristic, mining method and equipment utilised.
	Any minimum mining widths used.	A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across all open pit operations and reflects the suitability and efficiency of the mining performance.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the deposit is close to operating Thunderbox operations, which consists of open pit, underground and 2.9mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Thunderbox processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current Thunderbox processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 95% for deposits around Thunderbox operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Bannockburn deposit is estimated at 94%. The recovery estimation is based on met test work and ongoing long term actual average recovery data collected at Thunderbox Plant. Metallurgical test work has been carried out on samples from the Bannockburn deposit test lab and indicates the estimated recovery is in line with expectation.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Bannockburn ore.
	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.	Number of samples of each expected rock type has been sampled through the Thunderbox processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Bannockburn ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	The mine is currently on 'care and maintenance'. All required Environment studies have been completed and subsequent clearing permit and dewatering licences are in place. Mining Proposal will be submitted at later stage in appropriate manner for the operation to recommence. Bannockburn mine is located ~35km from Thunderbox processing plant and is well connected via site internal access haul road. The Bannockburn operation will utilise the existing Thunderbox processing facility, and TSF storage facilities that are all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip at Thunderbox are all on granted miscellaneous licences.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Waste rock characteristic study has been carried out is expected to be representative of Bannockburn waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future waste landform expansion.
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.	The Bannockburn operation will require minimum infrastructure given close proximity to well established and maintained Thunderbox operation. Allowance has been made for the new and refurbishment of the facilities like workshop, offices, site access and accommodation facilities for Bannockburn operation. The ore will be transported to Thunderbox processing plant via internal gravel haul road. The processing facility and major infrastructure are fully operational at Thunderbox. A modern accommodation camp is located within a few kilometres of the Thunderbox open pit, and a well maintained gravel airstrip services the camp. The mine site is connected to Goldfields highway and the Gas Transmission Line and runs on dual fuel (diesel/gas) power generator.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the establishment, mobilisation and pre-stripping of the pit is included in the financial modelling. A haul road will need to be upgraded at the commencement of operation to facilitate better connectivity to Thunderbox operation.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual mining costs for Thunderbox operations and costs supplied by various contract mining companies, and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Thunderbox Operations.
	Allowances made for the content of deleterious elements.	Historical data and met test work carried out at Bannockburn did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Thunderbox.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Thunderbox.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5% and a Third-Party Royalty component per ounce produced will be applicable.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Both Bannockburn and Thunderbox mine/processing plant is located on lease-hold pastoral land with regular community engagement and communication of the mining lease and operation. Compensation agreements are in place with the local pastoralist and Northern Star is having a good relationship with neighbouring stakeholders, including local pastoralists and the traditional owners. Aboriginal heritage surveys have been conducted and maintain no negative impact within mining lease.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	A Royalty of 2.5% of gold production is payable to WA State Government and a third party royalty component per ounce produced will be applicable.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	All required Environment studies have been completed and subsequent clearing permit and dewatering licences are in place. Mining Proposal will be submitted at later stage in appropriate manner for operation commencement.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification for Bannockburn has been in accordance with the JORC code 2012. Ore Reserve Estimate is classified as being Probable has been derived from the Mineral Resource classified as Indicated only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Thunderbox operations and supplied by contract mining companies and independent consultants. Results of these optimisations, reserve pit design and the resultant inventory reflect the Competent Person's view regarding the Bannockburn deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve Estimate has been derived from Indicated ore of the Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. All of the parameters assumed and adopted in the financial analysis have been based on current and past Thunderbox operations mining performance. The Bannockburn operation will use the same grade control methods that are widely utilised at other Northern Star open pit operations.
	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 Ore Reserve Estimate classification for Bannockburn has been in accordance with the JORC code 2012. Ore Reserve Estimate is classified as being Probable has been derived from the Mineral Resource classified as Indicated only.
	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.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Thunderbox operations and supplied by contract mining companies and independent consultants. Results of these optimisations, reserve pit design and the resultant inventory reflect the Competent Person's view regarding the Bannockburn deposit.
	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.	100% of Probable ore from Ore Reserve Estimate has been derived from Indicated ore of the Mineral Resource.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Otto Bore – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star Resources at Otto Bore include reverse circulation (RC) and diamond (DD) drillholes Sampling methods undertaken at Otto Bore by previous owners have included aircore (AC), rotary air blast (RAB), RC and diamond drillholes (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling is carried out as specified within Northern Star Resources sampling and QAQC procedures as per industry standard. AC, RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1988- 2012).
	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.	RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg. Diamond core is HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star Resources core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS. Limited information has been found for historic drilling, so it is assumed all AC, RAB, RC and DD and sampling was carried out to industry standard at that time. More recent RAB and RC drilling has involved a total preparation sample protocol involving 4m composite or 1m samples from which a 50g charge is produced for aqua regia or fire assay digest and flame AAS finish.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Drilling activities at Otto Bore have included 31 AC holes, 748 RAB holes, 141 RC holes (assumed standard 5 ¼'' bit size) and 4 DD holes (HQ and unknown diameter). Limited historic diamond core hole was oriented by unknown methods. Northern Star Resources completed 17 RC holes and 618 RC grade control holes. The RC drilling was completed with a 5.5-inch diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary booster. Diamond drilling was HQ sized and orientated using an ACT 11 core orientation tool. Historical drilling is assumed completed to industry standard at that time
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for RC drillholes and pre-collars are recorded as a percentage based on a visual weight estimate.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Measures were taken to supress groundwater.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and DD core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. Some historic diamond drilling has had limited geotechnical logging carried out.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core has been photographed in both dry and wet state and accessible through the imago software. It is unknown if historic diamond core was photographed. It is unknown if any historic diamond core was photographed.
	The total length and percentage of the relevant intersections logged.	All drillholes completed by Northern Star Resources have been logged in full.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. The sampling method for most historic drill core is unknown; a small amount is recorded as half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration RC samples are cone split. Occasional wet samples are encountered. The sampling methods for much of the historic AC, RC and RAB drilling are unknown. More recent historic RC and RAB drilling has been riffle split or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips and DD core adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. The sampling techniques for much of the historic AC, RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Best practice is assumed at the time of historic AC, RAB, DD and RC sampling.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. It is unknown if duplicate sampling was performed on the majority of historic AC, RAB, RC and DD drilling. There is evidence of field duplicate sampling being conducted in more recent campaigns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip and DD core samples are analysed by an external laboratory using a 40g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method.
	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.	Numerous assay techniques have been used in the history of the deposit, most commonly fire assay, fire assay with flame finish and aqua regia. These methods are considered suitable for determining gold concentrations in rock and are total digest methods.
	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.	Other assay methods utilised for gold determination include BETA, atomic absorption spectrometry and unknown methods.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions.
	Discuss any adjustment to assay data.	Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star Resources AcQuire database
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm.
	Specification of the grid system used.	Downhole surveys are carried out using a hired Reflex EZ-gyro by the respective drilling companies on a regular basis, between 10-30m.
	Quality and adequacy of topographic control.	The survey quality and control are unknown for the majority of historic drilling.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	No exploration results reported in this release. The nominal drillhole spacing is 20 m (northing) by 20 m (easting) in the core of the deposit and increases to the margins of the deposit.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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 mineralised domains at Otto Bore have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources, and the classifications applied under the 2012 JORC Code.
	Whether sample compositing has been applied.	Sample composting has been carried out in the most recent campaign with areas expected to be non-mineralised composited into 4m intervals with any anomalous results then resampled in 1m intervals.
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 deposit is mostly drilled towards grid east at angles varying from –60 and -90 to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit. Holes drilled in an unfavourable orientation were assessed for biased sampling and excluded from subsequent modelling and estimation processes if necessary.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. No orientation based sampling bias has been identified at Otto Bore in the data at this point.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star Resources geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Otto Bore resource is located on M36/421, M36/462, and M36/177. The mining leases have a 21-year life: M36/462 is held until 2043, M36/421 is held until 2023, and Mining Lease M36/177 is held until 2032. All are renewable for a further 21 years on a continuing basis.M36/421 and M36/462 are currently held by Northern Star (Thunderbox) Pty Ltd, a wholly owned subsidiary of Northern Star Resources Ltd. M36/177 is held by Northern Star (Thunderbox) Pty Ltd (67.8%) and Agnew Gold Mining Company Pty Ltd (32.2%), Northern Star recently completed on the purchase of Agnew's interest in the Tenement. Northern Star (Thunderbox) Pty Ltd lodged Caveat 617817 protecting its interest in the Tenement until the Transfer from the recent Purchase from Agnew has been completed and registered on Title. M36/177 is subject to a 2% of the Net Smelter return (NSR) from mine ore over 20,000 ounces of gold payable to Agnew Metals Pty Limited. M36/421 and M36/462 are subject to a royalty of 2.5% of the net smelter return (NSR) from mined ore between 42,000 and 100,000 ounces of gold payable to Black Mountain Gold Limited. All production is subject to a Western Australian state government NSR royalty of 2.5%. M36/462 is subject to a Westpac Mortgage (499141). M36/421 and M36/462 are subject to a pastoral compensation agreement between Northern Star Resources Pty Ltd and Weebo Station. The tenements lie within the Darlot Native Title Claim area.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediment to obtaining a licence to operate exists and the remainder of the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Gold exploration was conducted near Otto Bore in the 1950s following the discovery of the nearby Goanna Patch mineralisation. Nippon picked up the ground to the north of Otto Bore in the late 1980s and intersected anomalous zones at the Otto Bore prospect, but mineralisation was not deemed extensive enough. Otto Bore was discovered by Kismet in 1990 after they followed up regional RAB traverses at Goanna Patch and encountered mineralisation. It was deemed not large enough for consideration. Leader Resources picked up the area and completed RAB drilling before also deeming the area not worthy of follow up. They did however mine the nearby Double A open cut between March 1990 and May 1991 and concentrated much of the exploration in this area. Forrestania and LionOre entered into a JV on the area in the early 2000s. RAB drilling following up anomalous values from historic drilling intersected mineralisation and was followed up with RC and DD drilling and the Otto Bore resource was defined. Norilsk acquired the deposit but conducted no further exploration in the Otto Bore region.
Geology	Deposit type, geological setting and style of mineralisation.	Otto Bore is located within the Kurnalpi terrane to the east of the Ockerburry Fault, separating the Kalgoorlie and Kurnalpi terranes. The deposit is hosted within a greenstone package consisting of basalts, high-Mg basalts, dolerites and ultramafics with minor intermediate porphyries observed within the upper portion of the stratigraphy. Locally Otto Bore is situated within an NNW trending shear zone that dips moderately (50-60degrees) to the west. The mineralised zone largely hugs the rheological contact between

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		the high-mg basalts and basalts. To the north mineralisation is also associated with a series of dolerites. Cross cutting NW trending faults are interpreted to disrupt the strike continuity of the main mineralisation and the southern extent of the Otto Bore deposit is terminated by a regional NNE trending shear. At depth higher grade mineralisation is typically associated with pervasive quartz veining and form short range southerly plunging shoots.
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 total 1058 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. All material data was periodically released by Saracen on the ASX: 18/02/2020, 11/11/2019, 18/02/2019, 01/05/2018
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being reported in this release
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being reported in this release
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No exploration results are being reported in this release
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results are being reported in this release
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being reported in this release
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No diagrams are referenced in this release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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.	Geophysical surveys including aeromagnetics and gravity have been carried out by previous owners to highlight and interpret prospective structures in the project 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).	Northern Star Resources is currently exploring proximal to the Otto Bore deposit and is working on an exploration program which will test the lateral and down dip extents of the Otto Bore mineral 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.	NA

APPENDIX C: 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.	The historic database provided to Northern Star Resources was an extract from an acquire SQL database. For the majority of the historic database, the process used to record the primary data was unknown.
	Data validation procedures used.	All data collected and drilled by Northern Star Resources is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person has undertaken several site visits to Otto Bore since Northern Star Resources acquired the project in 2014. With no historic mining at this deposit, historical drill core as well as recent drill core was inspected and compared to geological maps during the visits. The competent person has a sound understanding of the geology and resource.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation is based on the detailed geological work completed by previous owners combined with the data from the recent drilling programs by Northern Star Resources. This knowledge is based on extensive geological logging of drill core, pXRF data, downhole structural data, RC chips, and assay data. The addition of diamond drill hole data and twinning of historic data has resulted in cross validation of the RC chips and the geology. With increasing amounts of drilling data, the confidence in the geological interpretation has improved. At a local scale, local variations suggest a folding or highly deformed network within the sheared package. The geology model is used to guide the estimation and estimation methodology of the resources.
	Nature of the data used and of any assumptions made.	The interpretations are constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, veining, veining intensity, structure, mineral assemblages and alteration. Cross sectional interpretations of the mineralisation are created from the geological framework through which the 3D wireframe solid is built.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The Otto Bore deposit is generally sub-vertical in geometry with short range southerly plunging ore shoots in the main body of the deposit. Infill drilling done over the years supports the current global interpretation which defines the deformation package. Over the life of the project, several different sources have interpreted the mineralisation and all agree on the same basic interpretation.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships are used to define mineralised domains with short range southerly plunging ore shoots. The Otto Bore deposit is hosted within a sequence of sheared Hg-mag basalts and basalts, bounded by an ultramafic and basaltic footwall and a basalt to dolerite hangingwall. To south is a felsic to intermediate intrusive.
	The factors affecting continuity both of grade and geology.	At the deposit scale, the mineralisation at Otto Bore is hosted in NNW striking sheared high mg basalts, with short-range southerly plunging ore shoots. Mineralisation is typically associated with quartz veining and is more strongly developed at the rheological boundary between the sheared complex and the basalt hangingwall or ultramafic footwall. Mineralisation becomes more erratic, weaker away from the plunging shoots, and more discontinuous away from the shear zone itself. To the north a series of cross cutting NW striking faults, appear to offset the mineralisation and in parts terminate smaller subsidiary hangingwall and footwall lodes. In these northern zones, the geology varies, with mineralisation associated with dolerites and other lithological contacts. To the south, a regional NE trending shear terminates the 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.	Otto Bore mineralisation extends from 6888600mN to 6889200mN, 304750mE to 305000mE and 170 meters below surface. The shear system controlling mineralisation at Otto Bore generally strikes North-South
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.	Block estimation using a combination of ordinary kriging (OK) and categorical indicator kriging (CIK) is completed in Datamine. CIK is utilised to define internal subdomains (low grade, medium grade and high-grade populations) in all areas where the drill density (=<40m by 40m, but mostly 20mx20m) supports the estimation method. All domain wireframes have been constructed in Leapfrog, which are used as hard boundaries for the estimations. Grade is estimated into parent blocks, meaning all the sub-cells within a parent cell assumed the grade of the parent cell. Univariate statistical analysis of length weighted (1m) domain coded downhole composites has been completed for all domains, (over 90% of the sample intervals are 1m) and top cuts applied where applicable. The influence of extreme grades was assessed by domain using a combination of top-cut analysis tools. Variogram modelling was completed with Snowden's Supervisor software. This measures the spatial variance of the gold grade within the domains. The parameters determined from this analysis are used in the interpolation process. The maximum distance of extrapolation from data points was set to 40m for inferred material.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The OK/CIK resource estimate has been compared with previous resource estimate completed by Northern Star Resources. The current resource estimate was updated with all the recent drilling done by Northern Star Resources in 2019 2020 and 2021. Check estimates, such as non-CIK approach, a 2 bin CIK and 3 bin CIK, were done with different estimation parameters to find the best estimate that represents the informing input data. Mining has not commenced at Otto Bore.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Other elements that have been assayed other than gold include Arsenic, Cobalt, Nickel, Chromium and Magnesium albeit in low levels not to warrant their estimation. Arsenic occurs in low levels and is not considered harmful.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Otto Bore is constructed using a 5mE by 10mN by 5mRL parent block size with sub-celling to 1mE by 1mN by 1mRL for domain volume resolution. The block size supports the overriding drill spacing of 20mX20m and up to 40mX40m in the inferred areas. All estimation is completed at the parent cell scale. Search ranges are derived from the variogram modelling, the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. Kriging neighbourhood analysis was carried out for Otto Bore in order to optimise the block size, search distances and sample numbers used. In the majority of domains, most blocks were estimated in the first pass (particularly for the major domains); however, some more sparsely sampled domains were predominantly estimated on the second or third pass. Hard boundaries were applied between all estimation domains.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables. Gold is the only mineral of economic significance at Otto Bore at this stage.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation correlates with the mineralised and estimated domains. Specifically, the mineralised domains correspond with sheared basalts, quartz veining and rheological contacts with high mg basalts. The latter is more evident in the fresh material than it is in the oxide regolith profile. The southerly plunging ore shoots are well defined in the variography with the direction of maximum continuity and search ellipses aligned to that direction. The geological units are flagged in the block model. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in some of the domains at Otto Bore to generally have outliers which would if left unchecked would compromise the quality of the estimation by the smearing of grade. Where applicable top-cuts were applied to remove the influence of the outliers.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate with results indicating a robust reconciliation between the data and estimate. Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. The mineral resource model has been stepped through visually in sectional and plan view to compare the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Northing, Easting and Elevation swathe plots have been constructed to evaluate the composited assay means against the mean block estimates. The averaged means by domain were also compared for a global comparison. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star Resources' current economic operations at Carosue Dam and Thunderbox, and the natural grade distinction above background, a grade of 0.5g/t has been chosen for Open Pits.
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.	To best capture "reasonable prospects of eventual economic extraction", the mineral resource is reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources. The mining method to be employed at the Otto Bore deposit is conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other current open pit mining operation, providing a good operating dataset for production and productivity rate measurement and financial modelling. The Otto Bore Reserve pit is designed to include a series of successive cutbacks to achieve life of mine Reserve such that it meets the operation efficiency and production rate. Appropriate mine schedule and lead times have been applied to maintain efficient mining operations between the stages.
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	It is expected that any future mining of the Otto Bore deposit will be processed at the Thunderbox processing facility which is currently processing ore from the Thunderbox open pit and underground operations. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing more than 9Mt of ore. Northern Star has been successfully operating the Thunderbox mill since 2015.The conventional plant displayed excellent performance with

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Ammtec completed suggests Otto Bore mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox. The ore indicates a high amenability for gravity recovery, fast kinetics an indicative recovery in the 94- 97% range for both oxide and fresh mineralogies
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.	Arsenic is present in the mineralogy of the deposit albeit in low levels. The processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high-rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is affected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
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.	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Northern Star Resources has validated these historical values by taking its own bulk density samples from the more recent diamond drilling in 2019, 2020 and 2021. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Northern Star Resources does not have the available data to comment on the frequency and distribution of the historical density measurements. The size and nature of the samples is also unknown to Northern Star Resources at this time.
	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.	Whilst it is unknown how historic bulk density samples were managed, Northern Star Resources manages porous or clay which oxide samples by coating the dried samples in paraffin wax prior to the water displacement technique. Northern Star Resources has further assumed the density assignments at Otto Bore are good estimates based on the very good performance from mine to mill of other surrounding deposits of similar geology.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of bulk densities collected for each lithology type in each regolith zone has been uniformly applied to the modelled geological/regolith zones. The regolith zones include the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the digitising of a "cookie cutter" string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	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).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at Otto Bore is predominantly confined to sheared basalts. The definition of mineralised zones is based on a good level of geological understanding producing a robust model of mineralised domains. Successive drilling campaigns by the previous owners and recently Northern Star Resources, have confirmed the current interpretation used in this resource model. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	At the completion of every resource estimate Northern Star Resources Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous and budget models. Geological interpretation, wire-framing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and Kriging Neighbourhood Analysis and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams. It meets high industry standards. An external review by CSA Global was done in 2019 on the Otto Bore resource estimate, and no fatal flaws were identified.
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 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 resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.
	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 statements relate to a global estimate of tonnes and grade.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There have been no mining activities at Otto Bore.

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.	The Mineral Resource estimate for the Otto Bore deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of February 2021 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person has conducted several site visits to the Otto Bore open pit operation since the inclusion in Thunderbox operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Otto Bore deposit is located close proximity to Thunderbox operations, which operates open pit, underground mine and 2.9mt processing facility. Northern Star has completed relevant feasibility study with a view to bring Otto Bore open pit into operation and has positively passed through all economic and social risk management criteria. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, modifying factors, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been used from actual and ongoing mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Otto Bore Reserve.
	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.	Mining method to be employed at Otto Bore deposit is conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operations. That way it provides good operating dataset for production and productivity rate measurement and financial modelling. Otto Bore Reserve pit is designed as single large pit mine from the natural surface to achieve life of mine Reserve such that it meets the operation efficiency, safety and production rate. Appropriate mine schedule and lead time have been applied to maintain effective operation delay and production rate.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Life of mine Reserve pit has been designed following appropriate geotechnical recommendation. The geotechnical guidelines were prepared by site geotechnical team by reviewing geotechnical drill holes results and conducting further assessment on wall stability performance and long-term stability aspects. It is expected that once the pit is in operation there may be some need for additional geotechnical input and reflect any changes to into life of mine pit design. The geotechnical team will oversee all geotechnical aspect of technical study and provide ongoing site support. The Grade control method to be employed at Otto Bore will use RC drilling and sampling method. The method and practice have been utilised successfully at all current and past mining operations at Saracen.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	To determine dilution the MSO method was implement. The model was then created using the mineable MSO shapes with the element of minimum mining width and mineralisation width to determine planned and unplanned dilution. The final estimated mining dilution is approximately ~15%.
	The mining recovery factors used.	A mining ore loss factor of 5% is estimated using the MSO method. The resultant estimation reflects the mining performance based in ore body characteristic, mining method and equipment utilised.
	Any minimum mining widths used.	A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across all open pit operations and reflects the suitability and efficiency of the mining performance.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the deposit is close to operating Thunderbox operations, which consists of open pit, underground and 2.9mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Thunderbox processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current Thunderbox processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 95% for deposits around Thunderbox operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Otto Bore deposit is estimated at 94%. The recovery estimation is based on met test work and ongoing long term actual average recovery data collected at Thunderbox Plant. Metallurgical test work has been carried out on samples from the Otto Bore deposit by processing and test lab, with suggested recoveries could go as high as 97% hence the estimated recovery is in line with expectation.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Otto Bore ore.
	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.	Number of samples of each expected rock type has been sampled through the Thunderbox processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Otto Bore ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	All required Environment studies have been completed and relevant vegetation clearance, dewatering permit has been granted. The Mining Proposal has been approved, however it will be revised and resubmitted to accommodate extension of the new reserve pit. The Otto Bore mine is located ~15km from Thunderbox operation and connected to the processing plant via combination of Goldfields Highway and site internal access haul road. The Otto Bore operation will utilise the existing Thunderbox processing facility, and TSF storage facilities that are all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip at Thunderbox are all on granted miscellaneous licences. Waste rock characteristic study has been carried out is expected to be representative of overall waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future waste landform expansion.
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.	The Otto Bore operation will require minimum infrastructure given close proximity to well established and maintained Thunderbox operation. The ore will be transported to Thunderbox processing plant via internal haul road. The processing facility and major infrastructure are fully operational at Thunderbox. A modern accommodation camp is located within a few kilometres of the pit, and a well maintained gravel airstrip services the camp. The mine site is connected to Goldfields highway and the Gas Transmission Line and runs on dual fuel (diesel/gas) power generator.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the establishment, mobilisation and pre striping of the pit is included in the financial modelling. A haul road will need to be upgraded at the commencement of operation to facilitate better connectivity to Thunderbox operation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual mining costs for Thunderbox Operations and costs supplied by various contract mining companies, and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Thunderbox Operations.
	Allowances made for the content of deleterious elements.	Met test work carried out for Otto Bore material did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Thunderbox operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Thunderbox operation.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5% is payable. Applicable third party royalty of 2% of net smelter return after first 20,000 oz.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Both Otto Bore and Thunderbox mine/processing plant is located on lease-hold pastoral land with regular community engagement and communication of the mining lease and operation. Compensation agreements are in place with the local pastoralist and Northern Star is having a good relationship with neighbouring stakeholders, including local pastoralists and the traditional owners. Aboriginal heritage surveys have been conducted and the operation has avoided the impact area within mining lease. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	N/A
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and will be addressed at the commencement of the operation by constructing appropriate water diversion bunds to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	A Royalty of 2.5% of gold production is payable to WA State Government and a Third Party Royalty 2% of net smelter return after first 20,000 ounces is applicable.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	All required Environment studies have been completed and relevant vegetation clearance, dewatering permit has been granted. The Mining Proposal has been approved, however it will be revised and resubmitted to accommodate extension of the new reserve pit.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification for Otto Bore has been in accordance with the JORC code 2012. Ore Reserve Estimate is classified as being Probable has been derived from the Mineral Resource classified as Indicated only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors are applied to the pit optimisation and subsequent designs were derived from current operational data relating to Thunderbox operations and supplied by contract mining companies and independent consultants. Results of these optimisations, reserve pit design and the resultant inventory reflect the Competent Person's view regarding the Otto Bore deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve Estimate has been derived from Indicated ore of the Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. All of the parameters assumed and adopted in the financial analysis have been based on current and past Thunderbox operations mining performance. The Otto Bore operation will use the same grade control methods that are widely utilised at other Northern star open pit operations.
	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.	As above
	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.	As above
	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.	As above

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Wonder – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Northern Star Resources has completed reverse circulation drilling (RC) and diamond (DD) drilling at Wonder. Sampling methods undertaken at Wonder by previous owners have included rotary air blast (RAB), (RC), and diamond drillholes (DD). Limited historical data has been provided by previous owners.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for RC and DD drilling is carried out as specified within Northern Star Resources sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling are assumed to have been completed by previous holders to industry standard at that time (1992- 2019).
	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.	RC Chips are cone split and sampled into 1m intervals with total sample weights under 3kg to ensure total sample inclusion at the pulverisation stage. Diamond core is NQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star Resources core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS. All RAB, RC and DD and sampling is assumed to have been carried out to industry standard at that time. The majority of recent drillholes have been riffle or cone split to provide 1m samples for analysis. Older drillholes have been sampled via spear sampling or unknown methods. Analysis methods include fire assay and unknown methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Historic drilling included 1335 RAB holes, 772 RC holes (assumed standard 5 ¼" face sampling hammer bit) 62 RC collar/diamond tail holes, 1228 grade control drillholes and 21 NQ and unknown diameter diamond drillholes. In the period since the previous resource estimate release Northern Star Resources completed 42 diamond holes and 8 RC drillholes at Wonder North. The RC rig was equipped with an external auxiliary booster utilizing a 5.5-inch diameter RC hammer. Diamond drilling was orientated using a Reflex ACT 3 orientation unit. It is unknown if historic diamond drill core was oriented.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for RC drilling are recorded as a percentage based on a visual weight estimate. Historic recoveries have not been recorded
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and DD core has recorded lithology, mineralogy, texture and colour, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference. Some historic diamond drilling has been geotechnically logged to provide data for geotechnical studies.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core has been photographed in both dry and wet state. It is unknown if historic diamond core was photographed.
	The total length and percentage of the relevant intersections logged.	All drillholes completed by Northern Star Resources have been logged in full.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	The sampling method for historic drill core is half or quarter core sampled, with some remaining unknown
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	All RC samples are cone split. Occasional wet samples are encountered.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	The sampling methods for the historic RAB and RC drilling include cone split, riffle split, spear and grab sampling as well as some unknown methods
	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.	The sample preparation of RC chips and DD core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sampling techniques for historic RAB, RC and DD drilling are unknown, best practice is assumed.
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.	RC chip and diamond core samples are analysed by an external laboratory using a 40g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method.
	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.	Methods for historic RC, RAB and DD drilling included fire assay, aqua regia and unknown methods.
	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 material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for RC and DD drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	No holes are twinned. Selected holes were drilled in close proximity to historic holes to replicate anomalous zones
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions.
	Discuss any adjustment to assay data.	Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star Resources AcQuire database
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.	Drillholes are located using a Trimble R10 GPS/GNSS with an accuracy of +/- 10mm horizontally and +/- 15mm vertically. Downhole surveys are carried out using a hired Reflex EZ-gyro by the respective drilling companies on a regular basis, between 10-30m.
	Specification of the grid system used.	Some historic drillholes were surveyed via Eastman or gyroscopically surveyed and many survey methods remain unknown.
	Quality and adequacy of topographic control.	MGA Zone 51 grid coordinate system is used
Data spacing and distribution	Data spacing for reporting of Exploration Results.	40x40 is the nominal spacing for drilling
	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 drilling is distributed and spaced such that geological and grade continuity can be established to estimate the mineral resource and ore reserve appropriately. The mineralisation is continuous over 1500m strike length, therefore the 40m x 40m exploration drill spacing effectively defines the continuity.
	Whether sample compositing has been applied.	RC pre-collars were composited into 4m zones with anomalous areas resampled into 1m samples

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Some historic RAB and RC drilling was sampled with 3-4m composite samples. Anomalous zones were resampled at 1m intervals in some cases; it is unknown at what threshold this occurred.
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.	Drillholes are drilled perpendicular to the shear zone and hence intersects dominant structures within the deposit type.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star Resources geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Sample submissions are documented via laboratory tracking systems and assays are returned via email

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Wonder resources are located on M37/513 held by SR Mining Pty Ltd which is a wholly owned subsidiary of Northern Star Resources Mineral Holdings Limited. Mining Lease 37/513 has a 21 year life (held until 2042) and is renewable for a further 21 years on a continuing basis. The tenement lies within the Darlot Native Title Claim area.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is subject to one third party royalty and one caveat (118H/067). All production is subject to a Western Australian State Government NSR royalty of 2.5%.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Bundarra Project area has been subject to over a century of small-scale mining and gold prospecting, much of which has no record. Modern gold exploration first started in the mid-1990's with Mt Edon Gold Mines conducting systematic exploration over the area which resulted in definition of the Wonder prospect. Pacmin Mining Corporation Ltd held the project between 1996 and 2000 and completed resource drilling and modelling. Sons of Gwalia purchased Pacmin Mining in 2000, acquiring access to Wonder in the sale. Following further resource drilling, Sons of Gwalia started mining activities at Wonder from 2002 to 2003 before the company become insolvent in 2004. St Barbara acquired Wonder as part of a larger project purchase, eventually selling the project to Terrain Minerals in 2006. Between 2006 and 2011, Terrain Minerals conducted additional resource drilling, modelling and detailed scoping studies for both open pit and underground mining. In 2011 the project was sold to SR Mining. In 2012, Blight Resources acquired 33.5% stake in SR Mining which included exploration rights at Wonder. Between 2012 and 2019, Bligh Resource undertook further resource drilling and modelling, but no mining activities occurred. Northern Star Resources Ltd purchased the project in 2019. Overall, historic exploration has defined the geological controls on mineralisation and extent of the gold system at Wonder.
Geology	Deposit type, geological setting and style of mineralisation.	Bundarra is located in the Murrin Domain of the Kurnalpi Terrain. The geology is characterised by large volumes of tonalites and granodiorite with assimilated rafts of mafic xenoliths from the greenstone in which the tonalite laccolith intruded. The Bundarra tonalities have been intruded by a number of Andesites, Lamprophyres and fractionated intrusions such as "mafic granites". Cutting across the tonalites is the NW trending Wonder Shear which dips steeply to the NE. It controls the main mineralised packages that stretches 1500m. Quartz veining with chlorite + sericite alteration is closely associated with mineralisation. Geological and structural evidence suggests an overall southerly plunge to the mineralisation, which is indicative of the regional geology.
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 total of 1687 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all the holes here in this release. Future drill hole data will be periodically released or when a result materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	All significant intercepts have been length weighted with a minimum Au grade of 0.5ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	This announcement includes sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible.
	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').	All results are reported as downhole lengths.
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.	All significant exploration results released by Northern Star Resources are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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 substantive exploration data has been obtained
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).	Northern Star Resources is currently planning follow-up drilling programs to test the extension of intersected mineralisation at depth as well as the Golden Wonder prospect to the SE of the Wonder North project area.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	NA

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.	The historic data was provided to Northern Star Resources in a series of excel files for most of the historic database, the process used to record the primary data is unknown. All data collected and drilled by Northern Star Resources is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. The rigor of the database is such that transcription or keying errors are identified and amended prior to loading and storage. Typical collection methods are manual capture, and translation of logging and other data into tough books (digital format) and subsequent import of csv tables through an automated data import scheme where data is validated upon import into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the AcQuire 4 SQL data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. Validation of data includes visual checks of hole traces, analytical and geological data.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		IMAGO photogrammetry of all drill hole logs and RC chips are also used to further validate the geological logging, whereby high-resolution photographs of holes can be compared to each other and known geological codes to ensure consistency and accuracy. It is unknown at this stage how the predecessors' database was managed and who was responsible for its maintenance. It is also unknown if there was any built-in functionality around pass/fail checks on assay importing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person has undertaken several site visits to Wonder since Northern Star Resources acquired the project in 2019. Historical drill core as well as recent drill core was inspected during the visits. Historic and current geological data, such as mapping and modelling, were reviewed and scrutinised
	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.	Previous owners, Bligh Resources, initially influenced the interpretation of Wonder. Northern Star Resources has since reviewed and scrutinised the available data that includes, geophysical and geological regional interpretations, regional to local and pit mapping, interpreted structures over aeromagnetic data, logging that was converted into Northern Star Resources codes and familiarisation with the local host and waste rock types from rock boards and pit reconnaissance. The historic Grade Control data, which was previously omitted from the interpretation, was used to provide local/small scaled detail which was insightful for mineralisation trends in the hangingwall and footwall positions of the main Wonder Shear. In addition, since acquisition, Northern Star Resources has drilled twenty-two complete diamond holes, 20RCDD holes, (all diamond is oriented), and 30RC holes into Wonder North allowing greater clarity on the local geology, which broadly matched the previous interpretation. All interpretations and estimations have been completed in an MGA grid.
	Nature of the data used and of any assumptions made.	It was assumed, however validated within Acquire and checked against original data where available, that the historic data was the best available data and the collar and survey positions were accurate. Where possible historic collar positions were resurveyed in the field and compared to the database data. The interpretations have been constructed for Wonder North using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, veining, structure, mineral assemblages and alteration. Pit mapping and cross-sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solids are built in leapfrog. The interpretations have been constructed for Wonder West using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, veining, structure, mineral assemblages and alteration. These, along with historic interpretations, were used in the Leapfrog domain modelling.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Due to a well-understood geological and structural setting, there are no alternative interpretations on the Mineral Resource estimation. The holes drilled by Northern Star Resources have confirmed the global geological understanding, with local changes reflecting the improved knowledge with increased drill density and oriented diamond core.
	The use of geology in guiding and controlling Mineral Resource estimation.	Structural controls and relationships define the geological framework on which the mineralised domains are modelled. The NW trending, steeply NE dipping Wonder Shear, controls the main mineralised packages that stretch from Wonder North to Wonder West, (the names of these deposits are historic and are not indicative of their location), within a regional tonalite/diorite laccolith. Geological and structural evidence suggests a southerly plunge to the mineralisation, which is controlled by the cross-cutting lamprophyres and andesites. The main lodes make up 91% of the resource estimate.
	The factors affecting continuity both of grade and geology.	Situated in the hanging wall and footwall are discrete subsidiary mineralised domains that dip moderately to the NE and have a short strike range (<30m). These features are observed in the Wonder North pit. Using the observed orientations and widths, numeric modelling within Leapfrog, defines these domains which only make up 1% of the total resource.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The Wonder mineralisation extends from 6863110mN to 6864350mN, and 320850mE to 322500mE and from 500mRL to -100mRL below surface. The mineralisation has a strike length of 1.4km and up to 0.5km down dip extent at Wonder North. Planned widths vary locally from 1m up to 45m, but predominantly 5-20m.
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 wireframes are constructed in Leapfrog, which are used as hard boundaries for the estimations. Datamine is used for the estimation of the Wonder resource. The domains were extrapolated 50m beyond the last data point and controlled by the resource classifications. Block estimation used a combination of ordinary kriging (OK) and categorical indicator kriging (CIK). CIK estimation is used to define high and low grade subdomains within the main lodes, where drill density is 5mX10m, and up to 40mX40m. To ensure good emulation of the gold trends, dynamic anisotropy is used in the formation of the subdomains. Where geologically plausible, internal high-grade subdomains are preferably domained with hard boundaries. The method of estimating subdomains using CIK is more reliable where geological continuity is tenuous. The variography and search parameters honour the southerly plunge of the mineralisation. Grade is estimated into parent blocks, meaning all the sub-cells within a parent cell assumed the grade of the parent cell. Univariate statistical analysis of length weighted (1m) domain coded downhole composites has been completed for all domains and top cuts applied where applicable. Extreme grades are not common in the data set and all domains have been analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Variogram modelling was completed with Snowden's Supervisor software. This measures the spatial variance of the gold grade within the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Previous estimates were performed by CSA global on the behalf of Bligh Resources. These were informally compared to the FY20 Northern Star Resources estimate, (similar footprint), which came in 10% under in tonnes and 20% under in ounces. Additional 'Northern Star Resources" drill results, a change in top cuts, sub-domaining, a change in variography and search parameters, and a change in resource categories meant comparisons were subjective. Historical mining records indicated minor issues with local grade reconciliation however no final reconciled values of the ore material from Wonder North and Wonder West were available.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 10m(X) by 10m(Y) by 5m (Z). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 40m x 40m. Parent blocks have been sub-celled to 1m(X) by 1m(Y) by 1m(Y) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Volume checks were performed with changes <1% between the wireframe volume and block model volume. Search ranges have been derived from the variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. A kriging neighbourhood analysis study conducted ensured that the block size and the search volume used in the resource estimate are optimal after considering all the relevant factors (i.e., drill spacing, geometry and dimensions of mineralisation).
	Any assumptions behind modelling of selective mining units.	A block size of 10 x 10 x 5 m is used in the estimation of grade and is currently deemed appropriate as a Selective Mining Unit (SMU) for future mining activities at Wonder.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables. Gold is the only mineral of economic significance at Wonder at this stage.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation, particularly the structural deformation and associated alteration, and quartz veining, correlates with the mineralised domains. The apparent southerly plunge of the ore shoots is captured by the variograms direction of maximum continuity. Search ellipses are aligned to that direction and affect both the CIK sub-domaining and the grade estimation. Observed geological features from pit mapping were also used to define the orientation of the discrete subsidiary lodes.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlights that there are very few grades in the domain populations that require top-cutting. Top-cuts have been employed to eliminate the risk of overestimating in the local areas where a few high-grade samples exist.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to compare the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Across Strike (45 degrees), Northing, Easting and Elevation swathe plots have been constructed to evaluate the composited (declustered) assay means against the mean block estimates. The averaged means by domain were also compared for a global comparison. Global Change of support plots were also used to validate the estimate against the declustered composites. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star Resources' current economic operations at Thunderbox, and the natural grade distinction above background, a grade of 0.5g/t has been chosen for open pit operations and 1.2g/t for underground operations.
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	The Wonder deposit is amenable to mining by both open pit and underground methods. Currently there is no mining activities, however Wonder North has the potential to be extracted by both open cut and underground methods. The details of those methods are still in discussion.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	To best capture "reasonable prospects of eventual economic extraction", the mineral resource is reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources, and for the underground resource, within MSO underground shells generated at a 1.2g/t cut off.
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.	Upcoming are a number of planned diamond holes that will be used to assess the metallurgical amenability. Historic reports indicate there was no issue with metallurgy. It is expected that any future mining of the Wonder deposit will be processed at the Thunderbox processing facility which is currently processing ore from the Thunderbox Open Pit. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill has operated successfully displaying excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine.
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.	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high-rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is affected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tail's hopper.
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.	Dry bulk density values extrapolated from the CSA resource global report were validated and confirmed against the dry bulk density samples collected by Northern Star Resources during the diamond drill programs. The average of these values was applied to geology and regolith profile.
	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.	The methods used for measuring the historic dry bulk densities are unknown. Given the reconciliation of the historic values with those, collected by Northern Star Resources it is assumed that the historic bulk density values are accurate. Historic mining reports indicated that there were no issues with reconciling tonnes. Northern Star Resources routinely dries samples and weathered porous or clay rich samples are coated in paraffin wax prior to the collection of dry bulk density measurements using the water displacement method.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities has been uniformly applied to the modelled regolith profiles.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the digitising of a "cookie cutter" string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the estimated tonnes and grade in the model is reflected by the resource categories and is supported by the rigorous validation process undertaken by Northern Star Resources. Recent drilling activity conducted by Northern Star Resources confirms the current interpretation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star Resources has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. Entech conducted an external audit of the Wonder Resource in early 2021, and it found no fatal flaws with the QAQC, geostatistics, estimation and estimate methodology and categorisation.
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 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 resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.
	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 statements relate to a global estimate of tonnes and grade
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	NA

APPENDIX C: TABLE 1

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.	The Mineral Resource estimate for the Wonder deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of September 2021 survey pickup for Reserve Estimation. No Mining activities have occurred at Wonder since this depletion (as of 04/04/22).
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person has conducted several site visits to the Wonder open pit operation since the inclusion in Thunderbox operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Wonder deposit is located close proximity to Thunderbox operations, which operates open pit, underground mines and 2.9mt processing facility. <u>Open Pit</u> Northern Star has completed relevant feasibility study with a view to bring Wonder open pit into operation and has positively passed through all economic and social risk management criteria. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, modifying factors, operating costs of mining, processing, general administration and environment management related costs. Underground The 2022 Ore Reserve is based on a pre-feasibility level study completed by Northern Star. It includes a detailed mine design, various capital and operating inputs, costs of mining, surface haulage, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been used from actual and ongoing mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	<u>Open Pit</u> The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate. <u>Underground</u> For the purpose of Ore Reserve Estimate a planning cut-off grade of 1.48g/t was calculated based upon an assumed gold price of AUD$1,750/Oz and applicable processing, haulage and administration costs. A spatial economic assessment of each mining block was also completed to ensure all costs required to extract that mining block a covered by the revenue generated. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
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).	<u>Open Pit</u> The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Wonder Reserve. <u>Underground</u> The Wonder underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for Ore loss due to mining recovery and unplanned dilution have been applied to the economic analysis of the design to generate the ore reserve.
	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.	<u>Open Pit</u> Mining method to be employed at Wonder deposit is conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operations. That way it provides good operating dataset for production and productivity rate measurement and financial modelling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Wonder Reserve pit is designed as successive cutback to the previously mined pits. The cutback will be mined as potential large pit to achieve life of mine Reserve such that it meets the operation efficiency, safety and production rate. Appropriate mine schedule and lead time have been applied to maintain effective operation delay and production rate. Underground Underground mechanised mining for development, ground support, and production stoping is planned to be used at Wonder. Mining and geotechnical studies determined the preferred mining method be long hole open stoping with remnant in-situ pillars to be appropriate for the deposit. This method has been used at other operations in Western Australia with a similar geometry to Wonder.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Open Pit Life of mine Reserve pit has been designed following appropriate geotechnical recommendation. The geotechnical guidelines were prepared by site geotechnical team by reviewing geotechnical drill holes results and conducting further assessment on wall stability performance and long-term stability aspects. It is expected that once the pit is in operation there may be some need for additional geotechnical input and reflect any changes to into life of mine pit design. The geotechnical team will oversee all geotechnical aspect of technical study and provide ongoing site support. The Grade control method to be employed at Wonder will use RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Saracen. Underground The Northern Star Geotechnical team have reviewed the deposit. Recommendations regarding mine design and production mining methods have been incorporated within the mine design. In-situ pillars have been incorporated into the mine design (accounted for with recovery factors) to control hangingwall stability and prevent unplanned dilution. A grade control program with associated grade control drilling designs, and sampling costs have been included in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised. The resource model used for the ore reserve calculations was 211001_WN_CIK2_MINE.
	The mining dilution factors used.	Open Pit To determine dilution the MSO method was implemented. The model was then created using the mineable MSO shapes with the element of minimum mining width and mineralisation width to determine planned and unplanned dilution. The final estimated mining dilution is approximately ~15%. Underground An allowance for mining dilution was incorporated into the mine design. An additional unplanned dilution factor of 15-20% has been assumed for all stopes as all planned dilution has been accounted for in the stope design shape.
	The mining recovery factors used.	Open Pit A mining ore loss factor of 5% is estimated using the MSO method. The resultant estimation reflects the mining performance based in ore body characteristic, mining method and equipment utilised. Underground A mining recovery factor of 95% has been assumed for all stopes (post pillar removal), while a mining recovery factor of 100% has been assumed for all development activities.
	Any minimum mining widths used.	Open Pit A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across all open pit operations and reflects the suitability and efficiency of the mining performance. Underground A minimum stope width of 3.0m was adopted in the design process.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Open Pit

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources. Underground A minor amount (<1.5% of tonnes) of inferred resources are contained within underground mine design, in stopes and development at the periphery of the indicated resource category material. This material contributes a minor amount of metal (<1.5% of ounces) within the design. Therefore, the reserve has a minor sensitivity to the inclusion of inferred resources.
	The infrastructure requirements of the selected mining methods.	Open Pit The selected mining method and location of the deposit is close to operating Thunderbox operations, which consists of open pit, underground and 2.9mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan. Underground Standard underground infrastructure has been included and will be developed as part of the mine design, including a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate these methods of mining.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Thunderbox processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current Thunderbox processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 95% for deposits around Thunderbox operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Wonder deposit is estimated at 94%. The recovery estimation is based on met test work and ongoing long term actual average recovery data collected at Thunderbox Plant. Metallurgical test work has been carried out on samples from the Wonder deposit by processing and test lab and indicates the estimated recovery is in line with expectation.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Wonder ore.
	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.	Number of samples of each expected rock type has been sampled through the Thunderbox processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Wonder ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	All required Environment studies have been completed and relevant vegetation clearance, dewatering permit has been granted. The Mining Proposal will be submitted to accommodate extension of the new reserve pit at later stage. The Wonder mine is located ~30km from Thunderbox operation and connected to the processing plant via Goldfields Highway and site internal access haul road. The Wonder operation will utilise the existing Thunderbox processing facility, and TSF storage facilities that are all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip at Thunderbox are all on granted miscellaneous licences. Waste rock characteristic study has been carried out is expected to be representative of overall waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future waste landform expansion.
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.	The Wonder operation will require minimum infrastructure given close proximity to well established and maintained Thunderbox operation. The ore will be transported to Thunderbox processing plant via haul road. The processing facility and major infrastructure are fully operational at Thunderbox. A modern accommodation camp is located within a few kilometres of the pit, and a well maintained gravel airstrip services the camp. The mine site is connected to Goldfields highway and the Gas Transmission Line and runs on dual fuel (diesel/gas) power generator.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Open Pit Capital costs relating to the establishment, mobilisation and pre striping of the pit is included in the financial modelling. A minor haul road will need to be upgraded at the commencement of operation to facilitate better connectivity to Thunderbox operation. Underground

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Capital costs relate to establishment of capital infra-structure and continuing expansion of capital works for Wonder underground. The cost estimates are based on historical costs for similar work undertaken at Northern Star for the establishment and operation of the Deep South, Karari, Whirling Dervish, Ramone, Porphyry underground mines.
	The methodology used to estimate operating costs.	Open Pit Operating costs for open pit mining have been derived from a combination of actual mining costs for Thunderbox Operations and costs supplied by various contract mining companies, and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Thunderbox Operations. Underground Operating costs for underground mining have been derived from a combination of actual costs from Thunderbox Operations and current mining costs from similar sized operations within the Northern Star group. Operating costs for ore processing have been derived from known parameters at Thunderbox, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements.	Met test work carried out for Wonder material did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Thunderbox operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Thunderbox operation.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5% is payable. Third party royalty of 1.5% is applicable.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Both Wonder and Thunderbox mine/processing plant is located on lease-hold pastoral land with regular community engagement and communication of the mining lease and operation. Compensation agreements are in place with the local pastoralist and Northern Star is having a good relationship with neighbouring stakeholders, including local pastoralists and the traditional owners. Granted mining leases cover all of the proposed mining and processing assets.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	N/A
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and will be addressed at the commencement of the operation by constructing appropriate water diversion bunds to provide safe and risk-free work environment. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Thunderbox Operations. A mining contract will be tendered for Wonder underground prior to the commencement of mining for the UG reserve.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	All required Environment studies have been completed and relevant applications are currently being processed. The Mining Proposal will be submitted to accommodate extension of the new reserve pit at later stage.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification for Wonder has been in accordance with the JORC code 2012. Ore Reserve Estimate is classified as being Probable has been derived from the Mineral Resource classified as Indicated only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the open pit and underground project were derived from a combination of historical site data, current operational data relating to Thunderbox Operations, mining costs supplied by independent mining contractors, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Wonder deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve Estimate has been derived from Indicated ore of the Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. All of the parameters assumed and adopted in the financial analysis have been based on current and past Thunderbox operations mining performance and also mining performance within the Northern star group. The Wonder operation will use the same grade control methods that are widely utilised at other Northern star open pit operations.
	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.	As above
	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.	As above
	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.	As above

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

North Well – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken at North Well by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Northern Star has completed DD drilling at the prospect
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard Historic RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1992- 2010).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond core is NQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star core and samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS Limited information has been found or supplied so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time. More recent sampling carried out by Norilsk has involved the use of 4m composite or 1m re-split samples from which a 40g charge was produced for fire assay and aqua regia digest.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Drilling activities at North Well have included 818 RAB holes, 785 RC holes (assumed standard 5 ¼ '' bit size) and 25 DD holes (HQ, NQ, and unknown diameter, some with RC pre-collars). Limited historic diamond core hole was oriented by unknown methods. Northern Star has completed 8 NQ diameter DD holes, oriented via an ACT III tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown historic recoveries were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. It is unknown what, if any, measures were taken to ensure sample recovery and representivity in historical drilling.
	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.	Any historical relationship is not known.
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.	Logging of diamond drill core, RAB and RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some historic diamond drilling has been geotechnically logged.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	It is unknown if any historic diamond core was photographed, all core drilled by Northern Star was photographed in both dry and wet state
	The total length and percentage of the relevant intersections logged.	All diamond drillholes have been logged in full. The majority of historic drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond drilling was half core sampled. Some historic core was half core or quarter core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	The sampling methods for RC and RAB drilling carried out in the 1990s are unknown More recent RC drilling has been riffle or cyclone split, or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. The sampling techniques for much of the historic RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory Best practice is assumed at the time of historic RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic RAB, RC and DD drilling. Limited field duplicate samples were carried out in more recent RC drilling programs.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled. Some recent campaigns included sizing analysis (90% passing 75 microns) to ensure this.
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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
	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.	It is unknown if any instruments of this nature have been used at North Well.
	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.	QAQC information from North Well sampling data is limited therefore all drilling is assumed to have been carried out to industry standard. There is evidence of standards being routinely included in more recent drilling (from 2006 onward) along with limited duplicate sampling. Laboratory repeats were recorded and analysed.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database
	Discuss any adjustment to assay data.	No adjustment to assay data has been made
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.	The survey quality and control is unknown for the majority of historic drilling. More recent drilling has collar locations surveyed by unknown GPS and DGPS equipment. Downhole survey methods recorded include Eastman single and multishot, gyro, inferred and unknown methods.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	No detail of topographic control was supplied or found.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	No exploration results reported in this release. The nominal drillhole spacing is 25 m (northing) by 25 m (easting) in the core of the deposit and increases to the margins of the deposit.
	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 mineralised domains at North Well have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and Reserves, and the classifications applied under the 2012 JORC Code.
	Whether sample compositing has been applied.	Historic 1990s RAB and RC drilling was generally sampled on 3 - 4m composites with significant gold results being resampled in 1m intervals Some more recent RC pre-collar drilling was composited into 6m samples with areas of interest resampled to 1m.
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 deposit is drilled towards grid west at angles varying from -60^0 and -90^0 to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. No orientation based sampling bias has been identified at North Well in the data at this point.
Sample security	The measures taken to ensure sample security.	Information on sample security measures has not been provided

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No evidence of external reviews has been supplied.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The North Well resource is located on M37/358, M37/359 and M37/465. The tenements are held by Northern Star (Thunderbox) Pty Ltd, a wholly owned subsidiary of Northern Star Resources Ltd. The mining leases have a 21 year life: Mining Lease M37/465 is held until 2036 and Mining Leases M37/358, and M37/359 are held until 2034. All are renewable for a further 21 years on a continuing basis. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M37/358 and M37/359 are subject to a royalty of $25.00 per ounce of gold produced from the tenements over 33,000 ounces and up to 73,000 ounces and of $1.00 per ounce of gold produced over 73,000 ounces payable to Dominion Gold Operations Pty Ltd. Mining Lease M37/465 is subject to a royalty payable to Forsyth NL calculated as a percentage of the Ore Value for ore processed each quarter. The Ore Value is calculated by reference to the Ore Grace and the Average Gold Price for the quarter. For ore processed with an Ore Grade greater than 1.5 g/tonne the royalty is 4% of the Ore Value and less than 1.5g/tonne, the royalty is 2.5% of the Ore Value. The tenements are all subject to a 1.5% royalty on all minerals which are capable of being sold or otherwise disposed of, multiplied by the Net Smelter Return, capped at $17 million, payable to Norilsk Nickel Wildara Pty Ltd. M37/465 is subject to one consent caveat related to RG Royalties, LLC (513930). A single Aboriginal Heritage site exists within M37/340 The tenements lie within the Darlot Native Title Claim area.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediment exists to obtaining a licence to operate and the tenements are all in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Gold was discovered in the area in the late 1800s with intermittent working of the nearby Bannockburn deposit until the 1950s. Modern exploration began in the late 1970s with initial exploration targeting nickel sulphides before gold exploration began in 1979. Exploration activities by numerous companies including Freeport of Australia, Kulim Limited and Arboyne took place until Dominion purchased the project. Soil sampling and RAB drilling highlighted the North Well anomaly followed by an extensive RC campaign to delineate the resource. Mining at North Well began in 1995 and continued after the project was sold to Australian Goldfields. DD and RC drilling continued in and around the deposit along with surface sampling and various geophysical surveys in an effort to extend mineralisation and define new targets. AGF were placed under administration and mining ceased in 1998 upon the exhaustion of the mine reserves. Arrow Resources Management acquired the project and sold it to Breakaway Resources who carried out minor RAB drilling in the area. LionOre acquired the ground from Breakaway and completed resource extension and near mine exploration RC drilling. Norilsk acquired the project and carried out further drilling as well as a MILTEM survey over the North Well area, highlighting several areas of interest.
Geology	Deposit type, geological setting and style of mineralisation.	The North Well deposit is located on the central portion of the Archaean Norseman- Wiluna greenstone belt. Mafic to ultramafic intrusive and extrusive rocks, with intercalated sedimentary horizons dominate the greenstone stratigraphy. There are some felsic rocks to intermediate volcanic rocks and their derivatives. The greenstone sequences, confined to the west by basement (pre-tectonic) granitoid, gneiss, smaller syntectonic granitoid stocks, and batholiths, generally occupy the core of anticlinal domes. Some basement rocks partially invade the greenstone stratigraphy. Stratigraphy dips are relatively modest throughout the majority of the project, but steepen considerably towards more vertical, major tectonic structures. The mineralisation at North Well is confined to the Bannockburn Shear Zone ("BSZ"). The BSZ is a concave structure that has a strike length of approximately 30km, strikes roughly north south, and dips to the east. The BSZ is an approximately one kilometre wide zone of deformation that separates the basement granite/gneiss terrane to the west from greenstone terrane to the east. At North Well, the gold mineralisation is located approximately 400m from the main granite greenstone contact. Gold mineralisation is in east dipping basalts within a sequence of siltstones and acid volcaniclastics and occurs over a strike length of approximately 2600m and to a depth of 170m. Gold mineralisation is predominantly associated with quartz +/- sulphide filled shear structures. A strong S2/S3 lineation controls the mineralisation into a series of shallow (~25°) south plunging ore shoots that form en echelon zones along strike and down the dip of the shear zone. A series of east west late-stage faults (some with dolerite intrusions) crosscut the mineralisation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	A total of 515 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are reported in this release.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Northern Star has not previously reported exploration results nor are any included in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No diagrams are referenced in this release.
	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').	Northern Star has not previously reported exploration results nor are any included in this release.
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.	A number of geophysical surveys have been completed and interpreted including regional aeromagnetics, radiometrics, SAM (sub-audio magnetics) and MLTEM (Moving loop electromagnetics) in an effort to highlight potential target areas.
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.	Northern Star is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the North Well mineral resource.
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.	Northern Star has not previously reported exploration results nor are any included in this release.
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).	No diagrams are referenced in this release.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Northern Star has not previously reported exploration results nor are any included in 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.	The database provided to Northern Star was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built-in functionality around pass/fail checks on assay importing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent person together with Northern Star's technical team has conducted numerous site visits with core inspections, pit visits and remapping exercises. All observations and data collection were used to improve and validate the geological knowledge and subsequent estimation.
	If no site visits have been undertaken indicate why this is the case.	n/a
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation has been based on the detailed geological work completed by previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The majority of the mineralisation is mainly confined to Bannockburn Shear Zone (BSZ) that passes through the deposit, with weaker mineralisation on the footwall and hanging wall lodes. Within the BSZ, mineralisation is hosted in east dipping basalts within a sequence of siltstones and acid volcanics and is associated with quartz+/- sulphide filled structures. A strong S2/S3 lineation controls the mineralisation into a series of shallow (~25 °) south plunging shoots that form en echelon zones along strike and down dip of the shear zone.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Interpreted cross cutting faults have been observed and have been used to guide disruptions in the position of the key mineralised domains. Surface mapping had been included in the interpretation. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The North Well deposit is generally sub-vertical in geometry, with clear boundaries which define the mineralised domains. Infill drilling has supported and refined the model and the current interpretation is thus considered to be robust. Over the life of the project, several different sources have interpreted the mineralisation and all agree on the same basic interpretation, given the bulk of the mineralisation is confined to the Bannockburn Shear Zone.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. Key features are sulphide content, associated with quartz structures.
	The factors affecting continuity both of grade and geology.	At the deposit scale the gold distribution is predominantly confined to the Bannockburn shear zone, with distinct south dipping (~25 °) higher grade shoots forming an en echelon pattern along the strike of the deposit. Mineralisation is mainly associated with quartz+/- sulphide filled structures. These factors have been addressed via the resource estimation process applied.
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.	North Well mineralisation extends from 6853875mN to 6856525mN, 291700mE to 292500mE and 250 meters below surface. The Bannockburn shear generally strikes north-south along the North Well deposit.
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.	Grade estimation using Ordinary Kriging (OK) was completed for North Well. Micromine software was used to estimate gold into10m x20m x5m size parent blocks. Drill grid spacing ranges from 25 m to 50 m. Drill hole sample data was flagged using domain codes generated from three-dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole length. Over 90% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and Coefficient of Variation (CV)). Top-cuts were reviewed and applied on a domain basis. Due to the flexures in the mineralised envelopes, the estimation process was guided by the Dynamic Anisotropy technique in Datamine Studio RM. This basically links the geometrical shape of the mineralisation wireframe to the search ellipse during the estimation process. Variography was conducted in Snowden's supervisor software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been compared with previous resource estimate done by the previous owner. The previous resource predicted more tonnes and lower grade for the total inventory resource. This resource estimate done by Northern Star predicts less tonnes at higher grades. This discrepancy can be explained by the 'loose' broad mineralisation envelopes used in conjunction with the Multiple Indicator kriging methodology in the previous estimate compared with Northern Star's mineralisation envelopes which were constructed using a nominal 0.5 g/t Au cut-off. Although there are previous mining activities at North Well, no historical mine production and mill reconciliation records were sighted that can be directly compared with this resource estimate.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Northern Star is unaware if any elements other than gold have been assayed. Arsenic may have been assayed; however, this data has not been made available.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for North Well was constructed using a 10 mE by 20 mN by 5 mRL parent block size with sub celling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell scale. Kriging neighbourhood analysis was carried out for North Well in order to optimise the block size, search distances and sample numbers used. Discretisation was set to 4 by 8 by 5 for all domains. The size of the search ellipse per domain was based on the gold variography. Three search passes were used for each domain. In general, the first pass used the ranges of the gold variogram and a minimum of 12 and maximum of 32 samples. In the second pass, the search ranges were unchanged and the minimum samples reduced to 8 samples. The third pass ellipse was extended to 2 times the range of the gold variograms and the minimum number of samples reduced to 4 and a maximum of 32 samples were applied. A maximum of 4 samples per hole were used. In the majority of domains, most blocks were estimated in the first pass (particularly for the main domains); however, some more sparsely sampled domains were predominantly estimated on the second or third pass. Un-estimated blocks, i.e., those outside the range of the third pass, were assigned the estimated domain mean and lower resource confidence classifications. Hard boundaries were applied between all estimation domains except for the major domain D_200_MN (at diesel) and F_100_MN (at Frosties) where a soft boundary was applied.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically, where the mineralised domain corresponds with the presence of sulphide filled quartz structures. Where well known the geological unit is described in the block model. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in each domain at North Well to generally have a low coefficient of variation, but it was noted that a very small number of estimation domains included outlier values that required top-cut values to be applied.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. Although there has been historical mining at North Well there has not been any historical data that has been verified to be directly linked to the North Well deposit. There have not been accurate mining records kept by a succession of previous owners of this deposit.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Thunderbox, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The North Well deposit is amenable to mining by open pit methods. The deposit has successfully been mined by open pit in the past prior to 2007. There are reasonable grounds to assume that in the future this deposit will again be mined by conventional open pit load and haul operations, particularly to the south of the current mined out pits at Diesel and Frosties. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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.	North well ore presents as a conventional free milling ore, for both oxide and deeper sulphide ore mineralogy. It indicates a high amenability for gravity recovery. It is expected to be processed with relative ease through the Thunderbox facility, with recoveries expected to land within 93 – 96% range.
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	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high-rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
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.	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Northern Star does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Northern Star at this time.
	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.	As stated above the frequency and distribution is unknown at this point in time. It has assumed from the very good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the digitising of a "cookie cutter" string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	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).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at North Well consists of a primary mineralisation is associated with sulphide filled quartz structures within the major BSZ (Bannockburn Shear Zone) regional structure. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted, as this deposit was recently acquired, Northern Star however intends have an external audit done prior to commencement of any mining activity.
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 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 resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No accurate records at of production data is available at North Well to say to a give a realistic comparison with this resource estimate

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Kailis – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Northern Star has completed reverse circulation drilling (RC) and diamond (DD) drilling at Kailis. Sampling methods undertaken at Kailis by previous owners have included rotary air blast (RAB), (RC), aircore (AC) and diamond drillholes (DD). Limited historical data has been provided by previous owners.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for RC and DD drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1980- 2008).
	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.	RC Chips are cone split and sampled into 1m intervals with total sample weights under 3kg to ensure total sample inclusion at the pulverisation stage. Diamond core is HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS. All RAB, RC, AC and DD and sampling is assumed to have been carried out to industry standard at that time. The majority of recent drillholes have been riffle or cone split to provide 1m samples for analysis. Older drillholes have been sampled via spear sampling or unknown methods. Analysis methods include aqua regia, fire assay and unknown methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit was initially sampled by 156 RAB holes. Further drilling included 51 RAB holes, 1186 RC holes (assumed standard 5 ¼" face sampling hammer bit) 220 AC holes and 54 HQ (mostly standard tube, a limited number were triple tube) and unknown diameter diamond drillholes. A number of these were diamond tails on existing RC drillholes. Northern Star has completed 5 diamond geotechnical holes and 190 RC drill holes, completed with a 5.5 inch diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary booster. 3278 grade control RC drillholes have been completed within the pit. Diamond drilling was HQ sized and orientated using an ACT 11 core orientation tool. It is unknown if historic diamond drill core was oriented.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for RC drilling are recorded as a percentage based on a visual weight estimate. In historical data it has been noted that recoveries were rarely less than 100% although recovery data has not been provided. Some problems were reported with wet samples from RC drilling. Core loss through the ore zone was reported occasionally however recoveries for diamond drilling programs were around 95%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and DD core has recorded lithology, mineralogy, texture and colour, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference. Some historic diamond drilling has been geotechnically logged to provide data for geotechnical studies.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core has been photographed in both dry and wet state. It is unknown if historic diamond core was photographed.
	The total length and percentage of the relevant intersections logged.	All drillholes completed by Northern Star have been logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. The sampling method for most historic drill core is unknown; a small amount is recorded as half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are cone split. Occasional wet samples are encountered. The sampling method for the majority of the historic RAB, AC and RC drilling is unknown: a small number have been recorded as spear sampled. Some wet sampling has been reported in historic drilling but only a small proportion of these had poor recoveries
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips and DD core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. The sampling techniques for historic RAB, RC, AC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Best practice is assumed at the time of historic RAB, DD, AC and RC sampling. Procedures adopted to ensure sample representivity for more recent drilling included sizing analysis, with an expected return of 85% passing 75um.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. It is unknown if duplicate sampling was performed on historic RAB, RC, AC and DD drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip and diamond core samples are analysed by an external laboratory using a 40g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Methods for historic RC, RAB, AC and DD drilling included fire assay, aqua regia and unknown methods.
	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 have been utilised at the Kailis project
	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 material (standards and blanks) with a wide range of values is inserted into every drillhole at a rate of 1:25 for RC and DD drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	A number of historic DDH holes were drilled to twin original RC holes and verify results.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Drillhole are located using a Trimble R8 GPS/GNSS with an accuracy of +/- 10mm. Downhole surveys are carried out using a hired Reflex EZ-gyro by the respective drilling companies on a regular basis, between 10-30m. Historic drilling was located using mine surveyors and standard survey equipment; more recent drilling has been surveyed using a Real Time Kinetic GPS system. The majority of downhole surveys for RC drilling were carried out using an Eastman single shot camera at regular intervals. Some drillholes were gyroscopically surveyed and some survey methods remain unknown.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used
	Quality and adequacy of topographic control.	DTM surveys were obtained for the project area from Tesla Airborne Geoscience
Data spacing and distribution	Data spacing for reporting of Exploration Results.	No exploration results reported in this release
	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.	Data spacing is nominally 20m N-S by 20m E-W and 20m N-S by 40m E-W in more sparsely drilled areas of the resource. 10m N-S x16m E-W to 5m N-S x8m E-W grade control drilling is staged over mined areas to establish continuity of the main lode.
	Whether sample compositing has been applied.	No samples have been composited. Some historic RAB and AC drilling was sampled with 3-4m composite samples. Anomalous zones were resampled at 1m intervals in some cases; it is unknown at what threshold this occurred.
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.	Sampling is perpendicular to the main mineralisation orientation and is well understood from past production.
	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.	There is no record of any sample bias that has been introduced because of the relationship between the orientation of the drilling and that of the mineralised structures. There is the possibility of the very high nugget and visual gold distribution introducing a local bias. This is factored into the modelling of domains and estimation with broader mineralised envelopes, top cuts and indicator estimation techniques.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Kailis pit and near mine exploration are located on M37/46, M37/219, M37/564, and M37/902 which are granted until 2027, 2031, 2041, and 2030 respectively. All mining leases have a 21 year life and are renewable for a further 21 years on a continuing basis. The tenements are 100% held by Northern Star (Thunderbox) Pty Ltd, a wholly owned subsidiary of Northern Star Resources Ltd The tenements are subject to a 1.5% International Royalty Corporation (IRC) royalty. The tenements are subject to an IRC caveat (68H/067, 87H/067, 122H/067, and 403551) and a St Barbara Limited caveat (498250, 498249, 498248, and 498251). All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements lie within the Darlot Native Title Claim area.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Lodged Aboriginal Heritage site 17587 (Kailis Project Quartz Site) is located on M37/46.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Mineralisation was discovered in the Kailis project area in the early 1980s after RAB drilling returned anomalous gold and arsenic values. Carr Boyd minerals intersected mineralisation with an initial RC program targeting these anomalies in 1982. Esso, City Resources and Sons of Gwalia all held the project at various times and carried out RAB, RC, AC and DDH programs delineating the resource. The deposit was mined in 2000-2001 by Sons of Gwalia. Mining was carried out by St Barbara at the nearby Trump deposit between 2008-2009.
Geology	Deposit type, geological setting and style of mineralisation.	Gold mineralisation at Kailis - Trump is hosted in quartz-sericite schist within a broad east-west trending, shallow to moderately dipping (40-50 degrees SSE) shear zone with a strike length in excess of 1800m. Mineralised intervals are often narrow (1-3m) but thicken to 8-20m in places. The shear zone encapsulates a high nugget mineralisation style with common occurrences of visual gold. Structural studies identified narrow sub vertical NE-SW trending quartz vein sets/structures that crosscut the main shear zone as possible controls on high grade mineralisation. The best gold grades tend to occur in the oxide and transitional zones with lower grades in the fresh rock. Mineralisation is open at depth but closed along strike.
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	It is not practical to summarise all of the holes here in this release. Material data previously periodically released on the ASX: 27/11/2018, 31/07/2018, 27/11/2017, 01/05/2017 Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being released
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Northern Star has not previously reported exploration results nor are any included in this release. The geometry of the mineralisation is well-known and true thickness can be calculated. Mineralisation at Kailis has been mainly intersected by vertical drill holes which have an average intersection angle to mineralisation of approximately 68 degrees.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being released
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No exploration results are being released
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.	Northern Star has not previously reported exploration results nor are any included in this release.
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	Historic activities have included drilling to obtain samples for metallurgical, geotechnical and hydrological test work. A number of geophysical surveys including airborne magnetics, radiometrics, and gravity have been carried out over the project area by various companies to identify strike extensions and /or strike parallel mineralisation. Drilling of identified targets proved successful identifying several anomalous zones.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	A detailed structural review of the nearby Trump deposit was carried out in 2012, highlighting the importance of the cross-cutting structures as possible controls on the high grade mineralisation.
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).	Northern Star is not actively exploring proximal to the Kailis deposit, however exploration potential is being considered in the form of repeat structures.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	N/A

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.	The historic database provided to Northern Star was an extract from an acquire SQL database. For the majority of the historic database, the process used to record the primary data was unknown. All data collected and drilled by Northern Star is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. The rigour of the database is such that transcription or keying errors are identified and amended prior to loading and storage. Typical collection methods are manual capture and translation of logging and other data into tough books (digital format) and subsequent import of csv tables through an automated data import scheme where data is validated upon import into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the AcQuire 4 SQL data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. Validation of data includes visual checks of hole traces, analytical and geological data. IMAGO photogrammetry of all drill hole logs and RC chips are also used to further validate the geological logging, whereby high-resolution photographs of holes can be compared to each other and known geological codes to ensure consistency and accuracy. It is unknown at this stage how the predecessors' database was managed and who was responsible for its maintenance. It is also unknown if there was any built-in functionality around pass/fail checks on assay importing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person together with Northern Star technical representatives conducted numerous site visits and have an appreciation of the Kailis deposit geology and the historic and current mining activities. Drilling, mining, safety and geological processes were inspected during the visits.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation has been based on the detailed geological work completed both by the previous owners of the project, but more so by the current Northern Star technical team. Northern Star has reviewed and validated the historical interpretation of the Kailis deposit by comparing it to its current geological findings. Northern Star's knowledge has increased from extensive geological logging of Grade Control and Resource Definition RC chips, detailed open pit mapping and assay data. Mineralisation domains are defined by a combination of quartz veining, regolith (dominantly oxide profile), colour and gold grade. Given the extreme nuggetty distribution of the gold (70%) with common occurrences of visual gold, a bulk method of domaining (within the shear package) was adopted for the primary lodes to ensure maximum recovery of the gold and limit ore loss during the planning and mining phase. Such decisions to define bulk domains improved both geological and mining confidence. Cross cutting structures (NE-SW and a weaker conjugate set) were mapped and understood to both displace the ore (few metres) and control the SE shallow plunging high grade envelopes. Similar methodology and geological understanding have been extrapolated to the eastern extent of the orebody which was historically mined as Trump.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, regolith profiles, veining, lithology, texture and colour, and alteration. Open pit mapping and observations on vein continuity and the relationship between veining and visual gold, which was established during the mining process, has assisted in the interpretation. This has aided better informed assumptions on domain continuity where RC drill intercepts has missed the very high nuggetty gold. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D leapfrog shapes have been created.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	A comparative study was completed between bulk domaining of the primary ore lodes and defining those lodes as more unique individual lodes. Given the nature of the gold distribution within a less visual oxide profile and at a moderate dip, the refined interpretation introduced a lot of risk and significantly lowered the confidence in recovering the gold.
	The use of geology in guiding and controlling Mineral Resource estimation.	Structural understanding, the plunging nature of higher grade zones, and the nugget distribution all helped to refine and control the method of domaining and refine the variography and estimation.
	The factors affecting continuity both of grade and geology.	The cross-cutting structures have an effect on both the continuity and the thickening of grade. Movement along these structures defines a SE plunging envelopes or pillows of increased grade. In these zones visual gold was particularly focused at the hangingwall contact. Further to the east (stage 2 and then the Trump pit location) the primary lodes less continuous and are generally of lower tenor than the primary domains to the west.
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 Kailis-Trump resource is contained within a + 40m wide shear zone which extends over a strike length of approximately 1,800m from 174,400mE to 176,200mE (MGA), and dips 30° to the south and flattens as move east toward Trump. Mineralisation is open at depth and to the west. It sits primarily within the oxide profile with economic mineralisation occurring at 30m below surface to 120m 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.	Block estimation using ordinary kriging and Multiple Indicator Kriging is completed in Datamine. MIK estimation technique is applied to the primary domains as this non-linear technique is better suited for grade distributions that have greater variance and high CVs after top cutting is imposed. All other domains are being estimated with Ordinary kriging. All wireframes are constructed in Leapfrog, which are used as hard boundaries for the estimations. Estimation of parent blocks are interpolated and assigned to sub-cells. Dynamic Anisotropy was used for the estimation of the anastomosing domains within the Trump zone. Univariate statistical analysis of length weighted (1m) domain coded downhole composites has been completed for all domains and top cuts applied where applicable. Extreme grades are common in the primary domains and are part of the true population. In these cases, top cuts are scrutinised and sensitivity studies are completed and compared back to mill reconciled data. All domains have been analysed individually to determine specific top-cut values. The top-cut process affects only 2-3% of the data, depending on the gold distribution. Care was taken not to severely reduce the metal by cutting a large proportion of the data. Variogram modelling was completed with Snowden's Supervisor software. Variography directions were checked against possible high grade shoot plunges, with good correlation between those directions and geological observations. The parameters determined from this analysis were used in the interpolation process. The maximum distance of extrapolation from known data points is <30m.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Given its nuggetty gold distribution numerous check estimates, using differently spaced grade control data and various estimation techniques have been completed for the Kailis deposit. Categorical, Conditional simulation, MIK and OK have all been compared, resulting in a combination of MIK and OK estimation methods. Validation of these methods (comparison of composite and model means, swathe plots and visual checks) indicate a good reconciliation. The estimation was continuously compared back to mining and mill reconciled data for Stage 1 and Stage 2. Due to a consistent positive MCF (mill/metal call factor), which for the end of stage 1 and Stage 2 averaged at 123%, a number of model iterations were run (at the time of mining) with variable to no top cuts applied, which is applicable to the MIK estimation methodology. It was concluded that the 10x5m diced spaced GC pattern could not accurately define the amount of nuggetty (visual gold) gold within the deposit, hence the consistent positive MCF.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Arsenic has been found in some samples however not to a level of interference.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 10m(X) by 10m(Y) by 2.5m(Z). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 5m x10m. Parent blocks have been sub-celled to 1m(X) by 1m(Y) by 0.25m (Z) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. A kriging neighbourhood analysis study conducted ensured that the block size and the search volume used in the resource estimate are optimal after considering all the relevant factors (i.e., drill spacing, geometry and dimensions of mineralisation).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions behind modelling of selective mining units.	A block size of 10 x 10 x 2.5 m is used in the estimation of grade in the active mining areas and is deemed appropriate as a Selective Mining Unit (SMU) which matches the current mining equipment. Ore lodes are mined using selective mining techniques on 5m benches at 2.5 metre flitches. In most cases the oxide profile does not require blasting allowing digging to occur in situ.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation of the sheared package and structural disruption of cross cutting shears strongly correlates with the mineralised domains. Care is taken with the bulk domain shapes to ensure the nuggetty gold is captured. These are refined and expanded at the mining stage when in pit observations help to guide domain continuity.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that very high grades are part of the true population that require sensitivity studies and careful top cutting. Top-cuts have been employed to eliminate the risk of overestimating in the local areas.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Across Strike, Northing, Easting and Elevation swathe plots have been constructed to evaluate the composited assay means against the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower. The estimate is regularly checked against the current mill reconciled production records. Stage 1 and Stage 2 averaged a MCF of 123% indicating the underestimation of the model. Even with the removal of top cuts, the final metal within the system could not be appropriately estimated. It was concluded, given the 70% nugget factor, that the 10x5m diced spaced GC pattern could not accurately define the amount of nuggetty (visual gold) gold within the deposit. It was unreasonable from a cost perspective and mining schedule to reduce the drill spacing.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Thunderbox, the consistent positive MCF for Kailis and the natural grade distinction above background, a grade of 0.6g /t has been chosen. However, in a high nugget deposit defined by RC grade control and in an oxide environment, all factors of geology and knowledge are applied to the domain definition and material <0.6g/t is included in the bulk shapes to ensure all metal is captured.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Kailis deposit, being shallow and primarily oxide source, is currently being mined as an open pit load and haul operation. The deposit has successfully been mined by open pit in the past and in Stage 1 and Stage 2. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.6g/t cut off for the open pit resources.
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.	Kailis ore presents as a free milling conventional gold ore with high amenability for gravity recovery and total cyanide solubility. It has been processed historically at Leonora facilities and more recently in the last 3 years at Thunderbox. It has lab and plant scale recoveries in the 93 – 97% range. This is respective to both oxide and transitional mineralogy.
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.	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high-rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is affected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Previous owners have taken routine density measurements when drilling diamond core, along with a comprehensive grab sampling regime during the mining of the pit. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. Validation of the historic density data revealed minor discrepancies between these results and the application of these to the previous estimation. Northern Star initially took a conservative view and as mining progressed updated the density profile of the deposit by following its density sample collection procedure. Samples were allowed to dry and wrapped/coated to ensure no moisture absorption during the water displacement method. All samples were paired to the oxide profile. A number of diamond holes drilled into the Stage 2 area of Kailis allowed further validation of the density data, which proved to reconcile well with the values being used in the oxide, transitional and fresh regolith profiles of the estimate.
	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.	The procedure the previous owners utilised, included the coating of dried samples in paraffin wax where the samples had some degree of weathering, were porous or clay rich. These coated samples were then tested using the water displacement technique as previously mentioned. Northern Star implements a similar process.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of bulk densities was collected for each weathering profile material, (fresh, transitional and oxide) and within the main shear zone. These values were uniformly applied to the modelled geological and regolith zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on, mining, drill hole spacing, geological confidence, and grade continuity and estimation quality. The combinations of these factors were used to assign resource categories on a domain by domain basis. Care is taken not to overextend the resource categories in a high nugget oxide deposit. As such, measured material correlates to that which is mined and the indicated material is largely defined by drilling 5m x10m up to 20m x 20m. Inferred is applied to any estimate define by drilling >20m apart and confidence in geological continuity is low.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and current mining performance suggests that the input data and geological continuity are such that a robust resource estimate can be achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	No external reviews or audits were undertaken for this resource estimate; however, the resource is actively scrutinised against the current mining and mill reconciled data. At the completion of the resource estimation Northern Star Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous models. Geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and Kriging Neighbourhood Analysis and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. Given the nature and gold distribution of this deposit a large portion of the grade control drilling is completed up front to ensure the global estimate is robust and will closely resemble the local estimate.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Mine Call Factor (MCF) has been above 100% for tonnes and grade for the duration of the project.

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	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	The Mineral Resource estimate for the Kailis deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using a combination of drill hole database and information compiled by Northern Star. The data included resource and grade control drilling and

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
conversion to Ore Reserves		assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted to end of March 2022 survey pickup for Ore Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person has conducted site visits to the Kailis operation since mining has the operation begun in 2016. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Kailis open pit has been in operation until early 2019 after positive outcomes of the feasibility study. Since then, after successful resource extension program the new reserve pit is taken into Thunderbox life of mine plan. The 2022 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, modifying factors, operating costs of mining, processing, general administration and environment management related costs. Kailis previously mined Ore is currently being treated Thunderbox processing plant.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been used from actual and ongoing mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve estimated at cut-off grade of 0.60g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Kailis Reserve.
	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.	Mining method employed at Kailis open pit was conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operation at Thunderbox/Carosue Dam. Therefore, it provides good operating dataset for production and productivity rate measurement and financial modelling.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Kailis reserved pit is designed as a successive cutback to previously mined reserve. At present the mine is in "care and maintenance". The cutback will be mined in appropriate manner such that it meets the operational efficiency, safety and production rate. Realistic mine schedules, operating cost and lead time has been applied to maintain efficient mining operation.
	The mining dilution factors used.	Life of mine Reserve pit has been designed following appropriate geotechnical recommendation. The geotechnical guidelines were prepared by site geotechnical team using wall stability performance data and update or modify as required through continuous monitoring program. Analysis includes inspection of drill core, review of the geotechnical data, slope monitoring results and probability testing. The geotechnical team oversees all geotechnical aspect of technical study and provide ongoing site support.
	The mining recovery factors used.	
	Any minimum mining widths used.	The Grade control method employed at Kailis is uses RC drilling and sampling method. The method and practice have been utilised successfully at all current and past mining operations at Northern Star.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The infrastructure requirements of the selected mining methods.	To determine dilution the MSO method was implement. The model was then created using the mineable MSO shapes with the element of minimum mining width and mineralisation width to determine planned and unplanned dilution. The final estimated mining dilution is approximately 20%.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Thunderbox processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current Thunderbox processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93% and 95% for deposits around Thunderbox operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Kailis deposit is estimated at 94.0%. The recovery estimation is based on actual recovery data collected and ongoing test work conducted for Kailis at Thunderbox plant. The plant performance is consistent between 94% and 97% while processing Kailis material along with constant blend from Thunderbox ore.
	Any assumptions or allowances made for deleterious elements.	
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Approximate four years of processing of Kailis ore through Thunderbox processing have resulted in solid understanding of the metallurgical parameters of the ore.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	There are no known deleterious elements present in Kailis ore.
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.	At present Kailis open pit is in “care and maintenance”. All required Environment studies has been completed for current Reserve pit. All statutory government approvals including clearing permit, project management, operating licence and groundwater licences have been in granted. The existing Mining Proposal will be revised and resubmitted to accommodate future reserve pit.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	Kailis mine is located ~90km from Thunderbox processing plant and is well connected via goldfields highway. The Kailis operation will utilise the existing Thunderbox processing facility, and TSF storage facilities that are all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip at Thunderbox are all on granted miscellaneous licences.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the establishment, mobilisation and pre striping of the pit is included in the financial modelling.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual mining costs for Thunderbox operations and costs supplied by various contract mining companies, and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Thunderbox Operations.
	Allowances made for the content of deleterious elements.	Kailis did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Thunderbox
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Thunderbox.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5% and third party royalty of 1.5% is payable.
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.	For the purposes of ore reserve estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Kailis open pit is located on lease-hold pastoral land with regular community engagement and communication of the mining lease and operation. Compensation agreements are in place with the local pastoralist and Northern Star is having a good relationship with neighbouring stakeholders, including local pastoralists and the traditional owners. Granted mining leases cover all of Kailis mining area and processing facility at Thunderbox.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as a naturally occurring risk within the operation and has been addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	A royalty of 2.5% of gold production to WA State Government and additional royalty of 1.5% is payable to third party.
	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.	At present Kailis open pit is in "care and maintenance". All required Environment studies has been completed for current Reserve pit. All statutory government approvals including clearing permit, project management, operating licence and groundwater licences have been granted. The existing Mining Proposal will be revised and resubmitted to accommodate future reserve pit.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve estimate classification for Kailis has been in accordance with the JORC code 2012. Ore Reserve Estimate is classified as being Probable has been derived from the Mineral Resource classified as Indicated only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Thunderbox operations and supplied by contract mining companies and independent consultants. Results of these optimisations, reserve pit design and the resultant inventory reflect the Competent Person's view regarding the Kailis deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Indicated ore of the Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs,

APPENDIX C: TABLE 1

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 range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. All of the parameters assumed and adopted in the financial analysis have been based on current and past Thunderbox operations mining performance.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	The Kailis operation will use the same grade control methods that are widely utilised at other Northern star open pit operations.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

JORC Code, 2012 Edition – Table 1 Report

Rainbow – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken at Rainbow by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Northern Star has not carried out any sampling activities at Rainbow since the project was acquired in 2014.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	RC, RAB, and DD core drilling are assumed to have been completed by previous holders to industry standard at that time (1980- 2010).
	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.	Limited information has been found for historic drilling, so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time. More recent RAB and RC drilling has involved a total preparation sample protocol involving 4m composite samples or 1m samples from which a 50g charge is produced for aqua regia or fire assay digest and flame AAS finish.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Drilling activities at Rainbow have included 308 RAB holes, 173 RC holes (assumed standard 5 ¼'' bit size) and 5 DD holes (HQ diameter). Limited historic diamond core hole was oriented by unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown historic recoveries were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
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.	Logging of diamond drill core, RAB and RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some diamond drilling has had limited geotechnical logging carried out.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	It is unknown if any diamond core was photographed.
	The total length and percentage of the relevant intersections logged.	Some early drilling has not had lithology recorded in the database; the majority of more recent drillholes appear to have been logged in full.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	The method for diamond core is quarter or half core sampling.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	The sampling methods for much of the historic RC and RAB drilling are unknown. More recent RC and RAB drilling has been riffle split or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for much of the historic, RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic RAB, RC and DD drilling. There is evidence of field duplicate sampling being conducted in more recent RC campaigns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled. More recent drilling included sizing analysis (90% passing 75 micron) to confirm this.
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.	Numerous assay techniques have been used in the history of the deposit, most recently fire assay, fire assay with flame finish and aqua regia. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Other assay methods utilised for gold determination include BETA and unknown methods.
	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.	It is unknown if any instruments of this nature have been used at Rainbow.
	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.	QAQC information from historic Rainbow sampling data is limited therefore all drilling is assumed to have been carried out to industry standard. More recent drilling carried out at the deposit adhered to strict QAQC protocols involving weighing of samples, collection of field duplicates and insertion of blanks and standards. Laboratory repeats were also carried out. Analysis of the data confirmed acceptable levels of precision and accuracy.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Limited documentation of this nature has been provided. Data has been stored in an AcQuire database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
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.	The survey quality and control are unknown for the majority of historic drilling. More recent drilling has collar locations surveyed by unspecified GPS and DGPS equipment. Downhole survey methods recorded include Eastman single shot, Reflex, gyro, inferred and unknown methods.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	LionOre purchased digital orthoimage of the area from Kevron Aerial Surveys in the early 2000s and used this to establish topographic control.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	No exploration results reported in this release. The nominal drillhole spacing is 25 m (northing) by 25 m (easting) in the core of the deposit and increases to the margins of the deposit.
	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 mineralised domains at Rainbow have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and the classifications applied under the 2012 JORC Code.
	Whether sample compositing has been applied.	Historic 1990s RAB and RC drilling was generally sampled on 3 - 4m composites.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		More recent RAB and RC drilling was composited into 4m samples with any assay >250ppb resampled to 1m.
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 deposit is drilled towards grid east at angles varying from -60⁰ and -90⁰ to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. No orientation based sampling bias has been identified at Rainbow in the data at this point.
Sample security	The measures taken to ensure sample security.	Information on sample security measures has not been provided
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No evidence of external reviews has been supplied. Northern Star has not had access to this information during the acquisition process.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Rainbow resource is located on M36/541, with near mine exploration extending onto M36/476 and M36/462. Mining Leases M36/541 and M36/476 are held by Northern Star Limited, a wholly owned subsidiary of Northern Star Minerals Holdings Limited. The mining leases have a 21 year life: Mining Lease M36/541 and M36/476 are held until 2042 and Mining Lease M36/462 is held until 2043. All are renewable for a further 21 years on a continuing basis. M36/462 is subject to a royalty of 2.5% on the net smelter return (NSR) from mined ore between 42,000 and 100,000 ounces of gold payable to Black Mountain Gold Limited. All production is subject to a Western Australian state government NSR royalty of 2.5%. A single Aboriginal Heritage site exists within M36/541 – Site ID 2551 Leonora-Leinster 22 artefacts and scatter. The site is not impacted by near mine exploration on the tenement. There are newly identified Aboriginal Heritage sites on the tenements that are yet to be released on the DPLH register. Mining Lease 37/462 is subject to a Westpac Mortgage (499141). There are no caveats relating to the tenements. There are no pastoral compensation agreements over the tenements. The Mining Rehabilitation Fund applies to the tenements.
	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 impediment exists to obtaining a licence to operate and the tenements are all in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Initial exploration efforts carried out in the Rainbow area in the late 1970s- early 1980s by companies including WMC, Seltrust and BP minerals concentrated on nickel sulphide mineralisation. Gold and PGE exploration in the district began in the 1980s, carried out by companies including BHP, Dominion, Dalrymple and Miralga. The Rainbow mineralisation was discovered in 1997 by Forrestania (the managing party in the Wildara JV with Dalrymple) after anomalous rock chips were followed up with soil sampling. This defined two broad zones of anomalism. RAB drilling confirmed mineralisation over a 1.2km strike length and RC drilling was carried out to test the down dip extent. RAB and RC drilling continued along the Rainbow mineralisation hosting structure, extending the mineralised strike considerably. Further RC and drilling activities occurred in order to define the resource. In 2007 Norilsk acquired the project after taking over LionOre (who had previously merged with Dalrymple). Little work was carried out after this.
Geology	Deposit type, geological setting and style of mineralisation.	Regionally the Rainbow deposit occurs on the southern end of the Yandal greenstone belt in an area where several major intra-greenstone shear zones converge and join with the Perseverance Fault. This shear system (the "Yandal-Melita shear") hosts the Bronzewing and Mt McClure deposits to the north of Thunderbox and continues south beyond the pinch out of the Yandal greenstone belt to the Leonora district, where it is associated with the Tarmoola, Jasper Flat, Tower Hill, Harbour Lights and Gwalia deposits This shear system appears to be a major geological discontinuity, defining the boundary between two potentially distinct geological domains. The western domain is continuous with the Wiluna – Mt Keith – Leinster – Mt Clifford sequence and is characterised by deformed and metamorphosed ultramafic and mafic dominated greenstone stratigraphy intruded by granitoid plutons. The eastern domain is dominated by sediments, felsic volcanics and felsic intrusive complexes in addition to mafics and contains copper-zinc volcanogenic massive sulphide mineralisation (at Teutonic Bore). Locally the deposit is contained with a sheared unit with sediments in the footwall and mafics in the hanging wall. The shear dips to the west at approximately 450 and strikes 340 degrees.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Gold mineralisation at Rainbow occurs in shallow west dipping quartz +/-sulphide lodes within sheared basalts/sediments. Mineralisation occurs as one main lode, however other smaller lodes are apparent as is some supergene enrichment.
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 total 601 (predominantly Diamond and RC) holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a result materially changes the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are reported in this release.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Northern Star has not previously reported exploration results nor are any included in this release.
	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').	N/A
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No diagrams are referenced in this release.
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.	Northern Star has not previously reported exploration results nor are any included in this release.
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 substantive data acquisition has been completed in recent times.
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).	Northern Star is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Rainbow mineral 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.	N/A

APPENDIX C: 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.	The database provided to Northern Star was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built-in functionality around pass/fail checks on assay importing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	No site visits have taken place at this point in time by the competent person. However, a team of 12 people including Northern Star technical representatives as well as industry consultants did conduct site visits. Historical drill core was inspected during the visits.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit during the process would not provide significant value and not materially affect the outcome of any resource estimate.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation has been based on the detailed geological work completed by previous owners of the deposit. This knowledge is based on extensive geological logging of drill core, RC chips, and assay data. The confidence in the geological interpretation of the Rainbow deposit is considered good. The shear system hosting the deposit is well understood and there are other known gold mines associated with it on a regional scale.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solids are built.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The Rainbow deposit is generally sub-vertical in geometry, with clear boundaries which define the mineralised domains. Infill drilling done over the years supported the current interpretation which is considered to be robust. Over the life of the project, several different sources have interpreted the mineralisation and all agree on the same basic interpretation.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. The Rainbow deposit is within a sequence of sheared basalts
	The factors affecting continuity both of grade and geology.	At the deposit scale the mineralisation at Rainbow is hosted in sheared basalts. Mineralisation is mainly confined to the shear system which trends north south and becomes erratic and discontinuous away from it.
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.	Rainbow mineralisation extends from 6888600mN to 6889200mN, 304750mE to 305000mE and 170 meters below surface. The shear system controlling mineralisation at Rainbow generally strikes North-South
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.	Grade estimation using Ordinary Kriging (OK) was completed at Rainbow. Micromine software was used to estimate gold into10m x20m x5m size parent blocks. Drill grid spacing ranges from 25 m to 50 m. Drillhole sample data was flagged using domain codes generated from three-dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole length. Over 90% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and CVs). Top-cuts were reviewed and applied on a domain basis. Variography was conducted in Snowden's supervisor software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been compared with previous resource estimate done by the previous owner. The previous resource predicted more tonnes and lower grade for the total inventory resource. This resource estimate done by Northern Star predicts less tonnes at higher grades. This discrepancy can be explained by the 'loose' broad mineralisation envelopes used in conjunction with the Multiple Indicator kriging methodology in the previous estimate compared with Northern Star's mineralisation envelopes which were constructed using a nominal 0.5 g/t Au cut-off grade. There are no previous mining activities at Rainbow

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Other elements that have been assayed other than gold include Arsenic, Cobalt, Nickel, Chromium and Magnesium albeit in low levels to warrant their estimation. Arsenic occurs in low levels to be considered harmful.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Rainbow was constructed using a 10 mE by 20 mN by 5 mRL parent block size with sub-celling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell scale. Kriging neighbourhood analysis was carried out at Rainbow to optimise the block size, search distances and sample numbers used. Discretisation was set to 4 by 5 by 3 for all domains. The size of the search ellipse per domain was based on the gold variography. Three search passes were used for each domain. In general, the first pass used the ranges of the gold variogram and a minimum of 12 and maximum of 36 samples. In the second pass the search ranges were un-changed and the minimum samples reduced to 8 samples. The third pass ellipse was extended to 2 times the range of the gold variograms and the minimum number of 8 and a maximum of 32 samples were applied. A maximum of 4 samples per hole were used. In the majority of domains, blocks were estimated in the first pass (particularly for the major domains); however, some more sparsely sampled domains were predominantly estimated on the second or third pass. Un-estimated blocks, i.e., those outside the range of the third pass, were assigned the estimated domain mean and lower resource confidence classifications. Hard boundaries were applied between all estimation domains.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically, where the mineralised domain corresponds with sheared basalts. Where well known the geological unit is described in the block model all wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in some of the domains at Rainbow to generally have outliers which would, if left unchecked compromise the quality of the estimation by the smearing of grade. Where applicable top-cuts were applied to remove the influence of the outliers.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. There have not been any previous mining activities at Rainbow, therefore no reconciliation data is available.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic evaluations, and the natural grade distinction above background, a grade of 0.5g/t has been chosen. This cut-off grade was used to define the mineralised envelopes.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Rainbow deposit is amenable to mining by open pit methods. There has not been any previous mining at Rainbow. There are reasonable grounds to assume that in the future this deposit will be mined by conventional open pit methods given the close proximity to surface of the mineralisation. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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.	It is expected that any future mining of the Rainbow deposit will be processed at the Thunderbox processing facility. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. Northern Star has been operating the Mill successfully since 2015. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Ammtec completed historically suggests Rainbow mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox.

APPENDIX C: 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.	Arsenic is present in the mineralogy of the deposit albeit in low levels to be considered harmful. The processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high-rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
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.	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Northern Star does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Northern Star at this time.
	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.	As stated above the frequency and distribution is unknown at this point in time. Northern Star however assumes from the very good performance from mine to mill from the other surrounding deposits of similar geology the density assignments at Rainbow are deemed accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a "cookie cutter" string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	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).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at Rainbow is predominantly confined to sheared basalts. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. Successive drilling campaigns by the previous owners have confirmed the current interpretation used in this resource model. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the Mineral Resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted, as this deposit was recently acquired, Northern Star however intends have an external audit done prior to commencement of any mining activity.
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 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 resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There have been no mining activities at Rainbow.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Pogo Gold Mine – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The Pogo deposits (Liese, North Zone, East Deeps, South Pogo, Fun Zone, Central Zone and Hill 4021) were sampled using diamond and reverse circulation drill holes (DD, RC) completed from both surface and underground campaigns drilled between 1994 and 2021. A total of 9,435 DD holes for 4,781,292 feet (1,457,711 m) and 86 underground RC holes for 21,231 feet (6,473 m) were drilled to inform the Mineral Resource estimate. Other sampling methods employed in sampling the Pogo vein systems include production drill chip sampling (sludge sampling) and daily underground face chip sampling. The dataset used to generate Liese, North Zone, Fun Zone and South Pogo Mineral Resource estimate included 9,500 channel samples with lengths 1ft – 5ft. Sludge samples were excluded from the dataset used to generate the Mineral Resource estimate.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond and face channel sampling are sampled based on geological and mineralisation boundaries identified by the geologists during logging and mapping. Diamond sampling intervals are set at a minimum sample size of 1.0ft (0.3m) and a maximum sampled interval of 4ft (1.2m). Underground RC drilling is sampled on regular 5ft intervals (1.5 m). Face channel sampling, used in the Fun Zone, Liese, South Pogo, East Deeps and North Zone Mineral Resource estimate, are spray-marked then sampled on 1ft to 5ft lengths across the entire width of the vein (where practicable). Material is also sampled either side in non-vein material contiguous with the veins. The sampling lengths are measured and plotted on face mapping with assays once received for record keeping and validation.
	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.	Industry standard sampling methods are used at Pogo. DD core, is the predominant sampling method, supplemented to a lesser extent with underground RC chips. All drill core is comprehensively logged and intervals for sampling selected based on geological and mineralogical observations. Where practicable, samples are not collected across lithological or mineralisation boundaries. Sampling protocols at Pogo vary dependent on the purpose of the drill hole: ▪ Exploration Core Drilling: Holes drilled for non-resource conversion purposes are cut using an Almonte core saw and half core submitted for analysis. The non-assayed portion of the core is stored on-site for a period of five years. ▪ Infill DD drilling for defining or converting Resources to a higher confidence category are whole core sampled. ▪ Production RC (UG): RC Chips are split directly off the rig via the inner return tube through a rotating cone splitter to yield ~3kg sub-samples from 5ft sample lengths. ▪ Sludge-hole drilling: Sludge holes are drilled by an underground long hole rig and collected from open holes into buckets on 2.5ft intervals, with each interval washed out with water prior to sampling. ▪ Face-channels: The channel sample lines are always perpendicular to the ore body orientation. Sample intervals are determined by geology, including lithology contacts, mineralisation, alteration or structure. The sampled mineralisation showed strong correlation with diamond drilling and provided a greater data density for the estimate. For NQ core samples, minimum sample size of 1.0ft (0.3 m) and a maximum sampled interval of 4ft (1.2m). For HQ drill core that is whole core sampled, samples are collected at a minimum interval of 4 inches (0.1m) and a maximum of 2.0ft (0.6m). When the HQ samples are half-core cut, the maximum sample is extended to 4ft (1.2m). Samples are crushed to 70% passing 2mm. A 200g split is taken of all sample types, including sludge hole samples, which is then pulverised to 85% passing 75 µm. A 30g sub-sample of the pulp sample is then selected for fire assay, followed by atomic absorption spectroscopy (AAS) with a gravimetric finish.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Drilling has been carried out from both surface and underground. Underground drilling is completed predominantly using NQ2 (50.6mm core diameter) or BQ (36.4mm core diameter) holes, however larger HQ (63.5mm diameter core) and PQ (85.0mm core diameter) holes are completed for long exploration drill holes or when poor ground conditions are encountered. Surface drill holes are typically collared using PQ / HQ diameter and reduced to NQ2/NQ2 where necessary. Underground RC drilling is completed using a 4.5-inch diameter face sampling hammer. RC samples are collected directly from the inner return tube on the rig, via a rotating cone splitter to produce a ~3kg sub sample from 5ft sample lengths. Core drilled between 2009 and 2017 was generally not oriented. Since 2018, orienting of exploration drill holes using the Reflex Act III tool was introduced. Face channel sampling is spray-marked for the channel line and vein contacts. The vein and surrounding material are then sampled on 1ft – 5ft lengths by chiselling chips into a bucket across the entire width of the vein in production where practicable and then sampled either side in non-vein material contiguous with the veins. The sampling lengths are measured and plotted on face mapping with assays once received for record keeping and validation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The following table provides details on the quantity and types of drill core drilled by year at the Pogo deposit as of 31 December 2021

Feet Drilled by Hole Type															
	BQ	BQTK	HQ	HQ/NQ	MCR	NQ	NQ/BQ	NQ2	PHB	PHD	PHJL	PQ	RC	Unknown	Total
unknown			34,002					4,385	215					82,708	121,310
1994															-
1995						1,374								1,985	3,359
1996						2,011								11,090	13,101
1997														19,143	19,143
1998	1,175					2,000								46,219	49,394
1999	3,333			1,519										90,095	94,947
2000		25,927		1,104		45,646		11,455						2,113	86,245
2001						30,773								2,112	32,885
2002						31,594									31,594
2003						16,890									16,890
2004						46,274								1,056	47,330
2005						34,773		22,622							57,395
2006						38,341	4,016	12						269	42,638
2007								35,885							35,885
2008			6,826					99,857	80					999	107,762
2009								105,277						3,267	108,544
2010							240	101,434						13,908	115,582
2011						855		162,367						9,497	172,719
2012			28,888			3,620		154,904	470	680		1,503		12,130	202,195
2013			96,202			19,655	409	147,351	1,272	5,622				8,844	279,355
2014			81,471		275	96,723	681	103,888	393	6,362					289,793
2015			153,492			76,271		114,327	156	2,876					347,122
2016			109,920			1,189		135,385	371	540	50				247,455
2017			67,917			1,318		162,143	371	42					231,791
2018			146,244					241,502	540	710					388,996
2019			107,104					462,889					22,410	190,673	783,076
2020			134,165					496,273							630,438
2021			123,396					660,389							783,785
Total	4,508	25,927	1,089,627	2,623	275	449,306	5,346	3,222,345	3,868	16,832	50	1,503	22,410	496,108	5,340,726

Criteria	JORC Code explanation	Commentary
		Face channelling totalled 7,592 for 83,479 ft. Liese Resource Model incorporated results from 4,383 Face Channels for 48,570 ft, Fun Zone, 752 Face channels for 8,852 ft, South Pogo, 1,445 face channels for 15,999 ft and North Zone 1,012 face channels for 10,055 ft.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Core recovery is recorded for all DD holes. Recovery is measured and recorded as a percentage calculated from measured core verses drilled intervals. All data is saved in AcQuire software. In general, recovery is high through mineralised zones due to the competent nature of the quartz vein. In structurally complex zones, recoveries and core loss results vary. Core preparation and geotechnical logging procedures are in place for the continual assessment of results.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Core is processed at the Pogo core processing facility. For DD holes, 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 and supervising geologist.
	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.	Recent studies are showing a correlation between grade and core RQD, core recovery. Average grades are higher in core with lower RQD. Area of core loss can exhibit lower grades. More detailed studies are in progress determine the overall effect
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core logging is carried out by a qualified geologist in accordance with Pogo Mine's core logging procedures manual. Data recorded includes, but is not limited to, lithology, structure, alteration assemblages, sulphide mineralogy, geotechnical parameters (recovery and RQD) and the presence of visible gold. Drill core was logged electronically using Rockware Logplot 7 software and on the AcQuire database system. Logging and sampling are carried out according to Pogo Mine protocols and are consistent with industry standards. Logging is to a sufficient level of detail to support appropriate Mineral Resource estimation and mining studies.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Drill logging is both qualitative and quantitative in nature. Every core tray is photographed wet.
	The total length and percentage of the relevant intersections logged.	All drill holes are logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond core drilled for resource definition and grade control is whole core sampled. Core drilled for exploration purposes is cut in half onsite using an industry standard Almonte core saw.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Underground RC drilling in 2019 used a 4.5-inch diameter face sampling hammer. RC samples were collected directly from the inner return tube on the rig, via a static cone splitter to produce a ~3kg sub sample from 5ft sample lengths.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	All sample preparation and assaying of Pogo drill core is currently being performed by Bureau Veritas (BV). Pogo sends core samples to BV Fairbanks for sample preparation and a pulp is sent to the BV laboratory in Reno, Nevada or Vancouver, British Columbia for fire assay. Typically, gold assays and multi-element assays are completed in Vancouver. Sample preparation includes drying, crushing to 70% passing 2mm, splitting of a 200g subsample and pulverising to 85% passing 75µm. All sample preparation and assaying of Pogo face channel samples are performed at the on-site Pogo lab. Sample preparation includes drying the face channel samples, (weight range of 2 to 7 lb), crushing to 70% passing 2mm, splitting of a 200g subsample, and pulverising to 85% passing 75µm. The sample preparation techniques are considered appropriate for the style of mineralisation.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Pogo Mine uses an industry standard QAQC programme involving standards, blanks and field duplicates which are introduced in the assay batches at an approximate rate of one control sample per eight normal samples. Repeat analysis of crush and pulp samples (for all sample types) occurs at an incidence of 1 in 40 samples. QC results are analysed immediately upon return of a sample batch and reported to management monthly. Overall results demonstrate no significant QAQC issues with the analytical laboratory and no systematic bias observed. Protocols are in place to deal with QAQC results that fail. In addition to Pogo QAQC, the analytical laboratory is ISO certified and conducts rigorous internal QAQC checks. Internal QAQC reports provided to Pogo personnel do not indicate any issues with the quality of the analysis provided.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field Duplicates (i.e., other half of cut core) and RC drilling field duplicates have not been routinely assayed. Face channel second samples are taken in conjunction with primary underground face sample collection of material at every 14ft advance of the production face.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Duplicate sample results correlate well, hence sample sizes are acceptable to accurately represent the gold mineralisation at Pogo Mine. Sample sizes are appropriate and correctly represent the style and type of mineralisation.
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.	The samples are analysed using industry standard analytical techniques. Historically, underground holes were analysed for gold by a 30g fire assay with a gravimetric finish. In holes drilled for exploration purposes, gold content is determined by 30g fire assay with atomic absorption finish (AAS). Since 2019, all underground holes were analysed using the AAS method. Exploration and underground results analysed by fire assay with the AAS finish returning > 10ppm (0.292 oz/ton) gold are re-assayed by fire assay with gravimetric finish. Select samples are assayed for forty-five elements multi-acid digestion and ICP-MS/ES finish. The technique is considered total and appropriate for the style of mineralisation under consideration.
	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 in this Resource estimate.
	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.	Commercially prepared certified reference materials (CRM's), inhouse standards, non-certified blanks and duplicates are randomly inserted into the sample stream at an incidence of 1 in 20. The Pogo Mine uses Certified reference Materials (CRMS) sourced from GEOSTAT Laboratories and OREAS laboratories. Blanks are also produced in-house and are generated from a local source of barren basalt and crushed to nominal one-inch size and inserted into sample bags prior to including into the laboratory submittal. Sand is also used as a blank. Monitoring of QA/QC results is performed by the resource geologists upon importing the individual assay certificates into the drill hole database. When failures occur, the resource geologists notify the geologist responsible for the drill hole or the core processing facility supervisor. Failed standards are generally followed up by re-assaying a second 30g pulp sample of samples between the failed standard and the next sequenced standard by the same method at the primary laboratory. Re-assays are dependent on grade above 0.03 opt.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The laboratory QAQC protocols used include repeat analysis of crush and pulp samples at an incidence of 1 in 40 samples, screen tests (percentage of crush sample passing a 1mm mesh and pulverised sample passing a 75µm mesh) and undertaken on 1 in 40 samples. QAQC data is reported monthly, quarterly, and yearly.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are routinely inspected by alternative company personnel. Core photographs of significant intersections reviewed to ensure mineralised zones are consistent with known Pogo mineralisation styles.
	The use of twinned holes.	No purpose drilled twinned holes have been complete at Pogo.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All diamond core is logged in detail. Logging takes place at the core processing facility. Core logging (geological and geotechnical) was historically completed using Logplot 7 software. Since Northern Star acquisition, data capture has transitioned to the AcQuire database and logging systems. The core logging procedures manual provides guidance to the user. All Pogo data is stored as in industry-standard AcQuire database. Validation protocols are built into the importation process to ensure data integrity.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any Resource estimation. Exceptions occur when evidence from re-assaying dictates. A systematic procedure utilising several re-assays is in place to determine when the final assay is changed from the first gold assays.
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.	Drill rigs are aligned using the Reflex TN14 Gyrocompass. Underground collar locations are surveyed after completion of the drill hole using a Leica 1200 series survey station. On surface, collar locations are surveyed using a Leica RTK-GPS survey station. Downhole surveys for underground drill holes are collected at 50ft downhole from the collar and every 100ft thereafter using historically, a Reflex® EZ-Trac multi-shot survey instrument and currently a Trushot digital survey tool multi-shot survey instrument. Surface drill holes are surveyed at 100ft from the collar and every 200ft thereafter, except in areas of overburden, where the first Downhole survey is at 200ft. A final survey is taken at the end of all drill holes. Deviation at the initial survey is checked against plan and the hole is redrilled if there is excessive deviation (>3%). Mine workings have been routinely surveyed since commencement of the underground. However recent drill intercepts have shown inaccuracies between different mine zones. This is currently being rectified with extensive re-traversing. Interpretations will be updated as drill collars are adjusted
	Specification of the grid system used.	The grid system used is the North American Datum of NAD83 (NAD83) AKSP-3.
	Quality and adequacy of topographic control.	High quality LiDAR topographic mapping is utilised at Pogo.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing is highly variable. Well-drilled areas are tested by drilling on approximately 45 by 45 ft patterns, extending out to 240ft at the peripheries of the deposits.
	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 drill hole spacing, is generally based on a 60ft x 60ft up to a maximum of 120ft x 120ft for reserves. Resources are based on 120ft x 120ft up to a maximum of 240ft x 240ft drill spacing. Combined with estimation quality parameters such as slope of regression, and average distance to sample, were used to classify the Mineral Resource estimate. The data spacing, and distribution is considered sufficient to support the reporting of Indicated and Inferred Mineral Resources.
	Whether sample compositing has been applied.	No compositing was applied prior to submission of samples for analysis.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Where practicable, the drilling was designed to intersect the mineralisation as perpendicular as possible to the dominant vein geometries. In some circumstances, the lack of drill positions resulted in holes that were oblique to the mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Resource estimation. As the opportunity arises, better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by Pogo Mine personnel. All core samples are received intact and in their entirety in their core trays at the Company's secure core processing facility. All sampling and work on the samples is carried out within the confines of this secure facility. All samples are selected, whole core or cut and bagged in tied pre-numbered calico bags, grouped in larger rice bags labelled with the drill hole number and the sample sequence, and placed in large heavy duty plastic totes with a sample submission sheet. Samples are transported via road to the sample preparation facility in Fairbanks, Alaska. Upon receipt, any issues with sample condition are reported via email to Pogo personnel.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		All sample submissions are documented, and all assays are returned via email. Sample pulp splits from the Pogo Site Lab are stored at the Pogo mine site and those from the Bureau Veritas Lab are stored at the Vancouver facility.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	In March 2018, Sumitomo Metal Mining Pogo LLC (SMM Pogo) commissioned Mine Technical Services Ltd. (MTS) to complete a review audit of standard procedures currently in use at the Pogo Mine in Central Alaska. Drilling, logging, sampling, analytical, QA/QC, database, modelling, density, ore control, resource estimation, mine planning, metallurgy and reconciliation procedures were audited. While minor recommendations for improvement were made, sampling techniques and data were generally found to be well-considered and consistent with industry good practise. Northern Star Resources personnel completed validation of the database for internal consistency and any obvious errors prior to preparation of the Mineral Resource estimate, which incorporates results acquired prior to 2022. Northern Star have completed validation checks of all data reported in this release. Checks were completed for overlapping intervals, sample intervals extending beyond the hole depth, from > to intervals, and missing from or to values. All issues were rectified. Various other potential issues such as missing surveys, missing sample data, and missing intervals etc. were also identified and corrected.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The total tenement area comprising the Pogo project consists of 1251 state mining claims (17,079 ha) in addition to the mine lease claim (641 ha) and the mill site lease (1,385 ha). The Pogo operation is 100% owned by Northern Star Resources. There are no known royalties on the area.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The Pogo tenure is in good standing and secure. Pogo is a fully permitted and operational mine and there are no foreseen permitting issues that will prevent development of the resource or any future exploration activities.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first modern-day exploration was conducted in the Pogo area by WGM Inc, in 1981, where strong gold-arsenic-tungsten anomalies were identified in stream sediment samples collected from the Liese Creek area during regional reconnaissance surveys. WGM staked mining claims over the area. In 1991, the area was incorporated into the Stone Boy Joint Venture, which consisted of large claim groups focused on the Chena, Salcha and Goodpaster River basins. As part of the Stone Boy JV, exploration was conducted by WGM and financed by Sumitomo Mining Metal Corporation Ltd. and other companies (that later withdrew) as part of an earn-in agreement. Regional grid-based soil sampling was completed between 1991 and 1994, with three diamond drill holes funded by the Japan Oil Gas and Metals National Corporation drilled in 1994 to test a prominent gold-in soil anomaly. Based on successful anomalism returned in the initial three holes, a further 13 were drilled in the Liese Creek area in 1995, one of which was the discovery hole for the Liese vein system. This intercept graded 22.7ft at 1.838opt (6.92m @ 63.0gpt). In 1997, Sumitomo signed an agreement with Teck Resources Ltd. to acquire a 40% interest in the Pogo claims and assumed operatorship of the project in 1998. Further surface definition drilling was completed between 1998 and 2004, with the mining operation commencing in 2006.
Geology	Deposit type, geological setting and style of mineralisation.	The Project is in the Tintina Mineral Belt, which is a 200 km-wide, 1,200 km-long arc, broadly bounded by the Tintina-Kaltag fault systems to the north and the Denali-Fairwell fault systems to the south. The region contains numerous economic deposits of gold in addition to copper, lead, zinc, silver and tungsten deposits. The lithological units in the Pogo deposit area are dominantly high-grade metamorphic rocks intruded by later felsic to intermediate intrusive units. Key metamorphic rocks include biotite feldspar gneiss, augen gneiss and mafic schist derived from both sedimentary and igneous protoliths. Metamorphic mineral assemblages observed consist of quartz, feldspar, biotite, chlorite, muscovite, sillimanite, andalusite and garnet. The 50km long Goodpaster batholith (granite-tonalite-diorite) is the dominant intrusive complex in the district. Locally small felsic to intermediate stocks and dykes are present. The principal mineralisation is hosted in biotite-quartz-feldspar paragneiss and orthogneiss, although all other lithologies are cut. Where the veins cross intrusives, they tend to split and become stockwork zones. Gold at Pogo is predominantly hosted within laminated quartz veins ranging in thickness from <0.5m to >10m. Mineralised veins contain around 3% sulphides (arsenopyrite, pyrite, pyrrhotite, loellingite, chalcopyrite, bismuthinite, sphalerite, galena, molybdenite, tetradymite, maldonite) and a variety of Bi-Pb-Ag sulphosalts. The Pogo gold deposit is an example of a Reduced Intrusive Related Gold Deposit (RIRGD), characterised by a low sulphide content, (typically <5%) and a reduced ore mineral assemblage, that typically comprises pyrite and lacks primary magnetite or hematite. In brief, these deposits typically have the following characteristics: ▪ Mineralisation occurs as sheeted vein deposits or stockwork assemblages and often combines gold with variably elevated Bi, W, As, Mo, Te, and/or Sb, but low concentrations of base metals.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Restricted and commonly weak proximal hydrothermal alteration ▪ Spatially and temporally related to reduced intrusions of intermediate to felsic composition.
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	No drilling information is being released
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No drilling information is being released
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No drilling information is being released
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Not applicable.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not applicable, no metal equivalent values are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No drilling information is being released
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No drilling information is being released
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No drilling information is being released
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No drilling information is being released
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Nil
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further extensional and definition drilling is planned for FY2022 from both underground and surface positions. The drill program at the Goodpaster Project is continuing to establish a maiden resource for this project.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams have been included in this announcement.

APPENDIX C: 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.	Historically, geologic logs, saved in Logplot 7 format were imported directly using GeoLogger. GeoLogger, a Microsoft® Access application developed by GEMS for use by Pogo, imports samples, geologic logs and down-hole surveys into the drill hole database. Collar surveys have been entered directly into the database in the header table by the geologist responsible for the drill hole. Down-hole surveys were recorded on slips of paper into GeoLogger and a geologist marked the survey as acceptable. The data entry procedures for samples, geologic logs, and down-hole surveys are well documented in the Pogo logging manual. Post-acquisition in 2018, all data was transitioned to an Acquire database. A comprehensive audit and validation were undertaken upon transitioning between the historic database and the AcQuire database. All sampling and logging data is digitally entered into a tablet then transferred to AcQuire. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. The data entry procedures and use of templates minimise the chance of the data being corrupted.
	Data validation procedures used.	Drill intersection information used in the preparation of this release has been validated by the Competent Person. Validation included, but was not limited to, review of the database, core photographs, QAQC results and review of the assay certificates. Intervals were manually checked to ensure they truly reflect the mineralised zones. In addition, all data was validated based on comprehensive site data validation procedures.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this resource report has conducted multiple site visits. The resource models and background data has been produced by personnel with extensive onsite experience.
	If no site visits have been undertaken indicate why this is the case.	Site visits were not undertaken during period of July 2020 to February 2022 due to COVID-19 travel restrictions.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource using Vulcan and Leapfrog software. All seven major zones were modelled to support the Mineral Resource estimate, namely Liese, North Zone, South Pogo, Fun Zone, Central Zone, East Deeps and Hill 4021. The confidence in the geological interpretation is reasonable although on a local scale there remains a degree of uncertainty due to the structurally complex nature of the orebody. The confidence is supported by information from 15 years of underground operations.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including backs and face mapping, historic rib mapping, drilling and oxidation surfaces. Gold grades have been used to assist in the interpretation of the mineralisation. The Hill 4021 interpretation used surface mapping in conjunction with the drill data.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Alternative interpretations are possible for the less continuous lenses at each deposit. On a global scale this will have minimal impact on the Mineral Resource estimate. A higher confidence exists in the more significant continuous lenses which are often supported by mining history.
	The use of geology in guiding and controlling Mineral Resource estimation.	The structural framework, which is relatively well-known after many years of mining, has guided interpretation. In addition, drill core logging, and development mapping have been used to create 3D constrained wireframes of lithology.
	The factors affecting continuity both of grade and geology.	Mineralisation is hosted in quartz veins – which have filled dilational zones within the brittle host rock sequence. Main mineralising systems are variably truncated or offset by meso to macro scale faulting which is evidenced in the multiple lode interpretation for each of the main mineralised systems within the Pogo deposit. Mineralisation also occurs as a stockwork zones. Continuity of the veins (geological continuity) and stockwork is governed by structural deformation porosity. The mineralisation displays a moderate nugget component with significant short-range grade variability.
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.	Liese – The generally shallowly north-westerly dipping Mineral Resource extends approximately 1,300 m in a north-easterly direction along strike and 1,300 m down dip. Eastern Deeps – The shallow to moderately north-westerly dipping Mineral Resource extends approximately 530 m in a north-easterly direction along strike, and 600 m down dip. North Zone – The steeply east dipping Mineral Resource extends approximately 950 m in a northerly direction along strike, and 970 m down dip. A flatter component, dipping west, extends 250m by 190m.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		South Pogo – The moderately north-westerly dipping Mineral Resource extends approximately 1100 m in a north-easterly direction along strike, and 760 m down dip. Fun Zone – the generally moderate to steep-westerly dipping Mineral Resource extends approximately 880 m in a westerly direction across strike, 650 m in a northerly direction across-strike and 915 m down dip. Central Zone - The moderate to steep north-westerly dipping Mineral Resource extends approximately 750 m in a north-easterly direction along strike, and 500 m down dip. Hill 4021 – the Hill 4021 prospect consists of two zones of stacked, shallowly dipping mineralised structures with combined extents approximately 1,900 m in a north-westerly direction along strike and 500 m down dip
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.	Domains are set by grouping lodes as dictated by their structural setting, geological mineralisation, and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variography purposes (be combining groups of lodes). Vein wireframes were used to select drill hole samples. Samples from within the mineralisation wireframes were used to conduct a sample length analysis. Regularised downhole compositing (from hanging wall to footwall) of drill-hole samples is exclusively used, composite lengths ranging from 2ft to 5ft. Fun Zone and Central Zone used 2 ft, South Pogo used 3ft, North Zone, 2.5ft, East Deeps, 5ft and Liese primary lodes composited to 5ft lengths whilst Liese grade control areas comprising significant face data and narrower quartz veins were composited on a 2ft regularised length. Composite lengths are based on the prominent width of mineralised lodes within the areas. Detailed exploratory data analysis is carried out on each deposit, using Supervisor software. The estimation technique used is dictated by the dataset. Most of the Mineral Resource is estimated using ordinary kriging (OK). Categorial Indicator Kriging (CIK) is employed on the two major veins in both South Pogo and North Zone mine areas. A minor proportion of the Mineral Resource is estimated using inverse distance (ID^2). Vulcan software was used for data compilation, domain wireframing, calculating and coding composite values, estimating and reporting. Maximum distance of extrapolation from data points was statistically determined and varies by domain. Block model volumes were compared to wireframe volumes to validate sub-blocking. Where OK and ID^2 estimates were used, treatment of extreme high grades was dealt with by using a cap grade strategy.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The current Mineral Resource estimate is an update to the previous Mineral Resource estimate of March 2021. The current estimate accounts for both mining depletion and the addition of extensional and infill drilling. Reconciled historical production from underground operations is comparable with new estimate.
	The assumptions made regarding recovery of by-products.	None, not applicable.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	Graphite present in parts of the North Zone resource is associated with geotechnical and processing issues. To manage these risks, the presence of graphite in the North Zone of the Pogo resource has been logged and modelled as separate lithological domains. No other deleterious elements that are material to the resource estimate are known to occur throughout the Pogo deposit.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The block sizes in relation to the average sample spacing are summarised below. • Liese – 15 Y by 15 X by 15 Z (feet) block. Drill spacing 14 to 200 feet. Mean approx. forty feet. Face-channel samples were taken on 14ft advances of the production face and as close to normal as possible to the apparent dip-plane of veins within the production face. • Eastern Deeps – 15 Y by 30 X by 15 Z (feet) block. Drill spacing 15 to 200 feet. Mean approx. forty feet. • North Zone – 15 Y by 15 X by 5 Z (feet) block size Drill spacing highly variable from 10 to 300 feet. Mean approx. sixty feet. Face-channel samples were taken on 14ft advances of the production face and as close to normal as possible to the apparent dip-plane of veins within the production face. • South Pogo – 15 Y by 15 X by 15 Z (feet) block size. Drill spacing highly variable from 10 to 240 feet. Mean approx. sixty feet. Face-channel samples were taken on 14ft advances of the production face and as close to normal as possible to the apparent dip-plane of veins within the production face. • Fun Zone – 15Y by 15 X by 5 Z (feet) block. Drill spacing 10 to 200 feet. Mean approx. sixty feet. Face-channel samples were taken on 14ft advances of the production face and as close to normal as possible to the apparent dip-plane of veins within the production face. • Central Zone - 15 Y by 15 X by 5 Z (feet) block size. Drill spacing highly variable from 30 to 200 feet. Mean approx. eighty feet. ▪ Hill 4021 – 50 x 50 x 15 ft – sub celled to 1 x 1 x 0.5 ft. Drill spacing highly variable from 60 ft to 600 ft.
	Any assumptions behind modelling of selective mining units.	A 6ft minimum mining width for underground environment is assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Drill hole sample data was flagged using lode codes generated from the mineralisation interpretations, which were completed with due consideration of the structural framework and lithological controls at Pogo. Low grades can form part of the mineralisation interpretation. Mineralisation boundaries were treated as hard boundaries and grade estimations are constrained by the interpretations.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	A review of grade outliers was undertaken for each deposit to ensure that extreme grades are treated appropriately during grade interpolation. Although extreme grade outliers within the grade populations of variables are real, they are potentially not representative of the volume they inform during estimation. If these values are not cut, they have the potential to result in significant grade over-estimation on a local basis. The cutting strategy was considered and applied as follows: • Disintegration analysis of log Histogram, mean-CV and log-probability plots for values beyond a lognormal distribution. • Contained metal plots: assessment of contribution of the highest values on the quantity of metal in an estimate. • Outlier analysis: removal of outliers and analysis of impact on the CV of domain. • Interrogation of disintegration point of run length composites. A range of top cuts are selected for each domain utilising the above strategies and an appropriate top cut chosen after further sensitivity analysis against Nearest Neighbour estimations to assess sensitivity of selected top cut grades and associated risk. Metal estimated in the resource models are reconciled with production models of like areas to determine the appropriateness of the high-grade treatment on the assays. Final top cuts are then applied on a lode by lode basis. No top cutting or capping of high grades is done at the raw sample or compositing stage. For CIK, OK and ID^2, treatment of the high-grade assays occurs at the estimation stage.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block model validation was completed using visual methods in section and 3D with comparisons made between the input raw drill hole data, composites and blocks, and numerical validation methods, such as histogram, log-probability and swath plots. The validation showed the strong conditional bias predicted from the estimation approach, but the block model estimates appropriately reflect the composites, showing a reasonable local estimate.
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 Resources have been reported at a diluted cut-off of 4.1g/t Au (0.12 oz/short ton) inside simulated Mineable Shape Optimiser (MSO) shape at a minimum width of 6ft. Hill 4021 surface component is reported inside a Whittle floating cone shell at a cut-off of 1.7 g/t (0.05oz/short ton), the 4021 underground component is based on MSO run at 30ft x 30ft x 6 ft and 4.1 g/t (0.12oz/shot ton) reported below the Whittle shell.
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.	Underground resources are reported using a minimum mining width of 6ft, with no dilution added on hanging wall or footwall. MSO runs are used to identify potential mineable sections within the Mineral Resource for reporting. The results from this process are further assessed regarding their reasonable prospects for eventual economic extraction
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.	All Pogo UG ore is treated at the Pogo milling facilities. These facilities are currently designed to handle approximately 1.2 million short tons of feed per annum. The plant has the capability to treat both partially refractory and free milling ores, through both gravity and flotation circuit and associated fine grind circuit (including carbon-in-pulp (CIP) gold recovery). The plant consists of grinding, gravity, flotation, fine grind, CIL, elution, electrowinning and smelting circuits. Gold recovery is based on currently achieved metallurgical parameters. There are no indications in the available data that metallurgical factors change in the material estimated in this Mineral Resource model.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Pogo is an operating mine that is fully permitted in accordance with United States federal laws and regulations in addition to Alaskan state laws and regulations. Waste and residual process material is used as either components in rockfill, paste fill or stored on the dry stack tailings facility. There is currently adequate storage capacity at site that would enable waste disposal of the material that potentially may be generated by extraction of future economic material in the Mineral Resource estimate.
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 density of $2.68g/cm^3$, or 0.084 short ton/ft^3 was used for the mineralisation. The density value has been based on a study of the average lithological densities across the mine site completed in 2019. This study consisted of a detailed statistical analysis of 2,523 measurements that have been recorded from each of the main mineralised zones. These values agree with over 10 years production data.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Bulk density measurements are taken daily using the water displacement technique. One bulk density measurement is taken for each lithology in every hole every day. An attempt is made to collect a bulk density measurement from every mineralised zone, each lithology and weathering states represented in drill hole core.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation, and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Indicated Resources are defined by drilling which is predominantly 60ft x 60ft and may range up to 120ft x 120ft maximum. Lodes classified as Indicated are supported by a minimum of 6 face chip or diamond drill hole samples. Inferred Resources are defined on a nominal 120ft x 120ft drilling pattern and may range up to 240ft x 240ft. Resources based on less than 120ft x 120ft spaced drilling, but which have a low level of confidence in the geological interpretation may also be classified as inferred.
	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).	Appropriate account has been taken of all relevant criteria including data integrity, data quantity, geological continuity, and grade continuity.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Mineral Resource estimate appropriately reflects the Competent Person's views of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The current model has not been audited by an independent third party but Liese, South Pogo, East Deeps, Fun Zone and Central Zone models have been peer reviewed by CSA Global in the previous three years.
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 has been classified in accordance with the JORC Code, 2012 Edition using a qualitative approach. All factors that have been considered have been adequately communicated in Section 1 and Section 3 of this Table.
	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.	Comparisons with previous Mineral Resource estimates and global reconciliation between historic mine production and the Resource estimate indicated the model is robust.

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.	All areas under assessment, except for the East Deeps section of the mineral resource, were based on updated MY2022 resource models. There were no changes to the MY21 East Deeps resource model and thus considered relevant to the MY22 reserve estimation process. The basis of the conversion were mine designs combined with economic and technical analysis to level of detail typically expected of a preliminary feasibility study or higher.
	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.	Life of mine planning with associate economic model has been uses to assess the mineral resource. This planning is informed by current operational considerations, design guidelines and detailed budget modelling of operating and capital costs. The mine designs combined with economic and technical analysis and consideration of other modifying factors were completed to a level of detail typically expected of a preliminary feasibility study or higher.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Pogo is a currently operating mine. The mine planning from which the reserve estimate is developed is based detailed engineering and budgeting to a pre-feasibility study level or better. Only the economic portion of the resource model informs the reserve estimate.
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 estimate are informed by historical recoveries achieved. The cut-off grade is determined by budgeted costs associated with ore development, production, processing and associated administration costs. Detailed financial assessment is completed on all mining areas.
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 design and associated technical and 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.	Current mining methods used at the Pogo operation have been used in the reserve estimation process.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Design parameters vary between areas of the mine. Stoping is generally based on 45 foot sublevels with stope strike used to limit to a stable hydraulic radius. Paste is used to fill mined areas. This method is currently in operation.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Stope optimisation (Mine Stope Optimiser - MSO) is used for assessing parts of the Pogo resource. Key factors include a minimum mining width of 1.83m (6ft), minimum footwall angle of 42 degrees and a cut-off grade of 2.4g/tonne (0.128oz/ton). Detailed stope designs are also used where MSO is deemed not appropriate. Further assessment of the MSO results taking into account ore tunnel development and capital design is conducted to optimise the value of the Ore Reserve estimate.
	The mining dilution factors used.	Dilution is included in the mine stope designs and largely accounts for the geometry of the resource; mining method and the constraints of the equipment being utilised. A further dilution factor is then applied that to account for over-break. This factor is based on historical assessment and reconciliation work. In general, a dilution a factor of 1.2 has been used in the assessment of the Ore Reserve. In some areas where there is increased geotechnical risk, or the geometry of the resource warrants it the dilution factor has been increased in line with historical results.
	The mining recovery factors used.	Detailed stope and mine design accounts for, to a large extent, the estimated recoverability of the resource. A further recovery factor of 98% has been applied to reconcile with what has historically been achieved at the mine.
	Any minimum mining widths used.	A minimum mining width of 6ft has been applied to all stopes. A minimum 42 degree stope FW angle is applied to ensure ore recovery.
	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 or unclassified metal ounces are excluded from the reported reserve. Material classed as inferred or unclassed in the resource model that is included in the reserve shapes makes up less than 2% of the estimate and thus is not considered material.
	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 Pogo UG ore is treated at the Pogo milling facilities. These facilities are currently designed to handle approximately 1.45 million short tons of feed per annum. The plant has the capability to treat both partially refractory and free milling ores, through both gravity and flotation circuit and associated fine grind circuit (including carbon-in-pulp (CIP) gold recovery). The plant consists of grinding, gravity, flotation, fine grind, CIL, elution, electrowinning and smelting 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.	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.

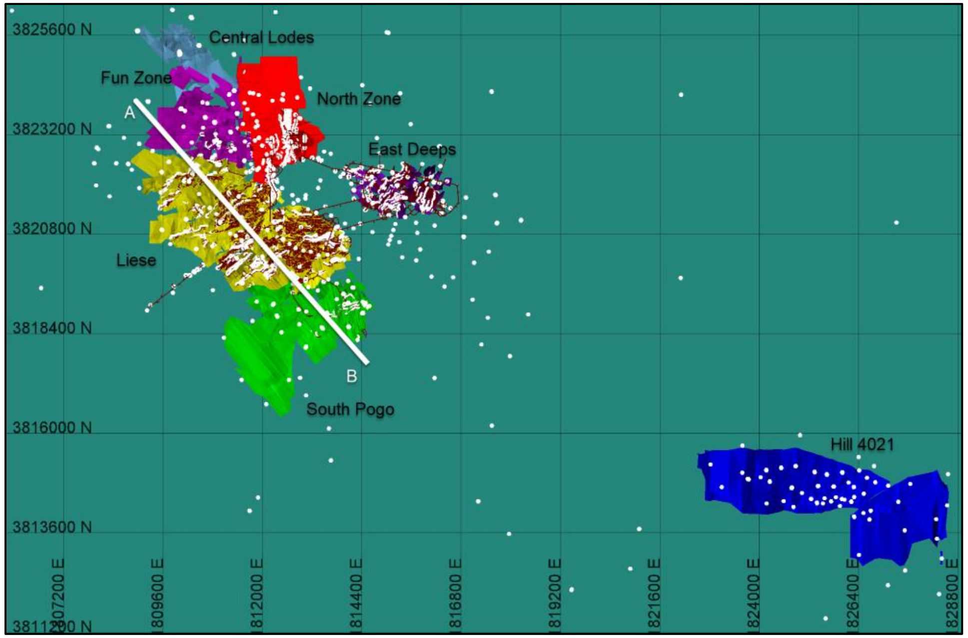
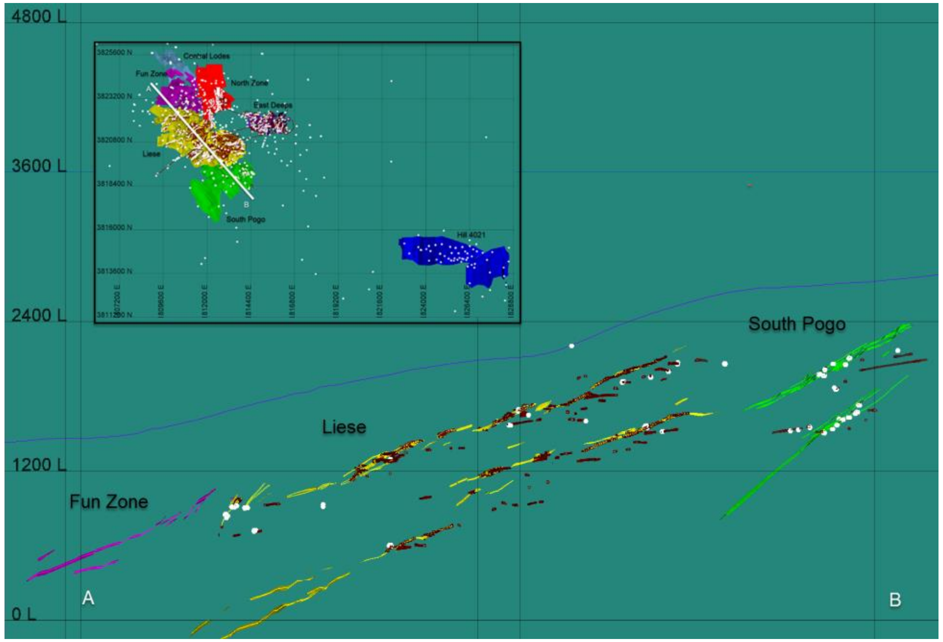
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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.	Pogo 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 expected performance on site and life-of-mine forward planning. Plant and equipment capital form part of the budget process and approved by the NSR board.
	The methodology used to estimate operating costs.	All operating costs are estimated through first principals modelling, or quotes from reputable contractors and evaluated against current performance.
	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.	A gold price is based on corporate guidance.
	The source of exchange rates used in the study.	The reserve assessment is completed in US currency and thus not sensitive to exchange rates.
	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.	US$1,350/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.	All gold is sold directly to market. There are no specific marketing considerations that are relevant to the sale of gold.
	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.	An NPV assessment is not used to assess the economics of the reserve. Existing and forecast costs have been projected forward in the operating budget model. On this analysis the reserve has a sufficient margin to warrant mining.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The use of conservative assumptions and margins ensures the reserve is not sensitive to fluctuation in key the determinants of its economic viability.
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:	
	Any identified material naturally occurring risks.	No Issues.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	Pogo operations are currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are granted.
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 with additional assessment. In general, Measured Resource is converted to either Proved or Probable Reserves, with Indicated Resource material converting to Probable Reserve. Reserve shapes have been classed based on the classification of the majority of valuable resource contained with the reserve shape.
	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 in 2022.
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.	When taking into account the basis of the estimate compared with the mine performance the confidence in the modelling and associated Ore Reserve Estimate is considered high.
	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.	Although detailed designs and assessment have been used to identify those parts of the resource model that informs the reserve estimate, given the nature of estimating gold resources the Ore Reserve estimate should be considered largely global in nature.
	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.	Pogo is a profitable operating mine and thus there is confidence in the modifying factors (considerations) relevant to the reserve estimate.
	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.	Mine performance has been used in the generation of modifying factors applied to develop a Reserve.

APPENDIX C: TABLE 1

POGO RESOURCE	
Plan view of the Pogo deposit and drill hole collars with development shown. Units are shown in feet. Grid is 2,000ft squares. 	Representative cross section through the Pogo deposit. Existing development is shown in brown. Topography shown in blue. 

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Goodpaster Exploration – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The Goodpaster prospect was sampled from HQ diamond drill hole core (DD) completed from surface drill campaigns between 2011 and 2021.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Geological and mineralisation boundaries are identified by professional geologists; such boundaries are not crossed for sampling purposes. Diamond core sampling intervals are set at a minimum sample width of 0.5ft (0.15m) and a maximum sampled interval of 5ft (1.52m). Sampled intervals are measured and plotted once they are received for record keeping and validation. Gold and multi-element assays are plotted against core logs into their designated sample intervals.
	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.	All drill core is comprehensively logged; intervals for assay sampling are selected based upon geological and mineralogical observations by professional geologists. Assay samples are not normally collected across lithological or mineralisation boundaries. Sampling protocols at Pogo vary dependent on the purpose of the drill hole: Exploration Core Drilling: Drill core is cut using an Almonte core saw. Half-cut core is submitted for analysis. The non-assayed portion of the core is stored on-site. For NQ2 core samples, minimum sample size of 0.5ft (0.15m) and a maximum sampled interval of 5ft (1.52m). When HQ samples are half-core cut, the maximum sample is extended to 5ft (1.52m). Quartz vein, fault zones, silica flooding, quartz stockwork zones and strongly altered host rocks are sampled. The adjacent five feet (1.52m) above and below mineralised zones are also sampled. Samples are crushed to 70% passing 2mm. A 250 gm sub-split is taken which is then pulverised. A 30 gm sub-sample of all sample types is then selected for fire assay with an atomic absorption spectroscopy (AAS) finish.
	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Diamond core drilling has been carried out only from the surface at Goodpaster. Surface drill holes are typically collared using PQ / HQ diameters and are rarely reduced to NQ2 only where necessary. Core drilled between 2009 and 2017 was generally not oriented. Since 2018, orienting of all exploration drill holes using the Reflex Act III tool has been undertaken.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Core recovery is recorded for all drilled holes. Recovery is measured to the tenth of a foot (~3cm) and was historically recorded in the Recovery tab using Rockware Logplot 7 software. In general, recoveries are excellent (well above 95% core recovered) and no significant issues with core loss are known.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Core is measured, cut, sampled and bagged for shipments at Pogo's core processing facility. Drill contractors adjust their rate of drilling and method if recovery issues arise. All recovery footages are recorded by the drillers on core blocks. Blocks are checked and compared to the measurements of the core by geologists. Discrepancies are reviewed with the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Goodpaster Project has no known relationship between sample recovery and grade. Overall recoveries are excellent and no significant issues with core loss are apparent.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core logging is carried out in accordance with Pogo Exploration core logging procedures. Data recorded includes lithology, structure, alteration assemblages, oxide/sulphide mineralogy, geotechnical parameters (recovery and RQD), and the presence of visible gold. And associated minerals. Drill core is logged electronically using Rockware Logplot 7 software and since 2019 the AcQuire database system has been utilized. Logging and sampling are consistent with industry standards. Lithology is measured to the tenth of a foot (~3cm) scale marked from the closest core block. Rock codes are specific to this project. Logs are completed in sufficient levels of detail to support current Mineral Resource estimation and mining practices.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Drill logging is both qualitative and quantitative in nature. Every core tray is photographed wet.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The total length and percentage of the relevant intersections logged.	All drill holes are logged in full, from start to finish of the hole. All intersections are logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Core drilled for exploration purposes is cut in half onsite using industry standard Almonte core saws.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Core drilling only at Goodpaster
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	All sample preparation and assaying of Pogo drill core is undertaken by Bureau Veritas (BV) and/or Australian Laboratory Services (ALS). Pogo sends drill core to Fairbanks, Alaska with pulps sent to the BV laboratories in Reno, Nevada or Vancouver, British Columbia or ALS laboratories Vancouver, British Columbia for assay. Industry standard chain of command paperwork is maintained. Typically, gold assays are completed in Reno or Vancouver and the multi-element assays are completed in Vancouver or at another ALS laboratory. Sample preparation includes drying, crushing to 70% passing 2 mm, splitting of a 250 gm subsample, and pulverising to 85% passing 75 µm. Sample preparation techniques are appropriate for the Pogo intrusion-related style of mineralisation.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Pogo Mine uses an industry standard QAQC programme involving standards, blanks and field duplicates, Standards are introduced in the assay batches at a rate of three control samples per twenty half- core samples. QC results are analysed immediately upon return of a sample batch and reported to management monthly. Overall results show no significant QAQC issues with the analytical laboratory. No systematic bias observed. Protocols are in place to manage failed QAQC results. In addition to Pogo QAQC, both analytical laboratories are ISO certified and conduct rigorous internal QAQC checks. Internal QAQC reports are provided to Pogo personnel. These reports do not indicate any systematic issues with the quality of the analysis provided.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates are submitted when half core is taken to ensure that the sampling is representative of the in-situ material being collected.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Duplicate sample results correlate well, hence sample sizes are considered to accurately represent the gold mineralisation at Pogo Mine. Sample sizes are appropriate and correctly represent the style and type of gold mineralisation.
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.	Core samples are analysed using industry standard analytical techniques. In holes drilled for exploration purposes, gold content is determined by a 30 gm fire assay with an atomic absorption finish (AAS). Exploration results analysed by fire assay with the AAS finish returning > 10 ppm (0.292 oz/ton) gold are re-assayed by fire assay with a gravimetric finish. Select samples, generally one in every five holes drilled, are assayed for forty-five elements multi-acid digestion and ICP-MS/ES finish. The technique is considered appropriate for the style of mineralisation under consideration.
	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 estimate resources in this release.
	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.	Quality control samples are inserted into the sample stream. A mixture of both Certified Reference Materials and certified standards, blanks and duplicates are inserted randomly. However, Pogo Exploration aims to achieve an insertion rate of approximately three in every twenty core samples. The Pogo Mine both generates its own in-house blank certified standards and uses Certified Reference Materials (CRMS) sourced from OREAS Laboratories. Blank standards are prepared with a round-robin assay approach to determine values and acceptable limits. Commercially purchased sand is also used as blank material. Monitoring of QA/QC results is performed by the resource geologists upon importing the individual assay certificates into the drill hole database. When failures occur, the resource geologists notify the geologist responsible for logging the drill hole or the core processing facility supervisor.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are routinely inspected by senior company personnel. Core photographs of significant intersections reviewed to ensure mineralised zones are consistent with known Pogo mineralisation styles.
	The use of twinned holes.	No twinned holes have been completed at Goodpaster Project.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All diamond core is logged in detail. Logging takes place at the core processing facility.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Core logging was historically completed using Logplot 7 software. Since Northern Star's Pogo acquisition in 2018, data capture has transitioned to the modern AcQuire database and logging systems. All Pogo data is stored in an industry-standard AcQuire database. Validation protocols are built into the importation process to ensure data integrity.
	Discuss any adjustment to assay data.	No adjustments were made to the 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.	Drill rigs are aligned using the Reflex TN14 Gyrocompass. On surface, collar locations are surveyed using a Leica RTK-GPS survey station. Surface drill holes are surveyed every 200 ft. A final survey is taken at the end of all drill holes. Deviation from the initial survey is checked against plan and the hole is redrilled if there is excessive deviation (>5%). There are no mine workings in the area
	Specification of the grid system used.	The grid system used is the North American Datum of NAD83 (NAD83) AKSP-3.
	Quality and adequacy of topographic control.	High quality LiDAR topographic mapping is utilised at Pogo.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing is highly variable. Well-drilled areas are tested by drilling on approximately 80 meter-spaced patterns, extending or contracting where the geology demands definition. The Goodpaster drilled deposit area contains drill spacing up to a maximum of 300m.
	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 current Goodpaster drill spacing of approximately 80m by 80m or less is deemed suitable to the establishment of a maiden Inferred Gold Resource.
	Whether sample compositing has been applied.	No compositing was applied prior to submission of samples for analysis.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Where practicable, drilling was designed to intersect the mineralisation as perpendicular as possible to the dominant vein and structural geometries. In some circumstances, terrain obstacles resulted in drill positions that were oblique to the mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The Competent Person believes that no bias has been introduced to the data, as no single potentially bias inducing orientation dominates in any given area.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by Pogo Mine personnel. All core samples are received intact and in their entirety in their core trays at the Company's secure core processing facility. All sampling and work on core samples is carried out within the confines of this secure facility. Pogo uses pre-numbered sample ticket books for sample numbers. The drill hole number, sample interval, and date are recorded on each ticket and the tear-off ticket is labelled with the sample interval and stapled onto the core box. Core is placed in bags with the sample number marked in permanent marker and the bar code stapled to the bag. After sampling is complete, sample bags are scanned and placed into rice bags (poly weave bags) labelled with the drill hole number and the sample sequence, ready for submission to the laboratory. Bags are sealed with a zip-tie. Samples are transported in totes via road to sample preparation facilities in Fairbanks, Alaska. Upon receipt, any issues with sample conditions are reported to Pogo Mine and Exploration personnel.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	In March 2018, Sumitomo Metal Mining Pogo LLC (SMM Pogo) commissioned Mine Technical Services Ltd. (MTS) to complete a review audit of standard procedures currently in use at the Pogo Mine in Central Alaska. Drilling, logging, sampling, analytical, QA/QC, database, modelling, density, ore control, resource estimation, mine planning, metallurgy and reconciliation procedures were audited. While minor recommendations for improvement were made, sampling techniques and data were generally found to be well-considered and consistent with industry good practise.

APPENDIX C: 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.	The total tenement area comprising the Pogo Project consists of 1,250 state mining claims (20,623 ha) in addition to the mine lease claim (777 ha) and the mill site lease (1,385 ha). The Pogo operation is 100% owned by Northern Star Resources, purchased in Aug 2018. There are no known royalties on the Goodpaster area subject the resource reported in this release.
	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.	Detailed legal due diligence completed as part of the Pogo acquisition demonstrates that the tenure is in good standing and secure. Pogo is a fully permitted and operational mine, and there are no foreseen permitting issues that will prevent development of the resource or any future exploration activities.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first modern-day exploration was conducted in the Pogo area by WGM Inc, in 1981, where strong gold-arsenic-tungsten anomalies were identified in stream sediment samples collected from the Pogo and Liese Creeks during regional reconnaissance surveys. WGM staked mining claims over the area. In 1991, the area was incorporated into the Stone Boy Joint Venture, which consisted of large claim groups focused on the Chena, Salcha and Goodpaster River basins. As part of the Stone Boy JV, exploration was conducted by WGM and financed by Sumitomo Mining Metal Corporation Ltd. and others (that later withdrew) as part of an earn-in agreement. Regional grid-based soil sampling was completed between 1991 and 1994, with three diamond drill holes funded by the Japan Oil Gas and Metals National Corporation drilled in 1994 to test a prominent gold-in soil anomaly. Based on strong gold grades returned in the initial three holes, a further 13 holes were drilled in the Liese Creek are in 1995. One hole was the discovery hole for the Liese vein system. The intercept graded 22.7ft at 1.838opt (6.92m @ 63.0gpt). In 1997, Sumitomo signed an agreement with Teck Resources Ltd. to acquire a 40% interest in the Pogo claims; Teck Corp assumed operatorship of the project in 1998. Further surface definition drilling was completed between 1998 and 2004; mining operations commenced in 2006.
Geology	Deposit type, geological setting and style of mineralisation.	The Project is located in the Tintina Mineral Belt, a 200 km-wide, 1,200 km-long arc, broadly bounded by the Tintina-Kaltag fault systems to the north and the Denali-Fairwell fault systems to the south. This region contains numerous economic deposits of gold in addition to copper, lead, zinc, silver and tungsten deposits. The lithological units in the Pogo deposit area are dominantly high-grade metamorphic rocks later intruded by felsic to intermediate plugs and sills. Key metamorphic rocks include biotite feldspar gneiss, augen gneiss and mafic schist derived from both sedimentary and igneous protoliths. Metamorphic mineral assemblages observed consist of quartz, feldspar, biotite, chlorite, muscovite, sillimanite, andalusite and garnet. The 50km long Goodpaster batholith (granodiorite composition) is the dominant intrusive complex north of the Pogo gold district. Principal gold mineralisation is hosted in biotite-quartz-feldspar paragneiss and orthogneiss, although any lithology can host gold mineralisation. Post-metamorphic intrusions are rarely significant hosts. Gold at Pogo occurs predominantly within thrust faults where quartz veins ranging in thickness from <0.5m to >10m. Mineralised veins contain plus/minus 3% sulphides (arsenopyrite, pyrite, pyrrhotite, loellingite, chalcopyrite, bismuthinite, sphalerite, galena, molybdenite, tetradymite, maldonite) and a variety of Bi-Pb-Ag sulphosalts. High-angle faults often host strong gold grades as well. The Pogo gold deposit is considered to be an example of a Reduced Intrusive-Related Gold Deposit (RIRGD), characterised by a low sulphide content, (typically <5%) and a reduced ore mineral assemblage. It typically contains pyrite and arsenopyrite but lacks primary magnetite or hematite. In brief, these deposits typically have the following characteristics; ▪ Mineralisation occurs as sheeted vein deposits or stockwork assemblages and often combines gold with variably elevated Bi, W, As, and Te, but contains low concentrations of base metals ▪ Restricted and commonly weak proximal hydrothermal alteration ▪ Spatially and temporally related to reduced intrusions of intermediate to felsic composition.
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	Tables with the drill hole information accompany this release.
	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 material will not materially affect the understanding of this report

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	All reported assays have been length weighted to provide an intersection width. Where lower grade stockwork veining and/or barren material is present between sheeted veins, length weighted calculations may include such mineralized material intervals.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top cut for the purpose of this report
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not applicable - given metal equivalent values are not being reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Prior to September 2018, estimated true width intersections of mineralized material were calculated fusing GEMS GEOVIA software based on interpreted vein orientations. From October 2018 to present, true width intersections are estimated using trigonometry calculations of the vein angle to the core axis (Estimated true thickness = intercept length X sin (vein angle to core axis)).
	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 estimated true widths have been clearly stated 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 mineralisation orientations are unknown, true width intersections are estimated using trigonometry calculations of the vein angle to the core axis (see above).
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.	Diagrams have been included in the body of the announcement.
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 attribute 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.	Nil
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).	Surface exploration diamond drilling on the Goodpaster vein system is ongoing with two diamond drill rigs from multiple surface drill pads.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams have been included in this announcement.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Historically, geologic logs, saved in Logplot 7 format were imported directly using GeoLogger. GeoLogger, a Microsoft® Access application developed by GEMS for use by Pogo, imports samples, geologic logs and down-hole surveys into the drill hole database. Collar surveys have been entered directly into the database in the header table by the geologist responsible for the drill hole. Down-hole surveys were recorded on slips of paper into GeoLogger and a geologist marked the survey as acceptable. The data entry procedures for samples, geologic logs, and down-hole surveys are well documented in the Pogo logging manual. Post-acquisition in 2018, all data was transitioned to an Acquire database. A comprehensive audit and validation were undertaken upon transitioning between the historic database and the AcQuire database.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		All sampling and logging data is digitally entered into a tablet then transferred to AcQuire. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. The data entry procedures and use of templates minimise the chance of the data being corrupted.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this resource report has not visited site The geological interpretation and background data has been produced by personnel with extensive onsite experience.
	If no site visits have been undertaken indicate why this is the case.	Site visits were not undertaken during period of July 2021 to March 2022 due to COVID-19 travel restrictions.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The Goodpaster deposit is immediately adjacent to Pogo and is thought to be part of the same mineralised system. This has resulted in geological understanding accumulated through >15 years of mining at Pogo heavily influencing and enhancing the Goodpaster interpretation. The geological interpretation is based off extensive geological and structural logging of 224 diamond drill holes intercepting the lode horizons. The resource categories assigned to the model directly reflect the confidence in the geological interpretation. While confidence in the geological interpretation is reasonable on a deposit scale, locally there remains a degree of uncertainty due to the structurally complex nature of the orebody and the relatively broad drill spacing.
	Nature of the data used and of any assumptions made.	The geological interpretation of Goodpaster has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages logged from diamond drill core were all used to help define the mineralised domains and regolith boundaries.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust as they provide a realistic representation of the mineralised structures. Alternative interpretations that were trialled earlier do not affect the current Mineral Resource Estimation.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological domains interpreted from all available geological data are used as estimation domains. They are further sub-domained where internal multi-modal grade populations and sufficient sample data is available to improve grade homogeneity and reduce variance. Individual domain geometry has been used to control search orientations via dynamic anisotropy which accounts for lode flexure and ensures appropriate samples are selected for estimation.
	The factors affecting continuity both of grade and geology.	Interpreted sub-parallel deposit scale thrust horizons and inter-linking faults control the extent of the Goodpaster mineralisation. Interplay between this structural architecture controls dilational positions and ultimately high-grade mineralisation. Brittle faulting is evident in most drill core however given the current broad drill spacing it is difficult to assess the local impact of these structures on lode orientation.
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.	Goodpaster is situated ~1,500m's (4,900ft) northwest of the nearest Pogo underground development. The deposit is laterally extensive occupying an approximate footprint of 1,830m's (6,000ft) by 760m's (2,500ft) with a width up to 550m's (1,800ft). Lode orientations are variable but broadly dip ~30° to 280° however conjugate orientations are common.
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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database, flagged with a domain identifier and composited to 2ft with 0.5ft minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain with dual top cuts derived. Where applicable, the first top cut is utilised as a High Yield Limit (HYL) and its influence restricted to a 30ft buffer. The second top cut is always lower than the HYL and is the capped value used in the estimate beyond the HYL restriction limit. The top cutting methodology is used to ensure that high grade values are not smeared into poorly supported areas and excessive metal is not cut from the dataset while maintaining an appropriate coefficient of variation for a robust kriged estimate. Many of the principal lodes exhibit bi/multi-modal grade populations. These internal populations are controlled by sub-domaining of appropriate lodes using a Leapfrog numerical model. The original domains are used as a lateral extent and grade cut-offs derived from domain specific log probability plots. A probability threshold of 0.5 is used to partition all lodes. Due to limited sample data, variography is created on grouped domains exhibiting similar geology/geometry. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Search extents and orientations are controlled by variogram rotations, ranges, and DA.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Domains and sub-domains are estimated using Ordinary Kriging (OK) utilising the estimation parameters derived from the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output and reviewed. Dynamic anisotropy (DA) is used on all grade estimates due to common lode flexure. Dip and dip direction values are estimated into the domain model from mid-plane wireframes created for each individual lode. Hard boundaries are utilised between all domains and sub-domains supported by contact analysis.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The current Mineral Resource Estimate represents the maiden reported resource for the Goodpaster deposit. To ensure the validity of the OK estimate, check estimates have been completed utilising inverse distance, metal accumulation, and nearest neighbour methodology. These checks have been supplemented by conditional simulation and uniform conditioning of critical lodes. All check estimates show strong conformance to the primary OK values.
	The assumptions made regarding recovery of by-products.	None, not applicable.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 15ft (East- West) x 30ft (North-South) x 15ft (vertical) optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1ft x 2ft x 1ft to ensure high resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but typically equate to 1-1.5 times the current 80x80m resource definition spacing. A 3-pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to geological features and structural architecture. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Numerical modelling has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high-grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting obvious flexure. Contact analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	A review of grade outliers was undertaken to ensure that extreme grades are treated appropriately during grade interpolation. Although extreme outliers within the grade populations of each domain are real, they are potentially not representative of the volume they inform during estimation. If these values are not cut, they have the potential to result in significant grade over-estimation on a local basis. The cutting strategy was considered and applied as follows: ▪ Disintegration analysis of log histogram, mean-CV and log-probability plots for values beyond a lognormal distribution. ▪ Contained metal plots: assessment of contribution of the highest values on the quantity of metal in an estimate. ▪ Outlier analysis: removal of outliers and analysis of impact on the CV of domain. Dual top cuts were typically applied to lodes exhibiting outliers. The first top cut is utilised as a High Yield Limit (HYL) and set at a value that lowers the CV to acceptable levels for OK estimation (<1.8). The HYL is restricted to a 30ft buffer during estimation with the buffer distance largely derived from indicator variography at HYL cut-offs. The second top cut is always lower than the HYL and generally represents the domain specific population disintegration. This is the capped value used in the estimate beyond the HYL restriction limit.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. A visual inspection of input composites is compared to the estimated block model in section for each domain. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate. Global change of support plots are created and reviewed for principal domains.
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 Resources have been reported at a diluted cut-off of 4.1g/t Au (0.12 oz/short ton) inside Mineable Shape Optimiser (MSO) solids at a minimum mining width of 6ft and 30x30ft stope dimensions.

APPENDIX C: 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.	Underground resources are reported using a minimum mining width of 6ft, with no dilution added on hanging wall or footwall. MSO runs are used to identify potential mineable sections within the Mineral Resource for reporting. The results from this process are visually assessed and manually refined to validate their reasonable prospects for eventual economic extraction.
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.	Goodpaster ore will be treated at the Pogo processing plant. These facilities are currently designed to handle approximately 1.2 million short tons of feed per annum. The plant has the capability to treat both partially refractory and free milling ores, through both gravity and flotation circuit and associated fine grind circuit (including carbon-in-pulp (CIP) gold recovery). The plant consists of grinding, gravity, flotation, fine grind, CIL, elution, electrowinning and smelting circuits. While there are no indications in the available data that metallurgical characteristics differ between Goodpaster and Pogo, exhaustive test work still needs to be completed.
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.	The Goodpaster deposit is immediately adjacent to the currently operating Pogo mine. Pogo is fully permitted in accordance with United States federal laws and regulations in addition to Alaskan state laws and regulations. There is currently adequate storage capacity at site that would enable waste disposal of the material that potentially may be generated by extraction of future economic material in the Mineral Resource estimate.
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 density of 2.68g/cm3 (0.0835 short ton/ft3) was used for the mineralisation and typically 2.76g/cm3 (0.086 short ton/ft3) for waste. The density values have been derived via analysis of >10,000 density measurements by location and lithology taken across the Pogo mine camp. Host rocks and density values assigned correlate well with those at the adjacent Pogo deposits where production tonnages are reconciled monthly. Bulk density measurements are calculated using the water displacement technique.
	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.	Ore zones predominantly exist in fresh nonporous material so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation, and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Goodpaster resource is classified as Inferred and Potential only, with categories assigned via boundary string by domain, based on a combination of physical and estimation quality metrics. These include drill spacing, search pass, kriging efficiency / slope / variance, grade, and geological continuity. Inferred material is assigned where drill spacing is <= 80x80m (260x260ft) and the lode has established geological continuity. All other mineralisation is assigned a Potential resource category.
	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).	Appropriate account has been taken of all relevant criteria including data integrity, data quantity, geological continuity, and grade continuity.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Mineral Resource estimate reflects the Competent Person's views of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	A rigorous process for review of geological modelling, estimation and reporting of mineral resources is currently in place that meets high industry standards. At the completion of resource estimation, Northern Star undertake an extensive review of the model that covers: ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a methodical approach to resource estimation and the procedure requires the systematic completion of the NSR Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	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.	The deposit is in the early stages of resource definition and has not yet been mined.

JORC Code, 2012 Edition – Table 1 Report

Fimiston – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The sampling database for the KCGM Mineral Resource estimation has been collected over the last 115 years. The data has been collected by many different operations, using varying techniques. Assay information quality also varies with detection limit and quality: generally, the quality appears to be inversely proportional to the age of the samples. For this reason, assay information collected prior to 1984 is not used in the interpolation of element grades. All information collected prior to involvement by Northern Star in 2019 is hereafter referred to as historical data. Only historical data that is deemed as having acceptable and traceable location and assay information has been included in the Mineral Resource estimation dataset for Fimiston. For Mineral Resource estimation the FIM deposits are sampled in majority by diamond drilling (DD), reverse circulation (RC) and underground face chip samples. Hole Type / No. of Collars / Total Meters: Diamond / 113 / 50,535 RC / 3356 / 180,508 Total Number of Drillholes / 3469 / 231,043
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	The DD drilling down hole depth is recorded by the drillers on core blocks after every run. This is checked and compared to the measurements of the core by the geologist during core mark-up prior to logging. Sample intervals are then marked on the core by a geologist, to honour geological boundaries. Sample interval lengths vary from 0.3m to 1.3m. DD core is orientated, measured and then sampled by cutting the core in half longitudinally using an “Almonte” or “Corewise” diamond saw. Cutting is along orientation or cut lines. The same half of the core is always selected for each sample interval, placed in numbered calico bags that contain a bar code, scanned into the database and submitted to the laboratory for analysis. The other half of the core is retained in the core tray, which was stamped for identification, stored and catalogued. Routine ‘field duplicates’ to assess sample representivity are not performed on diamond core as these are not considered to be true field duplicates. RC samples are homogenised by riffle or cone splitting prior to sampling and then submitted for assay as either 1m or 2m intervals. Certified standard samples, ranging in grades from 0.69 gpt gold to 34.99 gpt gold, purchased from OREAS, are inserted at the rate of one in 40 samples. The results are reviewed on a per batch basis and the entire batch of samples is reanalysed if the result is greater than three standard deviations (SD) from the expected result. All drill collars are surveyed by using a total station theodolite or total GPS.
	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.	Historical sample preparation and assay procedures are variable due to the duration of historical work and the numerous companies involved. All historical sampling accepted for use is considered to have been collected by acceptable practices. Current sample preparation and assay procedures employed by KCGM are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. The primary laboratory, Bureau Veritas, meets ISO 9001:2000.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300g of the pulp is retained and a 40g charge weight for fire assay is extracted from the pulp packet. Samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled. Prills are placed in tubes, dissolved on hotplates and analysed using AA finish with over-range dilutions used as required. Sample preparation for Sulphur determination follows the same process as for Gold, with assaying taking place using the LECO method.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The Fimiston drilling database is composed of surface and in-pit reverse circulation (RC) drill holes and PQ, HQ, HQ3, NQ, triple tube and BQ diamond drill holes from surface and underground. Where possible diamond core was orientated using a spear, Ballmark™, Ezimark™, or ACE multi electronic tool. For RC holes either 5.5inch or 5.25inch diameter face sampling hammer was used.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD, all recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist. Recovery is generally very high, in excess of 95%, and there have been no significant sample recovery problems. Historic DD core stored on site shows excellent recovery. For DD drilling, any core loss is recorded on the core block by the driller. This is then captured by the logging geologist and entered as interval into the hole log. Drilling within Fimiston regularly intersects historic underground workings (voids), this is recorded on the core block as well as on driller's plods and is recorded in the database. Where possible drilling continues beyond the void. RC drilling sample weights were recorded for selected sample intervals and monitored for fluctuations against the expected sample weight. If samples were below the expected weight, feedback was given promptly to the RC driller to modify drilling practices to achieve the expected weights
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD, drilling contractors adjust the rate of drilling and method if recovery issues arise. Minor loss occurs when drilling through fault zones such as the Golden Pike Fault. Areas of potential lower recovery are generally known before hand and controlled drilling techniques employed to maximise recovery.
	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.	No specific study has been carried out on recovery and grade. As recoveries are generally very high (95%+) it is assumed that the potential for bias due to variable sample recovery is low.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core is logged using either digital logging into a laptop computer or onto paper logs and then transcribed into the database. Logging records lithology, stratigraphy, oxidation state, structure, vein form, mineralisation, and alteration. All drill core is photographed using a digital camera and stored on the site server. RC samples are first split at the rig using a cone splitter, with the sample stream being placed into numbered calico bags and the reject stream stored in chip trays for logging. Resource definition RC drill chips are sieved, and a small representative sample is collected in chip trays, one sample for each two metre interval. These samples are logged using the same parameters as for diamond core above. Geological boundaries are defined to the nearest two metres. The data are manually entered directly into the database. Logging is entered in Acquire using a series of drop-down menus which contain the appropriate codes for description of the rock. Chips from all exploration and resource definition RC holes are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. RC chips from grade control are retained until assays have been returned and validated, after which the chips are disposed of. Qualitative and quantitative logging of historic data varies in its completeness.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Geology logging is qualitative in nature with visual estimates made of mineralisation percentages for core. Structural and geotechnical logging is quantitative in nature. All core is photographed wet as standard practice. Historically some core may have also been photographed dry.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is sampled by sawn half-core on intervals controlled by geological domaining represented by mineralisation, alteration and lithology. A selected number of grade control holes were full cored. Mineralised intersections are sampled with a maximum and minimum length of 1.3m and 0.3m, respecting lithological or alteration contacts. The down hole depth of all sample interval extents are recorded.
	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 2 m interval. Wet samples are rarely encountered in Fimiston, however any samples that fail KCGMQA/QC protocols are removed from the estimate.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation follows industry standard practice. Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300 g of the pulp is retained and a 40g charge prepared.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Coarse grind checks at the crushing stage (3mm) are carried out at a ratio of 1:25 samples with 90% passing required. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:25 samples with 90% passing required. Laboratory duplicate samples are taken for coarse crush (3mm) and pulverising (75 µm) stages at a ratio of 1:25 samples. Repeat assays are carried out at a ratio of 1:10 on prepared pulp samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling of diamond core is occasionally undertaken for check assays, however routine field duplicates are not performed on diamond core as these are not considered to be true field duplicates. Umpire sampling is performed fortnightly, where 10% of the samples are sent to the umpire lab for processing.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample and size (3kg to 4kg) relative to the particle size (>90% passing 75um) of the material sampled is a commonly utilised practice for effective sample representation for gold deposits within the Eastern Goldfields of Western Australia
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.	Fire assay analysis is undertaken and this is considered to be a total assay method. Monthly QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for Mineral Resource estimation.
	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.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:40. The standard control samples are changed on a 3-month rotation. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Blanks are inserted into the sample sequence at a nominal ratio of 1:40. 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 gpt are investigated, and re-assayed if appropriate. New pulps are prepared if anomalous results cannot be resolved. When visible gold is observed in core, a barren flush is required. 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 and anomalous intersections are verified by a Senior Geologist during the drill hole validation process.
	The use of twinned holes.	No twinned holes were drilled for this data set. Re-drilling of some drill holes has occurred due to issues downhole (e.g., bogged rods). These have been captured in the database as an 'A'. Re-drilled holes are sampled whilst the original drill hole is logged but not sampled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are stored and validated within the site AcQuire database. Data imported into the database is controlled by documented standard operating procedures, and by a set of validation tools included in Acquire import routines. Hard copies and electronic copies of all primary location, logging and sample results data are filed for each hole. Assay results are received in a comma-separated values (.csv) file format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Holes that cannot be accurately validated or do not meet the requirements of Fimiston Quality assurance and Quality Control (QAQC) are excluded prior to Mineral Resource estimation.
	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 KCGM surveyors using RTK-GPS in the mine grid.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		All historical drill hole collar positions were assumed to be surveyed. All recent drill hole collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15m and 30m intervals down hole thereafter. QAQC is performed on the speed of running and on the misclose rate for each gyroscopic survey. Where issues are identified, a single survey run can be chosen as preferred with the remaining data ignored. This data is converted to CSV format and imported into the AcQuire database where it is validated by the project geologist. Any poor surveys are re-surveyed. If survey data is missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation.
	Specification of the grid system used.	The Fimiston data is exported and modelled on the mine Oroya East Grid. This is a rotated grid 38.3° from MGA 94.
	Quality and adequacy of topographic control.	The topography surface wireframe is generated from an annual flyover survey completed by Fugro Australia Land Pty Ltd with +/- 15cm resolution.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing varies through the deposit. Exploration drill spacing targets areas of gaps within the current dataset. These vary from 100m to 25m infill spacing. Fimiston is nominally 50mE x 60mN down to 20mE x 25mN in the Eastern zones of mineralisation, 50mE x 60mN down to 15mE x 20mN in the Western Zones of mineralisation and 40mE x 50mN down to 12mE x 20m in the Northern zones of mineralisation. While open pit drill hole spacing is 8mE x 10mN. Cross mineralised structures in the hanging wall and footwall of Fimiston are typically narrower and less consistent so have a nominal drill spacing of 10m x 10m.
	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 in the ore lodes at Fimiston is considered sufficient to support the estimation of Mineral Resources and Reserves as applied under the 2012 JORC Code. Appropriate geological and grade continuity have been demonstrated during the 20+ years of mining at the Fimiston operations.
	Whether sample compositing has been applied.	No sample compositing has been applied to the database. For grade estimation, the datasets are composited to 2 m intervals prior to grade estimation. This aligns with the most common sample length taken.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of data is drilled perpendicular to the interpreted strike of the Fimiston ore lodes. Due to the complex overlapping nature of the mineralised zones, actual intersections may be slightly oblique to the intended right-angle intersections. Recent drill intercepts from 2020 are recorded in true width where known. Historical drill intercepts are recorded as downhole width, unless otherwise stated. The majority of drill holes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	Holes with orientations that are considered likely to introduce sampling bias are flagged during drill hole validation and are excluded from the Mineral Resource estimation datasets.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M 26/131, M 26/353, M 26/78 and M 26/86. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both KCGM and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g., total loss, spillage or obvious contamination), is reported to the KCGM in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Sampling performed by KCGM staff and contractors is reviewed weekly by senior KCGM geology personnel including task observations and inspections. Data is reviewed regularly by senior KCGM geology personnel and low confidence data is excluded from the estimate. Audits and inspections of the commercial assay lab are completed monthly by the QA/QC geologist.

APPENDIX C: 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.	The tenement portfolio is located on land owned by the State of Western Australia on Crown reserves or vacant Crown land. Northern Star (KLV) Pty Ltd (Northern Star) manages the tenement portfolio for the KCGM operations The portfolio comprises of 322 granted tenements which is a combination of Miscellaneous (73) and Prospecting Licenses (25), and General Purpose (107) and Mining Leases (117). The tenements cover a total area of approximately 34,000 hectares extending in a north-south direction over a distance of approximately 45km, centred on the Super Pit. There are two registered Native Title Claims that incorporate the KCGM leases. Claimant groups include the Maduwongga people (WC2017/001) and Marlinyu Ghoorlie (WC2017/007). These claims are currently before the tribunal for the Determination.
	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.	In the 1970s, the goldfield was controlled by three companies: Kalgoorlie Mining Associates (KMA), Kalgoorlie Lake View (the majority owner of KMA), and North Kalgurli Mines. In 1974, all operations on the Golden Mile had ceased, with the exception of the highly mechanized Mt Charlotte Underground Mine. Modern day surface mining commenced in 1983 in the Kemlo Pit followed by the Croesus and Eclipse pits, and the Central and Paringa pits in 1985. KCGM was formed in 1989 to run the operation on behalf of its owners Homestake Gold of Australia Ltd (Homestake) and GMK, a subsidiary of Normandy Mining Limited. By 1992, all labour intensive, high cost underground mining of narrow zones stopped in the Main, Croesus, Chaffers, Lake View, and Perseverance shafts. Fimiston underground production ceased in 1994. In 2001, Homestake merged with Barrick to form Barrick Gold Australia, thereby becoming a 50% owner of KCGM. In 2002, Newmont acquired Normandy Mines Limited, thereby becoming a 50% owner of KCGM. In 2019, Saracen and Northern Star acquired the operation from Barrick and Newmont. In 2020, Northern Star announced a merger of equals and the operation is now wholly owned by Northern Star Resources Exploration drilling is ongoing from underground to extend the known mineral resources.
Geology	Deposit type, geological setting and style of mineralisation.	The Golden Mile deposit occurs in the Kalgoorlie Terrane, within the southern portion of the NNW trending Archaean Norseman-Wiluna Greenstone Belt. The greenstone belt has been multiply deformed and regionally metamorphosed to grades varying from lower greenschist to amphibolite grade (Swager, 1997). The stratigraphy of the Kalgoorlie Terrane consists of a lower mafic-ultramafic volcanic sequence overlain by a thick sequence of clastic sedimentary rocks and intermediate to felsic volcaniclastic rocks (Swager, 1997). Younger sedimentary basins, occurring along major faults or synclines, unconformably overly the greenstone sequence (Swager, 1997). Granitic intrusions occurring within the Norseman-Wiluna Greenstone Belt are divided into two categories: pre-folding and post-folding (Witt and Davy, 1997). The post-folding intrusions are further subdivided as syn-tectonic and late tectonic. The stratigraphy covered by the KCGM tenements consists of a basal ultramafic unit called the Hannan Lake Serpentinite. This ultramafic unit is overlain successively by the high magnesian Devon Consols Basalt, Kapai Slate, tholeiitic Paringa Basalt and the Black Flag sediments. Differentiated zones of dolerite and gabbro texture occur within the mafic sequence. The Golden Mile Dolerite, hosting the bulk of the Golden Mile and Mount Charlotte gold mineralisation, is a strongly differentiated layered gabbro, approximately 700m in thickness. The Golden Mile Dolerite is situated conformably between the Paringa Basalt and the Black Flag sediments. This entire stratigraphic sequence is intruded by numerous porphyry dykes of intermediate to felsic composition. The Fimiston style gold mineralisation, which accounts for the bulk of the economic gold ore of the Golden Mile deposit, is hosted dominantly in the Golden Mile Dolerite with lesser mineralisation hosted in the Paringa Basalt. The Golden Mile deposit is an intensely mineralised Archaean shear zone system developed between the Adelaide and Golden Pike faults (Clout et al., 1990). Gold mineralisation occurs over a north-south strike length of 4,250m, a width of 1,850m and has been historically mined to a depth of about 1,200m underground. The mineralisation consists of numerous narrow, generally 1-2m wide, but locally up to 20m wide, vertically and laterally extensive lodes, up to 1200m vertical and over 1000m along strike length. The Fimiston lodes occur in three principal orientations: Main 140o/80oW, Caunter 115o/55oW to 80oW and Cross Lodes 050o/90o to 80oN-S (Finucane, 1948). The deposit lies within a regional syncline and is divided into the Eastern Lode System and the Western Lode System, divided by the steeply dipping reverse Golden Mile Fault. The Main and Caunter lodes are the dominant sets in both the Western and Eastern Lode Systems. The lodes in the Western Lode System display good lateral and vertical continuity whereas lodes in the Eastern Lode System are segmented by numerous steep reverse faults. The lodes in the Western and Eastern Lode System form a funnel shaped array, which is sub-vertical in the Western Lode System and steeply west dipping in the Eastern Lode System (Gauthier, 2005).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	Refer to the drill hole information table in the Appendix of this report for significant assay results from KCGM for each lode represented throughout the report. All mineralised intercepts are shown in the table.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
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 a true intersection width where possible. All reported assay results within Mt Charlotte style stockwork mineralisation are reported using downhole widths, due to the nature of the mineralisation and orientation of the drill holes, true width calculations are not possible or are misleading.
	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.	Intercepts are aggregated based on underground and open pit reporting criteria. Cut off grades are based on assumed mining grades. Open pit lode mineralised zones were interpreted using a nominal cut-off grade (COG) of 0.5gpt with a maximum internal dilution of 5 meters. Open pit stockwork mineralised zones were interpreted using a nominal cut-off grade (COG) of 0.5gpt with a maximum internal dilution of 5 meters. Underground lode mineralised zones were interpreted using a nominal cut-off grade (COG) of 3gpt with a maximum internal dilution of 2 meters. Underground Stockwork mineralised zones were interpreted using a nominal cut-off grade (COG) of 1.7gpt with a maximum internal dilution of 2 meters. Where a standout higher grade zone exists within the broader mineralised zone, the higher grade interval is reported also.
	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.	Estimated 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 estimated 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 mineralisation orientations are known, true width are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	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).	Fimiston Pit is currently in production and resource definition is planned to infill areas of inferred resource inside the pit shell as well as planned exploration testing the down dip and plunge extents of the deposit.
	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.

APPENDIX C: 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.	Data used for generating the mineral resource estimates is stored in an AcQuire database. The Company employs a database administrator to manage the database. Where possible raw data is loaded directly into the database with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the AcQuire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the AcQuire database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in .csv format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator. Errors are corrected where possible. When not possible the data is flagged as confidence "0" or "1" in the database and the database is re-exported. This data will not be used in the estimation process. Only fully sampled drill holes with a confidence level of 2 or 3 were used for grade estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person is a fulltime employee of KCGM and is based in Kalgoorlie and has full access to ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	Not applicable.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	Geological and structural controls of the Fimiston mineralisation are well understood following extensive academic study and ongoing review. The interpretation has been built on this cumulative knowledge and thoroughly tested with significant resource definition and grade control drilling, historical underground exposure, and open pit mining resulting in a high confidence in the position of, and controls to, mineralisation. The interpretation has been generated from geologically logged high confidence diamond and reverse circulation drilling resulting in the creation of a series of mineralised horizons categorised as Main, Caunter, Cross, and Oblique lodes effectively representing a Riedel shear array. Each lode is further refined by historical underground drive mapping, historical stope as-builts, and geological features mapped in open pit exposures. The final geological interpretation utilised in the resource estimation is comprised of 238 Main lodes, 146 Caunter Lodes, 12 oblique lodes, 27 Cross lodes and 4 supergene lodes for a total of 427 individual domains. Residual lode wireframes were created around gold intercepts that were not previously captured by lode wireframes. These residual wireframes are created in Leapfrog using interpolant ellipsoids using the most common Fimiston lode orientation (Caunter). Only volumes of greater than or equal to 1000m³ are used in the mineral estimation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including open pit mapping, drill holes, scanned level map sheets, structural measurements, and underground void wireframes. Historical underground as-built wireframes have been assumed to be spatially accurate.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological domains defining the mineralised zones are considered robust. Alternative interpretations have historically been trialled where braided lode systems were combined into bulk domains however this resulted in moderately inflated ore tonnes following estimation particularly in poorly supported areas.
	The use of geology in guiding and controlling Mineral Resource estimation.	The underlying geological and structural framework controls gold endowment at the Fimiston deposit. Ore lode interpretations were developed using all available geological data to honour the geological and structural framework and constrain the Mineral Resource estimations.
	The factors affecting continuity both of grade and geology.	Continuity of mineralisation is controlled by host lithology, structural architecture and alteration assemblage. Highest grade lodes occur predominantly within the more fertile geochemical areas of the Golden Mile Dolerite and to a lesser degree the Paringa Basalt. Major shear structures provided fluid pathways, dilatational positions and lode offset. Broadly, mineralisation is constrained to the north by the Golden Pike Fault, the Adelaide Fault in the south, and is effectively partitioned into East and West lodes by the Golden Mile Fault. Numerous other smaller scale fault and shear structures disrupt and offset the resource. Four main zones of hydrothermal alteration are recognised. The outermost zone is pervasive chlorite-carbonate alteration followed by progression to ankerite-siderite with increased proximity to the lode. Lode selvage is effectively defined by ankerite-siderite-pyrite-quartz-albite-telluride with occasional haematite-anhydrite. The most intensely altered lodes are locally termed "green leaders" and are comprised of siderite and vanadium rich sericite. Quartz veining is always part of the lode position occurring as either sheeted veins or less common stockwork. Fresh ore at Fimiston, comprising most of the resource, is refractory with gold typically associated with pyrite, chalcopyrite, other minor sulphides, tellurides, silver, mercury, and lead. Completed deportment studies indicate that approximately 30% of gold occurs as free milling, 25% as gold tellurides, and 45% as gold inclusions in pyrite.

APPENDIX C: TABLE 1

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 Fimiston resource extends 4.3km's north-south, 1.5km's east-west, and 1.8km's vertical. Mineralised domains are categorised by overall geometry and divided into Main, Caunter, Oblique, and Cross lodes. Main lodes are predominantly sub-vertical with a north-south strike, Caunter lodes strike north-north-west dipping approximately 65° west, and Cross lodes strike east-west with a sub-vertical dip. Oblique lodes are less common but are effectively conjugate to the Caunter lodes.
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.	Mineralisation is domained based on geological continuity. All domain wireframes and residual wireframes are created using Leapfrog software and all subsequent geostatistical evaluation and resource estimation is completed using Supervisor and Datamine software respectively. Lode wireframes are intersected with a validated drill database from which lower confidence drill holes have been removed. All remaining diamond and RC samples are flagged with a domain identifier and composited to 2m with 0.2m minimum sample. Residual samples are distributed across adjacent component intervals. Due to the complexity of Fimiston mineralisation, many of the lodes exhibit mixed grade populations internal to the domain which are difficult to manually partition. Where this is the case and sufficient samples are available categorical indicator kriging (CIK) is used to sub-domain the lode into low and high grade envelopes. This is achieved through review of log probability plots by domain from which grade cut-offs and subsequent indicator variograms are derived. Prior to indicator estimation, simulated drill holes are created on a 10m x10m YZ grid through the stope as-builts which are then restricted by the lode interpretations. These data points are appended to the composite file as samples above cut-off and used to supplement the indicator estimate. The rationale for the process is that stoped material was high grade prior to extraction and as such should be used to inform sub-domain continuity. Grade cut-offs are applied to the combined composite file and an indicator assigned by domain and estimated using ordinary kriging weighted by the relevant indicator variogram. Dynamic anisotropy is used to control both search ellipse and variogram orientation to account for local variation in lode geometry. Domains are subsequently reviewed for a probability threshold above which high grade sub-domains are assigned. The simulated drill holes are then removed from the composite file and sub-domains back flagged from the block model. For gold, sub-domains are evaluated for grade variograms and kriging neighbourhood analysis (KNA) conducted to derive appropriate sample counts, search strategy, discretisation and parent block size. For sulphur, variograms on the full domains are created due to less internal grade variation evident in the lode. KNA is again completed to select appropriate estimation parameters. Gold and sulphur are estimated using ordinary kriging into sub-domains and domain parent blocks respectively using the requisite variogram model. Hard boundaries are maintained between domains and sub-domains as confirmed by contact analysis. A nested search strategy is employed with the first pass aligned to the full range of the variogram followed by 2 subsequent passes of increasing volume. The residual lode wireframes are all estimated using ordinary kriging using the requisite variogram model.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The final resource estimates are compared to the previous model estimates and reconciled to historic production.
	The assumptions made regarding recovery of by-products.	No assumptions are made on recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	Sulphur is estimated within every ore lode domain. In exploration and resource definition drill holes, sulphur is assayed for every metre while in grade control drill holes its sampled 1:4 holes.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Drill spacing ranges at Fimiston from 10mx10m for grade control (GC) drilling out to >160mx160m's in the potential areas of the resource. Downhole sampling for reverse circulation drilling is taken on 2m intervals and dictated by geology for diamond holes. To capture the variable grade resolution of the GC drilling, the parent block size has been influenced by close spaced holes and set at 5mx10mx5m's with sub-blocking down to 1mx1mx1m's in order to appropriately define domain boundaries. The indicator model used to sub-domain well supported lodes has a block size set at 2mx5mx2m's to honour the complexity of the mixed grade populations. Following sub-domaining, the indicator model is optimised to the parent block size (5mx10mx5m) in preparation for grade estimation.
	Any assumptions behind modelling of selective mining units.	Selective mining units were not used during the estimation process.
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to stratigraphic position, structural orientation, recorded lithology, and specific alteration assemblage. The geological interpretation is initially created from drill data and later calibrated with mapping of open pit and underground exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Composites are analysed for grade outliers by domain for both gold and sulphur and top cut proximal to population disintegration. Attempts are made to ensure no more than 10% of metal is lost and the co-efficient of variation (CV) is less than 1.8. Where sufficient samples are available and the CV remains elevated following top cutting, basic statistics are re-reviewed following sub-domaining of the lode to ensure metrics are appropriate.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. A visual inspection of input composites is compared to the estimated block model in section for each domain. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than +/-10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Estimation quality metrics (kriging efficiency, slope) are reviewed by domain/sub-domain to give an indication of the quality of the estimate. Global change of support plots are created and reviewed for principal domains. End of month production reconciliations in addition to ongoing field observations are used as a feedback loop to continuously calibrate and improve the interpretation and estimation.
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 open pit cut-off grade of 0.5gpt and the Fimiston underground cut-off grade is 1.2gpt these have been derived from current mining costs and parameters at AUD$2,250/oz.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The open pit mineral resource inventory assumes open pit extraction and is reported within an AUD$2,250/oz pit optimisation shell generated from the latest resource model re-blocked to the current SMU of 8x10x10m via a customised dilution process that accounts for minimum mining width and the effect of historical voids. Inputs to the pit optimisation are based on current mining parameters and constraints. The mining method is consistent with current operations and mining factors and assumptions such as dilution are based on historic performance. The Fimiston Underground Mineral Resource estimate is defined by an underground mining shape optimiser (MSO) evaluation generated from the undiluted resource model below the latest AUD$2,250/oz pit optimisation. MSO input parameters include a 1.2gpt grade cut-off, minimum mining width of 3.0m's (X), 20x20m (Y, Z) stope extents, and a gold price assumption of AUD$2,250/oz.
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.	Gold recovery is based on a recovery formula which is reconciled annually against historic performance. The average recovery based on this equation is 83%.
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.	It has been assumed that current or similar operational approaches, protocols and facilities applied to environmental factors at Fimiston continue for the duration of the project life.
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.	Density measurements are collected using the industry standard submersion method for determining the density of competent diamond core. The density is assigned based upon the stratigraphy and weathering state. Basic statistics are collected by stratigraphy and the mean assigned to all blocks coded with that stratigraphy and oxidation state. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Density samples are collected from homogenous lithological units and weathering states.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density determinations are made on diamond drill core. The density data is analysed for each resource estimate and assigned to the block model based on the modelled stratigraphy unit. Fresh rock densities range from 2.74t/m3 in basalt units to 2.96t/m3 in the more mafic sills of the Golden Mile Dolerite.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Fimiston resource is classified as Indicated or Inferred assigned via boundary string by domain based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, variogram range, kriging efficiency / slope / variance, grade, geological continuity and historical reconciliation. Indicated is assigned to mineralisation above the AUD$2,250 pit shell where drill spacing <=50mx50m defined by average full range of grade variograms, established grade continuity above 0.3gpt gold, geological continuity defined by consistent ore zone alteration and/or exposure by historical underground mining, positive kriging efficiency and >25% slope. Inferred material is assigned where drill spacing is >50mx50m and <=90mx90m's with established geological continuity as defined by consistent vein selvage alteration and/or exposure by historical underground mining. All other mineralisation is assigned a Potential resource category.
	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. Thorough model validations and internal/external reviews ensure the integrity of the final estimation and reported inventory.
	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 Mineral Resource Estimate has been both internally and externally reviewed. Estimation methodology has been assessed as robust and appropriate however the geological interpretation requires greater infill drilling and incremental refinement to ensure areas of risk are mitigated. Continued reconciliation of the resource model to current production has been flagged as critical to ensure the validity of the estimate.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The relative accuracy and confidence of the mineral resource model estimate is reflected in the assigned Mineral Resource classifications. An area of operational risk to the resource relates to the historical underground workings in two respects. The first is the spatial accuracy of known stopes and development used to deplete the mineral resource. These voids have not been surveyed using modern techniques and are largely defined by historical plans and current drilling. Subsequently a degree of variation in the exact position and extents of the voids can be expected resulting in a potential impact to resource inventory. The second risk is the impact of any unknown voids not captured in historical plans and not yet intersected with infill drilling.
	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.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Mineral reserves and resources are reconciled and reported monthly. Reconciliation is conducted by spatially comparing the resource and reserve models with grade control models and the monthly Declared Ore Mined (DOM). Reconciliations show reasonable correlation between the models and production with the process being treated as a feedback loop to ensure continuous improvement of the geological interpretation and estimation workflows.

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.	The Mineral Resource model used for the conversion of the Ore Reserve is a robust global estimate of the Fimiston gold deposit. Exploration, resource definition, grade control, geological mapping and historical mining records were used to inform and validate the model. The Resource model estimated utilises the Categorical Indicator Kriging (CIK) method. The Resource model was depleted to the end of June 2020 for the Reserve Estimation.
	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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person is a fulltime employee of KCGM and is based in Kalgoorlie with full access to validate and review input parameters, the life of mine plan, current mining performance, wall conditions and stability, groundwater condition.
	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.	A minimum Pre-Feasibility level study is completed prior to converting a Mineral Resource to an Ore Reserve.
	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.	A minimum Pre-Feasibility level study is completed prior to converting to a Mineral Resource to an Ore Reserve. Ore Reserves have been calculated within detailed pit designs. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to identify the preferred shell. The detailed pit design follows the preferred pit shell as closely as practicable. The Whittle optimisation input parameters are validated by KCGM technical personnel and technical consultants and are supported by an abundance of historic data. A detailed mine schedule and cost model has been generated and appropriate ore dilution and recoveries have been applied to the Mineral Resource model.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The open pit cut-off grade has been calculated based on the key input components (gold price, processing costs, administration costs and recovery). Forecasted costs and physicals form the basis of the cut-off grade calculations. • The AUD gold price as per corporate guidance. • Mill recovery is based on historical data and metallurgical test work. • Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. The Ore Reserve Estimation is based on a cut-off of 0.50gpt and accounts for mining dilution.
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 complete with a detailed financial assessment. The Mineral Resource block model is the basis for design and evaluation. Open Pit - Ore Reserves have been calculated by generating detailed pit designs for the proposed cutbacks. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to identify the preferred shell. The detailed pit design follows the preferred pit shell as closely as practicable. The Whittle optimisation input parameters are validated by KCGM technical personnel and technical consultants and are supported by an abundance of historic data.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining method for the Fimiston Open Pit is a bench mining open pit method. The proposed open pit cutbacks will be mined using conventional open pit mining methods (drill, blast, load and haul) under an owner operator model, utilising 800t class excavators and 240t class trucks. This method is consistent with the current and historic mining method of the Fimiston Open Pit and is deemed appropriate given the proposed cutbacks are an extension of the current Fimiston Open Pit.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Geotechnical slope parameters for the Fimiston Open Pit have been developed and modified throughout the mine's history. A combination of experience, geotechnical design and trial mining has been used to arrive at the parameters currently used. In general, the selection of slope design parameters is controlled by weathering state (oxide/non-oxide), structural fabric and major structures present within the pit. The design process to arrive at slope parameters for new cutbacks includes geotechnical drilling and testing, mapping of current pit faces, geotechnical model and domain creation, and 3-D numerical modelling to assess factors of safety. Independent review of the data collection and geotechnical model development processes is carried out by independent consultants before each cutback is modelled. Further modifications are made as required during mining in response to slope performance and updates to the geotechnical model as the new faces become exposed.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Table 1 applies to both underground and open pit mining. And detailed interface review was conducted to ensure separation between underground and open pit Reserve material. The Ore Reserve Estimate is based on detailed mine design work based on the approved resource model and is supported by an abundance of historic data.
	The mining dilution factors used.	Dilution is built into the block model and is based on a minimum mining width calibrated to proposed mining fleet and reconciled against historical performance.
	The mining recovery factors used.	Mining recovery is built into the Ore Reserve estimated and is based on current mining performance.
	Any minimum mining widths used.	Minimum mining width of 40m is applied to both the Whittle optimisation and final mine design as is appropriate for the primary mining fleet.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the Ore Reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred Mineral Resources.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The infrastructure requirements of the selected mining methods.	The Ore Reserve estimate is an extension of the existing Fimiston operation. The existing operation has adequate infrastructure to support the Ore Reserve and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Fimiston plant is made up of crushing, grinding, gravity gold recovery, flotation, UFG, CIL, elution and gold recovery circuits. The milling facilities are designed to process approximately 12 million tonnes per annum. The plant has the capability to treat both refractory and free milling ores through a flotation circuit and associated concentrate ultra-fine grinding circuit. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 15 years' continuous 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 since 2005, 15 years' continuous operation.
	Any assumptions or allowances made for deleterious elements.	No allowances 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 since 2005, 15 years' continuous 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.	The Fimiston Operation includes mining of the Fimiston Open Pit and the Mt Charlotte underground mine, and mineral processing at the Fimiston Processing Plant. Tailings generated from the Fimiston Processing Plant are deposited to the Fimiston I, II and Kaltails Tailings Storage Facilities (TSFs). KCGM also operates the Gidji Gold Processing Plant, located approximately 17 km north of Kalgoorlie-Boulder, where sulphide concentrate produced at the Fimiston Processing Plant undergoes further processing. Tailings generated from the Gidji Gold Processing Plant are deposited to the Gidji II TSF. Final gold recovery (elution of the loaded carbon) is conducted at the Fimiston Processing Plant. Mining operations in Western Australia are regulated under the Mining Act 1978 and the Mines Safety and Inspection Act 1994, which are administered by the Department of Mines, Industry Regulation and Safety (DMIRS). KCGM manages over 300 Mining Leases (tenements) granted in accordance with the Mining Act 1978, which stipulate environmental conditions for operation, rehabilitation and reporting. The tenements extend in a general north-south direction centred on the Fimiston Open Pit and cover a surface area of approximately 34,000 ha. Mineral processing and tailings disposal are regulated by the Department of Water and Environmental Regulation (DWER) under the Environmental Protection Act 1986 (EP Act). Accordingly, the Fimiston Processing Plant operates in accordance with Prescribed Premises Licence L6420/1988/14 with an approved production capacity of 14,500,000 tonnes per year, whilst the Gidji Gold Processing Plant operates in accordance with Prescribed Premises Licence L5946/1988/13 with an approved production capacity of 438,000 tonnes per year. KCGM was granted environmental approval for the Fimiston Mine and Waste Dumps under Part IV of the EP Act on 24 October 1991 for the Consultative Environmental Review (CER) Mine and Waste Dumps - Fimiston. Conditions for approval were outlined in Ministerial Statement 188. In September 2006, KCGM released a Public Environmental Review for the Fimiston Gold Mine Operations Extension (Stage 3) Project which was granted Ministerial Approval in January 2009 under Ministerial Statement 782. The Gidji Gold Processing Plant was granted environmental approval under Part IV of the EP in May 1988 under Ministerial Statement 28, and subsequently in September 1989 under Ministerial Statement 77. Following decommissioning of the roasters in 2015, which effectively removed sulphur dioxide point source emissions from the site, KCGM were granted Ministerial Statement 1032 in May 2016. KCGM currently manages potential environment impacts associated with the Fimiston Operation in accordance with the following Environmental Management Plans: ▪ Fimiston Air Quality Management Plan approved by DWER June 2016. ▪ Noise and Vibration Monitoring and Management Plan approved by DWER September 2016. Waste rock characterisation studies have determined that approximately 80% of the waste rock sourced from the Fimiston Open Pit is Golden Mile Dolerite. The remaining waste rock is composed primarily of Paringa Basalt (14%) and the Black Flag Shale (BFS) (4.5%). The studies have concluded that the Golden Mile Dolerite and Paringa Basalt units are classified as non-acid forming (NAF). The ore zone of the BFS is potentially long lag PAF, with the risk diminishing towards the mine waste zones as the sulphur content decreases. The risk of acid rock drainage formation in the Fimiston WRDs is very low to low, due to the large amount of Golden Mile Dolerite containing neutralisation potential in the dumps, and the relatively low sulphur content of waste rock. Further, net acid generation and associated metals leaching would only be possible after very prolonged exposure, and such exposure is unlikely given current waste management practices of blending and encapsulation of BFS material within the WRDs.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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.	KCGM Fimiston operations, including Mt Charlotte and the open pit are located adjacent to the City of Kalgoorlie-Boulder, while Gidji processing plant is located 17km north of Kalgoorlie-Boulder. Access to the operations is provided by well-maintained sealed public and private roads. Majority of employees reside in Kalgoorlie-Boulder and commute to site daily. Normal communication channels, satellite and land-based facilities are available. Potable water for the KCGM operations is supplied from the Water Corporation Kalgoorlie water supply system. Non-potable water requirements are sourced from bores fields up to 28km away from the mine site. Makeup water for the Fimiston and Gidji processing plants is supplied from bore fields, water recovered and recycled from the operations, pit dewatering as well as some water sourced from recycled or treated effluent. Electricity is provided by the state electricity grid and Parkeston Power Station. A combination of KCGM owned and Newmont Power owned lines feed all KCGM operations from Parkeston Power Station or direct from the grid. Sources of fuel, such as diesel, gasoline etc. are readily available at competitive pricing from local suppliers, as there are multiple operating plants in the Kalgoorlie area.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs are projected through an annual budget process.
	The methodology used to estimate operating costs.	The detailed mine designs are incorporated into the life of mine plan and scheduled through to completion. The schedule is costed in detail from first principals. Cost assumptions are supported by an abundance of historic data and have been validated by an independent third party.
	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.	The gold price is based on internal forecasts.
	The source of exchange rates used in the study.	Internal forecasts.
	Derivation of transportation charges.	Historic performance and existing contractual agreements.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Historic performance and existing contractual agreements.
	The allowances made for royalties payable, both Government and private.	State Govt. 2.5% royalty is 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$1,750/oz gold price.
	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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	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.	NPV is used during Pre-Feasibility and Feasibility studies as required. Economic assumptions such as discount rate and estimated inflation are finalised at the time of the study. The Ore Reserve Estimation is based on detailed life of mine designs. All relevant capital and operating costs as well as revenue and selling costs have been accounted for.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions.
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. The Ore Reserve is an extension of the existing Fimiston Operations which has a proven track record of good standing in regard to social licence to operate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Mercury occurs naturally in the gold bearing ore that is mined from the Fimiston Open Pit. The mercury is present primarily as tellurides, which are minerals composed of several metals in association with the element tellurium (Te). The telluride minerals containing mercury that are present in the Fimiston Open Pit include Coloradoite, also known as Mercury telluride (HgTe) and cuprian coloradoite ((Hg, Cu Te). Telluride minerals are rare but widely distributed through the Golden Mile lodes and generally represent less than 0.00014% of the ore mined from the Fimiston Open Pit and the Mt Charlotte Underground Mine. Mercury is also present in the waste rock material mined from the Fimiston Open Pit (typically 0.00001%). An investigation by KCGM in 2006 showed that the distribution of tellurides (including coloradoite) within the Golden Mile lodes is consistent and there is no evidence to suggest that the concentration of mercury in the materials mined from the Fimiston Open Pit will increase or decrease over time.
	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.	The classification of the Ore Reserve estimate is in accordance with the JORC code 2012. Ore Reserves classifications are derived from the underlying Resource model classifications – i.e., Measured Resource material is converted to either Proved or Probable Reserves, Indicated Resource material is converted to Probable Reserves.
	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 Ore Reserves reporting processes has been subjected to an internal review by KCGM and the JV Owner's Senior Technical personnel in July 2020.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve Estimate has been prepared in accordance with the guideline of the 2012 JORC. Confidence in the model and Ore Reserve Estimate is considered high based on current mine and reconciliation performance. The resource model used to derive the Ore Reserve estimate is based on drill-hole data of sufficient continuity and spacing to satisfy the requirements of an Ore Reserve and his been subjected to an internal and external review.
	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 are deemed of sufficient accuracy 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.	The Ore Reserve is an extension of the existing Fimiston Operation. Modifying factors have been reconciled against current and historic performance.
	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.	Reconciliation results from past mining at the Fimiston Operation has been considered and factored into the Ore Reserve assumptions where appropriate.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Mt Charlotte - 31 March 2022

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>The sampling database for the KCGM Mineral Resource estimation has been collected over the last 115 years. The data has been collected by many different operations, using varying techniques. Assay information quality also varies with detection limit and quality: generally, the quality appears to be inversely proportional to the age of the samples. For this reason, assay information collected prior to 1984 is not used in the interpolation of element grades. All information collected prior to involvement by Northern Star Resources and Saracen Minerals in 2019 is hereafter referred to as historical data. Only historical data that is deemed as having acceptable and traceable location and assay information has been included in the Mineral Resource estimation dataset for Mt Charlotte.

For Mineral Resource estimation the MTC deposits are sampled in majority by diamond drilling (DD), reverse circulation (RC) and underground face chip samples. Final sample and drilling meters are the result of a thorough QAQC audit of the database and new drilling.

<table><tr><td>Hole Type</td><td>No. of Collars</td><td>Total Meters</td><td>No. of Samples</td></tr><tr><td>Diamond</td><td>4,690</td><td>742,853</td><td>681,449</td></tr><tr><td>RC</td><td>1,772</td><td>125,492</td><td>87,142</td></tr><tr><td>Underground Face Chips</td><td>779</td><td>6,214</td><td>6,388</td></tr><tr><td>Total Number of Drillholes</td><td>7,241</td><td>874,559</td><td>774,979</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>For DD samples, down hole depths are recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist during core mark-up prior to logging, to prevent incorrect logging and sampling errors. Sample intervals are then marked on the core by a geologist, to honour geological boundaries. Sample interval lengths vary from 0.3m and 1.3m (NQ). DD core is orientated, measured and then sampled by cutting the core in half longitudinally using an “Almonte” diamond saw. Cutting was along orientation lines. The same half of the core is always selected for each sample interval, placed in numbered calico bags that contain a bar code, scanned into the database and submitted to the laboratory for analysis. The other half of the core is left in the core tray which is stamped for identification, stored and catalogued. Routine ‘field duplicates’ to assess sample representivity are not performed on diamond core as these are not considered to be true field duplicates.

RC samples were homogenised by riffle or cone splitting prior to sampling and then submitted for assay as 1m or 2m samples. Face chip sampling is performed by geologists using industry standard face sampling protocols.

Certified standard samples, ranging in grades from 0.542 g/t Au to 34.99 g/t Au, purchased from OREAS, are inserted at the rate of one in 40 samples. The results are reviewed on a per batch basis and the entire batch of samples is reanalysed if the result is greater than three standard deviations (SD) from the expected result.

All drill collars are surveyed by using a total station theodolite or total GPS.</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>Historical sample preparation and assay procedures are variable due to the duration of historical work and the numerous companies involved. All historical sampling accepted for use in the Mineral Resource estimates are considered to have been collected by acceptable practices.

Current sample preparation and assay procedures employed by KCGM are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. The primary laboratory, Bureau Veritas, meets ISO 9001:2000.

Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300g of the pulp is retained and a 40g charge weight for fire assay is extracted from the pulp packet. Samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled. Prills placed in tubes, dissolved on hotplates and analysed using AA finish with over range dilutions. Sample preparation for Sulphur determination follows the same process as for Gold, with assaying taking place using the LECO method. Sample preparation for silver determination follows the same process as for Gold, with assaying taking place using Four Acid Digest with an ICP MS finish.</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>DD core is mostly NQ diameter with some BQ, HQ and LTK60 diameter core. Where possible diamond core was orientated using a spear, Ballmark™, Ezimark™, ACE multi electronic tool, Reflex ACTIIIRD or Trucore™ tool.

A small proportion of the Mount Charlotte database is made up of RC drilling completed from surface.</td></tr>
</table>

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD, all recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist and entered as interval into the hole log. Any issues are communicated back to the drilling contractor. Recovery is generally very high, in excess of 95%, and there have been no significant sample recovery problems. Historic DD core stored on site shows excellent recovery. A limited number of drill holes have intersected historical workings, this is recorded on the core block as well as on driller's plods and is recorded in the database. Where possible drilling continues beyond the void. RC drilling sample weights were recorded for selected sample intervals and monitored for fluctuations against the expected sample weight. If samples were below the expected weight, feedback was given promptly to the RC driller to modify drilling practices to achieve the expected weights
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD and RC, drilling contractors adjust the rate of drilling and method if recovery issues arise. Minor loss occurs when drilling through fault zones. Areas of potential lower recovery are generally known before hand and controlled drilling techniques employed to maximise recovery.
	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.	No specific study has been carried out on recovery and grade. As recoveries are generally very high (95%+) it is assumed that the potential for bias due to variable sample recovery is low.
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 DD core was logged by geologists with lithology, mineralisation, structure, alteration, veining and specific gravity were recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation and vein intensity were also recorded. Geotechnical measurements on DD core include RQD, Recovery, and Fracture Frequency. For selected holes joint sets, infill, infill thickness and roughness were also geotechnically measured. All mineralised intersections are logged and sampled. Logging is entered in AcQuire using a series of drop-down menus which contain the appropriate codes for description of the rock. All underground face chips are logged for lithology and mineralisation. Logging is captured on a face sample sheet underground which is then transferred to AcQuire, a component of face logging during a trial period was conducted using Datamine Studio Mapper software on tablets. Faces are 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.	Geology logging is qualitative in nature with visual estimates made of mineralisation percentages for core. Structural and geotechnical logging is quantitative in nature. All core is photographed wet as standard practice. Historically some core may have also been photographed dry. 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.	100% of the drill core is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is sampled by sawn half-core on intervals controlled by geological domaining represented by mineralisation, alteration and lithology. In general, grade control holes are routinely full core sampled. Mineralised intersections are sampled with a maximum and minimum length of 1.3m and 0.3m, respecting lithological or alteration contacts. The down hole depths of all sample interval extents are recorded.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Development face samples are chipped directly off the face into a sample bag aiming for sample size of at least 2.5kg. Samples are a maximum of 1.3m and a minimum of 0.3m in width and honour geological boundaries. Samples are taken horizontally across the mineralisation. Historic RC samples were homogenised by riffle or cone splitting prior to sampling; however, it was not recorded whether they were sampled wet or dry.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation follows industry standard practice. Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300 g of the pulp is retained and a 40g charge prepared.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Coarse grind checks at the crushing stage (3mm) are carried out at a ratio of 1:40 samples with 90% passing required. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:40 samples with 90% passing required. Laboratory duplicate samples are taken for coarse crush (3mm) and pulverising (75 µm) stages at a ratio of 1:50 samples. Repeat assays are carried om 5% of prepared pulp samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling of diamond core is occasionally undertaken for check assays, however routine field duplicates are not performed on diamond core as these are not considered to be true field duplicates. Umpire sampling is performed monthly, where 10% of the samples are sent to the umpire lab for processing.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample and size (3kg to 4kg) relative to the particle size (>90% passing 75um) of the material sampled is a commonly utilised practice for effective sample representation for gold deposits within the Eastern Goldfields of Western Australia
	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	Fire assay analysis is undertaken and this is considered to be a total assay method.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests		Monthly and more detailed Quarterly QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for Mineral Resource estimation.
	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.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:40. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Blanks are inserted into the sample sequence at a nominal ratio of 1:40. 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. When visible gold is observed in core, a barren flush is required. 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 and anomalous intersections are verified by a Senior Geologist during the drill hole validation process.
	The use of twinned holes.	Twinning of historic partially sampled GC holes is routinely assessed and where able (and beneficial) drilled when targeting around the Charlotte Stockwork orebodies. Where historic partially sampled GC holes are twinned with new drillholes, the historic holes are excluded from the estimation where appropriate. Re-drilling of some drillholes has occurred due to issues downhole (e.g., deviation). These have been captured in the database as an 'A' and have been logged and sampled as well as the original hole.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are stored and validated within the site AcQuire database. Data import into the database is controlled by documented standard operating procedures, and by a set of validation tools included in AcQuire import routines. Electronic copies of all primary location, logging and sample results data are filed for each hole. Assay results are received in csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Holes that cannot be accurately validated or do not meet the requirements of MTC QAQC are excluded prior to Mineral Resource estimation.
	Discuss any adjustment to assay data.	No adjustments are made to the diamond or RC assay data. During Mineral Resource estimation, face chip sample assays are calibrated by an average factor of 0.5 due to a sampling bias (in general, the full structure/orebody width not exposed in underground faces) to better correlate with diamond and RC assay data. No adjustments are made to the raw assay data in the database.
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 KCGM surveyors in the Mt Charlotte mine grid. All drill hole collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15m and 30m intervals down hole thereafter. QAQC is performed on the speed of running, and also on the misclose rate for each gyroscopic survey. Where issues are identified, a single survey run can be chosen as preferred with the remaining data ignored. This data is converted to csv format and imported into the AcQuire database where it is validated by the project geologist. Any poor surveys are re-surveyed If survey data was missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation.
	Specification of the grid system used.	MTC models are completed on the Mt Charlotte Grid. This is a rotated grid 38.4° from MGA 94
	Quality and adequacy of topographic control.	The topography surface wireframe is generated from an annual flyover survey completed by Fugro Australia Land PTY LTD with +/- 15cm resolution.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing varies through the mine depending on the mineralisation style. For stockwork ore bodies drill spacing is nominally 16mE x 60mN down to 8mE x 30mN. For lode-style ore bodies, including Hidden Secret, drill spacing is nominally 50mE x 50mN down to 12.5mE x 12.5mN
	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 in the ore lodes at MTC is considered sufficient to support the definition of Mineral Resources and Reserves as applied under the 2012 JORC Code. Appropriate geological and grade continuity have been demonstrated during the 30+ years of mining at the MTC operations.
	Whether sample compositing has been applied.	No sample compositing has been applied to the database. For grade estimation, the datasets are composited to 1m intervals prior to grade estimation. This aligns with the most common sample length taken.
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.	Orientation of drilling varies depending on the style of mineralisation. For stockwork ore bodies drilling is specifically orientated to intercept the vein sets at an optimum angle. For the lode-style orebodies, including Hidden Secret, drilling is perpendicular to the interpreted strike of the ore lodes. As a result of limited drill platforms underground actual intersections may be slightly oblique to the intended right-angle intersections. The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	Holes with orientations that are considered likely to introduce a bias to the estimation are flagged during drill hole validation process and are excluded from the Mineral Resource estimation datasets.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M26/353, M26/359 and M26/131. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both Company and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g., total loss, spillage or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Sampling performed by KCGM staff and contractors is reviewed weekly by senior KCGM geology personnel including task observations and inspections. Data is reviewed regularly by senior KCGM geology personnel and low confidence data is excluded from the estimate. Audits and inspections of the commercial assay lab are completed monthly by the QA/QC geologist.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The tenement portfolio is located on land owned by the State of Western Australia on Crown reserves or vacant Crown land. KCGM manages the tenement portfolio for the KCGM operations on behalf of the Joint Venture Owners, Saracen Kalgoorlie Pty Limited (Saracen) and Northern Star (KLV) Pty Ltd (Northern Star). The portfolio comprises of 322 granted tenements which is a combination of Miscellaneous (73) and Prospecting Licenses (25), and General Purpose (107) and Mining Leases (117). The tenements cover a total area of approximately 34,000 hectares extending in a north-south direction over a distance of approximately 45km, centred on the Super Pit. There are two registered Native Title Claims that incorporate the KCGM leases. Claimant groups include the Maduwongga people (WC2017/001) and Marlinyu Ghoorlie (WC2017/007). These claims are currently before the tribunal for the Determination.
	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.	In the 1970s, the goldfield was controlled by three companies: Kalgoorlie Mining Associates (KMA), Kalgoorlie Lake View (the majority owner of KMA), and North Kalgurli Mines. In 1974, all operations on the Golden Mile had ceased, with the exception of the highly mechanized Mt Charlotte Underground Mine. Modern day surface mining commenced in 1983 in the Kemlo Pit followed by the Croesus and Eclipse pits, and the Central and Paringa pits in 1985.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		KCGM was formed in 1989 to run the operation on behalf of its owners Homestake Gold of Australia Ltd (Homestake) and GMK, a subsidiary of Normandy Mining Limited. By 1992, all labour intensive, high cost underground mining of narrow zones stopped in the Main, Croesus, Chaffers, Lake View, and Perseverance shafts. Fimiston underground production ceased in 1994. In 2001, Homestake merged with Barrick to form Barrick Gold Australia, thereby becoming a 50% owner of KCGM. In 2002, Newmont acquired Normandy Mines Limited, thereby becoming a 50% owner of KCGM. In 2019, Saracen and Northern Star acquired the operation from Barrick and Newmont. In 2020, Northern Star announced a merger of equals, and the operation is now wholly owned by Northern Star Resources Exploration drilling is ongoing from underground to extend the known mineral resources.
Geology	Deposit type, geological setting and style of mineralisation.	The Golden Mile deposit occurs in the Kalgoorlie Terrane, within the southern portion of the NNW trending Archaean Norseman-Wiluna Greenstone Belt. The greenstone belt has been multiply deformed and regionally metamorphosed to grades varying from lower greenschist to amphibolite grade (Swager, 1997). The stratigraphy of the Kalgoorlie Terrane consists of a lower mafic-ultramafic volcanic sequence overlain by a thick sequence of clastic sedimentary rocks and intermediate to felsic volcaniclastic rocks (Swager, 1997). Younger sedimentary basins, occurring along major faults or synclines, unconformably overly the greenstone sequence (Swager, 1997). Granitic intrusions occurring within the Norseman-Wiluna Greenstone Belt are divided into two categories: pre-folding and post-folding (Witt and Davy, 1997). The post-folding intrusions are further subdivided as syn-tectonic and late tectonic. The stratigraphy covered by the KCGM tenements consists of a basal ultramafic unit called the Hannan Lake Serpentinite. This ultramafic unit is overlain successively by the high magnesian Devon Consols Basalt, Kapai Slate, tholeiitic Paringa Basalt and the Black Flag sediments. Differentiated zones of dolerite and gabbro texture occur within the mafic sequence. The Golden Mile Dolerite, hosting the bulk of the Golden Mile and Mount Charlotte gold mineralisation, is a strongly differentiated layered gabbro, approximately 700m in thickness. The Golden Mile Dolerite is situated conformably between the Paringa Basalt and the Black Flag sediments. This entire stratigraphic sequence is intruded by numerous porphyry dykes of intermediate to felsic composition. The Mt Charlotte style gold mineralisation is hosted within the Golden Mile Dolerite and is predominantly associated with pyrite in carbonate alteration haloes around quartz veins, with a minor proportion as relatively coarse free gold within the veins, commonly close to their margins. The veins vary in width from a few millimetres to a maximum of about two metres but are commonly between two centimetres and 50 cm wide. The vein spacing varies from 20 cm to tens of metres but is typically from 50 cm to two metres in areas mined as ore. Quartz is the dominant vein-fill mineral; accessory vein minerals include calcite, ankerite, scheelite, pyrite, pyrrhotite, and gold. The Hidden Secret style gold mineralisation is hosted within the Williamstown Dolerite at the contact with the Kapai Slate and Devon Consols Basalt and spatially associated with a porphyritic intrusion and the Towns Fault. Gold is hosted in deformed a quartz vein 2-20cm wide. Vein minerals include pyrite, telluride, silica, carbonate and fuchsite.
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	Refer to the drill hole information table in the Appendix of this report for significant assay results from KCGM for each lode represented throughout the report. All mineralised intercepts are shown in the table. All material data is periodically released on the ASX: 03/05/2021 Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
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 a true intersection width where possible. All reported assay results within Mt Charlotte style stockwork mineralisation are reported using downhole widths and estimated true thickness.
	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.	Intercepts are aggregated based on underground and open pit reporting criteria. Cut off grades are based on assumed mining grades. Underground lode mineralised zones were interpreted using a nominal cut-off grade (COG) of 3g/t with a maximum internal dilution of 2 meters. Underground Stockwork mineralised zones were interpreted using a nominal cut-off grade (COG) of 1.7g/t with a maximum internal dilution of 2 meters. Where a standout higher grade zone exists within the broader mineralised zone, the higher-grade interval is reported also.
	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	These relationships are particularly important in the reporting of Exploration Results.	Estimated 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 estimated true width have been clearly specified when used.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
widths and intercept lengths	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 mineralisation orientations are unknown, downhole lengths are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	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).	Mt Charlotte is currently in production and exploration is planned to test for lateral and depth extensions to known orebodies, and to identify new satellite ore bodies.
	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.	Data used for generating the mineral resource estimates is stored in an Acquire database. The Company employs a database administrator to manage the database. Where possible raw data is loaded directly into the database, with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the Acquire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the AcQuire database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator. Errors are corrected where possible. When not possible the data is flagged as confidence "0" or "1" in the database and the database is re-exported. This data will not be used in the estimation process. A proportion of the historical holes have been partially sampled, these holes are used in the resource estimation and unsampled intervals have been assigned 0.005g/t. These holes are being evaluated for twinning with additional drilling or sampling where core is still available
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person is a full-time employee of KCGM and is based in Kalgoorlie and has full access to ensure integrity across all geological disciplines.
	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.	Confidence in the interpretation varies for each deposit area dependant on geological setting and style of mineralisation. The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results, geochemical and geophysics.
	Nature of the data used and of any assumptions made.	The geological interpretation of the Mt Charlotte Project (MCP) area has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core RC chips and face sample chips were all used to help define the mineralised domains and regolith boundaries. Fault models were generated from in pit and underground mapping, diamond drilling, historic data and geophysics.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to reflect the current geological interpretations based on the style of mineralisation (lode, stockwork or oxide). Alternative interpretations were historically in place that reflected a predominantly higher-grade underground mining approach reflective of a lower gold price.
	The use of geology in guiding and controlling Mineral Resource estimation.	Domains are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains. Geological domains were also used as estimation domains. Where there were mixed populations within the domains, they were sub domained to segregate the different populations or an estimation technique that can handle multiple populations was used. A hard boundary approach was used during the Mineral Resource Estimation for all domains except KEL02 (Fairplay main lode) where a soft boundary was used between the high and medium grade subdomains.
	The factors affecting continuity both of grade and geology.	Mineralisation and grade continuity is predominantly affected by rock type, structural setting within the stratigraphy and mineralisation style. Mineralisation styles are a combination of; • Mt Charlotte style stockwork veining (variable density, N plunging qtz veining with gold associated with quartz-Ankerite-Pyrite-Siderite vein halos). • Fimiston lode style veining (steep dipping N-S qtz veining with Ankerite-Sericite-Siderite-Au/Ag Telluride halos). • Hidden Secret lode style veining (moderately SE dipping quartz vein with pyrite, telluride, silica, carbonate, and fuchsite). • Dispersed mineralisation within the oxide and transitional regolith profiles. Rock type, structural deformation and vein density plays a role in the style, continuity, and stratigraphic positioning of mineralisation within the Golden Mile Dolerite, Paringa Basalt, Williamstown dolerite and Devon Consuls basalt as well as local variations within these units.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The Mt Charlotte Project covers an area of 2.6km N-S x 2km E-W x 1.7km Vertical. Within the project area on a deposit scale the project can be broken into; • Mt Ferrum (600mN x 600mE x 600mZ) which is a combination of Fimiston style subvertical lodes within the Paringa Basalt and Charlotte style stockworks within and on the contacts of the Williamstown Dolerite. • Hidden Secret/Belgravia (700mN x 300mE x 600mZ) is a moderately west dipping, south plunging lode style orebody with overprinting stockwork style mineralisation associated with the Little Wonder deposit within the Dev Consuls Basalt • Kal East (600mN x 300mE x 400mZ) is a Fimiston style lode deposit hosted within the Williamstown dolerite overprinted by stockwork style mineralisation. • Mt Charlotte Mine (1.2kmN x 300mE x 1.7kmZ) is a subvertical north plunging stockwork style deposit hosted within the Golden Mile Dolerite U8 layer. Mineralisation is bound to the north by the Charlotte fault and south by the Lord Nelson fault
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.	Mineralisation is domained based on geological continuity and style. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are created using a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond, RC and face samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Many of the lodes exhibit bi/multi-model grade populations. These internal populations are controlled by grade indicators based on inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1x5x2m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Multiple Indicator Kriging (MIK) on a 5x10x5m block size was used to estimate the Mt Charlotte Mine ore bodies due to factors of drilling density, mineralisation style and multi mixed data populations. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations and reconciled production numbers. Additionally, check estimates including conventional ordinary kriging on all domains, hard boundaries on most sub-domains used in categorical indicator kriging, and CIK versus MIK estimation runs were conducted to test the validity of the current mineral resource estimate. The Mineral Resource Estimation of Kal East lodes at Mt Charlotte uses a hard-soft boundary between the high and medium grade domains of a 3-bin CIK estimate.
	The assumptions made regarding recovery of by-products.	Silver has been estimated using Categorical Indicator Kriging (CIK) within the Hidden Secret lodes for royalty payments.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	Sulphur has been estimated within the ore domains using ordinary Kriging (OK) to assist with overall blending strategy.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 1m x1m to ensure high resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		typically equate to 1-1.5 times the current resource definition spacing. A 3-pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.
	Any assumptions about correlation between variables.	Within Hidden Secret there is a high correlation between Gold and Silver.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to stratigraphic position, structural orientation, recorded lithology, and specific alteration assemblage. The geological interpretation is initially created from drill data and later calibrated with mapping of open pit and underground exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high-grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across most domain and sub-domain contacts; hard-soft boundaries were used at Kal East to help control the distribution of very high grades in the high-grade subdomain.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high-grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. A visual inspection of input composites is compared to the estimated block model in section for each domain to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate. End of month production and individual stope reconciliations in addition to ongoing field observations are used as a feedback loop to continuously calibrate and improve the interpretation and estimation.
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 adopted cut-off grades for Mineral Resource Estimation reporting are 1.25g/t for Underground Resources, these have been derived from current mining costs and parameters at $2,250/oz.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Mt Charlotte Underground Mineral Resource estimate is defined by an underground mining shape optimiser (MSO) using a A$2,250/oz gold price assumption, and 2.5m minimum mining width.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The prediction of the metallurgical performance of the Mt Charlotte Project is based on extensive historical information that shows good recovery performance. Extensive multielement data is collected during drilling and metallurgical test work is carried out on all resources within the project area. Predicted mineralogy is expected to show a strong correlation to that experienced during historic operations.
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.	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for the Mt Charlotte Project were determined from significant historical data (Drilling and mining) over the entire KCGM project area with more recent testing of representative intervals from diamond drill holes supplemented with regular sampling via grab samples during underground development. The sample size is

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in fresh non-porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. The density of stope backfill material consisting of Fimiston pit mineralised waste, historic tails, and waste from Mt Charlotte UG development, has been given a background value of 1.6.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average of density measurements collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Mt Charlotte project resource is classified as Measured, Indicated, Inferred assigned by boundary string or mining void wireframe per domain, based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, search pass, kriging efficiency /slope of regression, grade and geological continuity. Mineralisation has been categorised as Measured if it has been exposed by mining (open pit or development), have drill spacing at <=12.5x12.5m for lode ore bodies and 8x30m for stockwork ore bodies, estimated in the first search pass, have established grade and geological continuity, and >50% kriging efficiency and >80% slope. Indicated material is assigned if drill spacing is between 12.5x12.5m and 25x25m for lode ore bodies and is between 8x30m and 16x30m for stockwork ore bodies, search pass either 1 or 2, established grade and geological continuity, positive kriging efficiency and >50% slope of regression. Inferred material is drill spacing between 25x25m and 50x50m for lode ore bodies and is between 16x30m and 16x60m for stockwork orebodies with established geological and grade continuity. All other mineralisation is assigned a Potential resource category.
	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 taken into account and are validated through rigorous QAQC of the drillhole database, geological knowledge and interpretation of the Mt Charlotte Project. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The reviewing process allows the Competent Person's to assess and sign off on the model.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	KCGM has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation KCGM undertake an extensive review of the model that covers; ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. KCGM uses a standard approach to resource estimation and the procedure requires the systematic completion of the KCGM Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The current resource model is reconciled with production data on a monthly basis. Mt Charlotte undertook a batch trial at the Kanowna Belle Mill during the year (2021). Further batch trials are expected to occur when material and milling opportunity is available. Comparative metrics continue to be within acceptable threshold limits. The Mine Call Factor on tonnes has been 93% and 100% on grade for FY22 (July 21 to March 22). This information is fed back into the resource modelling process and used to refine the model.

APPENDIX C: TABLE 1

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.	Kalgoorlie Consolidated Gold Mines March 2022 Mineral 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.	A minimum Pre-Feasibility level study has been completed.
	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.	Ore reserves are re-optimised on a yearly basis taking the most up to date model, gold price and cost forecasts into account. The Ore Reserve methodology at Mount Charlotte is to complete a full mine design built from the latest block model using calculated cut-offs as a guide for designing stopes. Stope shapes are designed around material greater than the stoping cut off and evaluated using the design software. Design of stopes is also carried out beyond the economic limits to ensure that sensitivity results are meaningful. Mine planners are supplied with guidelines for blocking out stopes. These guidelines are to ensure mineable stope shapes. In general, the stope designs will not contain material below the stoping cut off unless there are reasonable grounds to include that material. Exceptions to this include sub-economic material which is encapsulated by payable ore. The stope shapes do not include external dilution. Dilution is applied subsequently, based on historical stope performance. All design work is carried out with Deswik software. The existing mine design provides the starting point for the reserves. Planned stope geometry follows geotechnical design guidelines which have been in place for several years. The designs are evaluated for gold and tonnes by Mineral Resource category bins. In this way, the Measured and Indicated portions of the design can easily be established. The evaluation results are automatically output to Deswik scheduling software. Deswik is used as a flagging and calculation tool in the processing of ore reserves. Factors for dilution and recovery are applied in Deswik. All stope shapes are assessed with local financial evaluations to determine if they are profitable.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. ▪ The assumed AUD gold price is at a conservative assumption of $1,750/oz ▪ Mill recovery factors are based on test work and historical averages from the mine. Various cut-off grades are calculated including a fully costed cut-off grade (FCCOG), Operational Expenditure only cut-off grade (OCOG) and Variable Stoping cut-off grade (VSCOG) The OCOG is used as the basis for stope design, though any areas which are marginal or require significant development are assessed by a more detailed financial analysis to confirm their profitability. Mount Charlotte produces from numerous horizons in the mine from as shallow as 150m down to over 950m of depth. With depth, comes additional costs in terms of haulage and ground support. Stope economics are applied on a block by block basis depending on the relative costs.
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 complete with a detailed financial assessment. The Mineral Resource block model is the basis for design and evaluation.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The Mount Charlotte underground mine is accessed via a portal within the Fimiston Pit (Super Pit) and the Cassidy Shaft. Production in Mount Charlotte is carried out utilising a combination of remnant Sublevel caving, modified Avoca and conventional long hole open stoping. In most cases, active and historic stopes are backfilled with development waste to save haulage costs.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	The main Mt Charlotte orebodies are worked by sub-level caving; the dimensions and ground support for the mill-holes and access drives are determined using the rock mass Q value and structural information. Hidden Secret is mined using a combination of modified Avoca and Avoca mining methods; stope dimensions and backfilling requirements are determined using hydraulic radius and Q value, modified by location of major structures and rock mass changes. Underground operations at Mt Charlotte are subject to mine seismicity. The mechanisms for seismic activity are well understood, and a combination of careful extraction sequencing and appropriate ground support in access drives is used to limit stress build-up (and thus event magnitude) and minimise damage from those seismic events which do occur.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Table 1 applies to underground mining only.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The mining dilution factors used.	Dilution factors are updated when there is sufficient data to do so and are based on the historical performance of each mining block and evaluation of the geotechnical block model. Average stope dilution specific to mining method and ranges from 10% to 20%.
	The mining recovery factors used.	The recovery factor is reviewed and updated as required based on historical recovery at the site. Average stope recovery is currently 85%.
	Any minimum mining widths used.	A minimum stope mining width of 2.5m has been used. This considers a minimum stope width of 2m +0.5m dilution in the Hangingwall.
	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 Ore Reserve. No ounces have been included from Inferred material.
	The infrastructure requirements of the selected mining methods.	The Mount Charlotte mine infrastructure is developed and in place and includes mine dewatering pumps, compressed air supply and mine ventilation. The main access decline connects the mine to a portal in the north end of the Super Pit. The decline and pit ramp are well maintained. There is a radio communication system throughout the mine.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Fimiston plant is made up of crushing, grinding, gravity gold recovery, flotation, UFG, CIL, elution and gold recovery circuits. The milling facilities are designed to process approximately 12 million tonnes per annum. The plant has the capability to treat both refractory and free milling ores through a flotation circuit and associated concentrate ultra-fine grinding circuit. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Recovery factors are based on lab testing and on-going operational experience
	Any assumptions or allowances made for deleterious elements.	No assumptions 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.	All mineralisation systems have significant bulk drill core test work undertaken prior to mining and current resource/reserves have a history of operational experience
	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.	The Fimiston Operation includes mining of the Fimiston Open Pit and the Mt Charlotte underground mine, and mineral processing at the Fimiston Processing Plant. Tailings generated from the Fimiston Processing Plant are deposited to the Fimiston I, II and Kaltails Tailings Storage Facilities (TSFs). KCGM also operates the Gidji Gold Processing Plant, located approximately 17 km north of Kalgoorlie-Boulder, where sulphide concentrate produced at the Fimiston Processing Plant undergoes further processing. Tailings generated from the Gidji Gold Processing Plant are deposited to the Gidji II TSF. Final gold recovery (elution of the loaded carbon) is conducted at the Fimiston Processing Plant. Mining operations in Western Australia are regulated under the Mining Act 1978 and the Mines Safety and Inspection Act 1994, which are administered by the Department of Mines, Industry Regulation and Safety (DMIRS). KCGM manages over 300 Mining Leases (tenements) granted in accordance with the Mining Act 1978, which stipulate environmental conditions for operation, rehabilitation and reporting. The tenements extend in a general north-south direction centred on the Fimiston Open Pit and cover a surface area of approximately 34,000 ha. Mineral processing and tailings disposal are regulated by the Department of Water and Environmental Regulation (DWER) under the Environmental Protection Act 1986 (EP Act). Accordingly, the Fimiston Processing Plant operates in accordance with Prescribed Premises Licence L6420/1988/14 with an approved production capacity of 14,500,000 tonnes per year, whilst the Gidji Gold Processing Plant operates in accordance with Prescribed Premises Licence L5946/1988/13 with an approved production capacity of 438,000 tonnes per year. KCGM was granted environmental approval for the Fimiston Mine and Waste Dumps under Part IV of the EP Act on 24 October 1991 for the Consultative Environmental Review (CER) Mine and Waste Dumps - Fimiston. Conditions for approval were outlined in Ministerial Statement 188. In September 2006, KCGM released a Public Environmental Review for the Fimiston Gold Mine Operations Extension (Stage 3) Project which was granted Ministerial Approval in January 2009 under Ministerial Statement 782. The Gidji Gold Processing Plant was granted environmental approval under Part IV of the EP in May 1988 under Ministerial Statement 28, and subsequently in September 1989 under Ministerial Statement 77. Following decommissioning of the roasters in 2015, which effectively removed sulphur dioxide point source emissions from the site, KCGM were granted Ministerial Statement 1032 in May 2016. KCGM currently manages potential environment impacts associated with the Fimiston Operation in accordance with the following Environmental Management Plans: ▪ Fimiston Air Quality Management Plan, approved by DWER June 2016.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Noise and Vibration Monitoring and Management Plan, approved by DWER September 2016. Waste rock characterisation studies have determined that approximately 80% of the waste rock sourced from the Fimiston Open Pit is Golden Mile Dolerite. The remaining waste rock is composed primarily of Paringa Basalt (14%) and the Black Flag Shale (BFS) (4.5%). The studies have concluded that the Golden Mile Dolerite and Paringa Basalt units are classified as non-acid forming (NAF). The ore zone of the BFS is potentially long lag PAF, with the risk diminishing towards the mine waste zones as the sulphur content decreases. The risk of acid rock drainage formation in the Fimiston WRDs is very low to low, due to the large amount of Golden Mile Dolerite containing neutralisation potential in the dumps, and the relatively low sulphur content of waste rock. Further, net acid generation and associated metals leaching would only be possible after very prolonged exposure, and such exposure is unlikely given current waste management practices of blending and encapsulation of BFS material within the WRDs.
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.	KCGM Fimiston operations, including Mt Charlotte and the open pit are located adjacent to the City of Kalgoorlie-Boulder, while Gidji processing plant is located 17km north of Kalgoorlie-Boulder. Access to the operations is provided by well-maintained sealed public and private roads. Majority of employees reside in Kalgoorlie-Boulder and commute to site daily. Normal communication channels, satellite and land-based facilities are available. Potable water for the KCGM operations is supplied from the Water Corporation Kalgoorlie water supply system. Non-potable water requirements are sourced from bores fields up to 28km away from the mine site. Makeup water for the Fimiston and Gidji processing plants is supplied from bore fields, water recovered and recycled from the operations, pit dewatering as well as some water sourced from recycled or treated effluent. Electricity is provided by the state electricity grid and Parkeston Power Station. A combination of Northern Star and Transalta owned powerlines feed all KCGM operations from Parkeston Power Station or direct from the grid. Sources of fuel, such as diesel, gasoline etc are readily available at competitive pricing from local suppliers, as there are multiple operating plants in the Kalgoorlie area.
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 an AUD $/t based on historical data.
	Allowances made for the content of deleterious elements.	No allowances made.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a long-term gold price of AUD $1750/oz, 2.5% WA state Government Royalty, as per NSR corporate guidance
	The source of exchange rates used in the study.	All rates considered in Australian Dollars (AUD) as per NST 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 State Govt. and third party 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.	All revenue based on a gold price of AUD $1,750/oz.
	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.	All product is sold direct at spot market prices.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not relevant for gold.
	Price and volume forecasts and the basis for these forecasts.	Not relevant for gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not relevant for gold.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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 assessed at varying gold prices.
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 foreseen.
	Any identified material naturally occurring risks.	Mercury occurs naturally in the gold bearing ore that is mined from the Fimiston Open Pit. The mercury is present primarily as tellurides, which are minerals composed of several metals in association with the element tellurium (Te). The telluride minerals containing mercury that are present in the Fimiston Open Pit include Coloradoite, also known as mercury telluride (HgTe), and Cuprian Coloradoite ((Hg, Cu) Te). Telluride minerals are rare but widely distributed through the Golden Mile lodes and generally represents less than 0.00014% of the ore mined from the Fimiston Open Pit and the Mt Charlotte Underground Mine. Mercury is also present in the waste rock material mined from the Fimiston Open Pit (typically 0.00001%). An investigation by KCGM in 2006 shows that the distribution of tellurides (including Coloradoite) within the Golden Mile lodes is consistent and there is no evidence to suggest that the concentration of mercury in the materials mined from the Fimiston Open Pit will increase or decrease over time.
	The status of material legal agreements and marketing arrangements.	No issues foreseen.
	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 foreseen.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Ore Reserves classifications are derived from the underlying Resource model classifications – i.e., Measured Resource material is converted to either Proved or Probable Reserves, with Indicated Resource material converting to Probable Reserve.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	None.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	This ore reserve has been prepared and peer reviewed internally within KCGM and NST. 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.	Ore reserves are best reflected as global estimates.
	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.	Other than dilution and recovery factors described above, no additional modifying factors applied. There is high confidence in these models as the areas are well known and well drilled.
	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.	

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Mt Percy – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The sampling database for the KCGM Mineral Resource estimation has been collected over the last 115 years. The data has been collected by many different operations, using varying techniques. Assay information quality also varies with detection limit and quality: generally, the quality appears to be inversely proportional to the age of the samples. For this reason, assay information collected prior to 1984 is not used in the interpolation of element grades. All information collected prior to involvement by Northern Star Resources and Saracen Minerals in 2019 is hereafter referred to as historical data. Only historical data that is deemed as having acceptable and traceable location and assay information has been included in the Mineral Resource estimation dataset for Mt Percy. For Mineral Resource estimation the Mt Percy deposits are sampled in majority by diamond drilling (DD) reverse circulation (RC) and underground face chip samples. Hole Type / No. of Collars / Total Meters / No. of Samples: Diamond / 5,063 / 818,393 / 727,687 RC / 4,290 / 274,608 / 179,584 Underground Face Chips / 763 / 6,017 / 6,265 Total Number of Drillholes / 10,116 / 1,099,018 / 913,536
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For DD samples, down hole depths are recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist during core mark-up prior to logging, to prevent incorrect logging and sampling errors. Sample intervals are then marked on the core by a geologist, to honour geological boundaries. Sample interval lengths vary from 0.3m and 1.3m (NQ). DD core is orientated, measured and then sampled by cutting the core in half longitudinally using an "Almonte" diamond saw. Cutting was along orientation lines. The same half of the core is always selected for each sample interval, placed in numbered calico bags that contain a bar code, scanned into the database and submitted to the laboratory for analysis. The other half of the core is left in the core tray which is stamped for identification, stored and catalogued. Routine 'field duplicates' to assess sample representivity are not performed on diamond core as these are not considered to be true field duplicates. RC samples were homogenised by riffle or cone splitting prior to sampling and then submitted for assay as 1m or 2m samples. Face chip sampling is performed by geologists using industry standard face sampling protocols. Certified standard samples, ranging in grades from 0.542 g/t Au to 34.99 g/t Au, purchased from OREAS, are inserted at the rate of one in 40 samples. The results are reviewed on a per batch basis and the entire batch of samples is reanalysed if the result is greater than three standard deviations (SD) from the expected result. All drill collars are surveyed by using a total station theodolite or total GPS.
	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.	Historical sample preparation and assay procedures are variable due to the duration of historical work and the numerous companies involved. All historical sampling accepted for use in the Mineral Resource estimates are considered to have been collected by acceptable practices. Current sample preparation and assay procedures employed by KCGM are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. The primary laboratory, Bureau Veritas, meets ISO 9001:2000. Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300g of the pulp is retained and a 40g charge weight for fire assay is extracted from the pulp packet. Samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled. Prills placed in tubes, dissolved on hotplates and analysed using AA finish with over range dilutions. Sample preparation for Sulphur determination follows the same process as for Gold, with assaying taking place using the LECO method. Sample preparation for silver determination follows the same process as for Gold, with assaying taking place using Four Acid Digest with an ICP MS finish.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	DD core is mostly NQ diameter with some BQ, HQ and LTK60 diameter core. Where possible diamond core was orientated using a spear, Ballmark™, Ezimark™, ACE multi electronic tool or Reflex ACTIIIRD tool. Grade control drilling undertaken prior to mining in the existing pits at Mt Percy was Reverse Circulation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD, all recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist and entered as interval into the hole log. Any issues are communicated back to the drilling contractor. Recovery is generally very high, in excess of 95%, and there have been no significant sample recovery problems. Historic DD core stored on site shows excellent recovery. A limited number of drill holes have intersected historical workings, this is recorded on the core block as well as on driller's plods and is recorded in the database. Where possible drilling continues beyond the void. RC drilling sample weights were recorded for selected sample intervals and monitored for fluctuations against the expected sample weight. If samples were below the expected weight, feedback was given promptly to the RC driller to modify drilling practices to achieve the expected weights
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD and RC, drilling contractors adjust the rate of drilling and method if recovery issues arise. Minor loss occurs when drilling through fault zones. Areas of potential lower recovery are generally known before hand and controlled drilling techniques employed to maximise recovery.
	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.	No specific study has been carried out on recovery and grade. As recoveries are generally very high (95%+) it is assumed that the potential for bias due to variable sample recovery is low.
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 core and RC chips were logged by geologists with lithology, mineralisation, structure, alteration, veining and specific gravity were recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation and vein intensity were also recorded. Geotechnical measurements on DD core include RQD, Recovery, and Fracture Frequency. For selected holes joint sets, infill, infill thickness and roughness were also geotechnically measured. All mineralised intersections are logged and sampled. Logging is entered in AcQuire using a series of drop-down menus which contain the appropriate codes for description of the rock.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Geology logging is qualitative in nature with visual estimates made of mineralisation percentages for core. Structural and geotechnical logging is quantitative in nature. All core is photographed wet as standard practice. Historically some core may have also been photographed dry. 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.	100% of the drill core and RC chips are logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is sampled by sawn half-core on intervals controlled by geological domaining represented by mineralisation, alteration and lithology. In general, grade control holes are routinely full core sampled. Mineralised intersections are sampled with a maximum and minimum length of 1.3m and 0.3m, respecting lithological or alteration contacts. The down hole depth of all sample interval extents are recorded.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Historic RC samples were homogenised by riffle or cone splitting prior to sampling; however it was not recorded whether they were sampled wet or dry.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation follows industry standard practice. Samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300 g of the pulp is retained and a 40g charge prepared.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Coarse grind checks at the crushing stage (3mm) are carried out at a ratio of 1:40 samples with 90% passing required. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:40 samples with 90% passing required. Laboratory duplicate samples are taken for coarse crush (3mm) and pulverising (75 µm) stages at a ratio of 1:50 samples. Repeat assays are carried om 5% of prepared pulp samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling of diamond core is occasionally undertaken for check assays, however routine field duplicates are not performed on diamond core as these are not considered to be true field duplicates. Umpire sampling is performed monthly, where 10% of the samples are sent to the umpire lab for processing.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample and size (3kg to 4kg) relative to the particle size (>90% passing 75um) of the material sampled is a commonly utilised practice for effective sample representation for gold deposits within the Eastern Goldfields of Western Australia
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.	Fire assay analysis is undertaken and this is considered to be a total assay method. Monthly and more detailed Quarterly QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for Mineral Resource estimation.
	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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:40. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Blanks are inserted into the sample sequence at a nominal ratio of 1:40. 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. When visible gold is observed in core, a barren flush is required. 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 and anomalous intersections are verified by a Senior Geologist during the drill hole validation process.
	The use of twinned holes.	No twinned holes were drilled for this data set. Re-drilling of some drillholes has occurred due to issues downhole (e.g., deviation). These have been captured in the database as an 'A' and have been logged and sampled as well as the original hole.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are stored and validated within the site AcQuire database. Data import into the database is controlled by documented standard operating procedures, and by a set of validation tools included in AcQuire import routines. Electronic copies of all primary location, logging and sample results data are filed for each hole. Assay results are received in csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Holes that cannot be accurately validated or do not meet the requirements of MTP QAQC are excluded prior to Mineral Resource estimation.
	Discuss any adjustment to assay data.	No adjustments are made to the diamond or RC assay data. During Mineral Resource estimation, face chip sample assays are calibrated by an average factor of 0.5 due to a sampling bias (in general, the full structure/orebody width not exposed in underground faces) to better correlate with diamond and RC assay data. No adjustments are made to the raw assay data in the database.
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 KCGM surveyors in the Mt Charlotte mine grid. All drill hole collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15m and 30m intervals down hole thereafter. QAQC is performed on the speed of running, and also on the misclose rate for each gyroscopic survey. Where issues are identified, a single survey run can be chosen as preferred with the remaining data ignored. This data is converted to csv format and imported into the AcQuire database where it is validated by the project geologist. Any poor surveys are re-surveyed. If survey data was missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation.
	Specification of the grid system used.	Mt Percy models are completed on the Mt Charlotte Grid. This is a rotated grid 38.4° from MGA 94
	Quality and adequacy of topographic control.	The topography surface wireframe is generated from an annual flyover survey completed by Fugro Australia Land PTY LTD with +/- 15cm resolution.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing varies through the mine depending on the mineralisation style. For stockwork ore bodies drill spacing is nominally 16mE x 60mN down to 8mE x 30mN. For lode-style ore bodies, drill spacing is nominally 50mE x 50mN down to 12.5mE x 12.5mN
	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 in the ore lodes at Mt Percy is considered sufficient to support the definition of Mineral Resources as applied under the 2012 JORC Code.
	Whether sample compositing has been applied.	No sample compositing has been applied to the database. For grade estimation, the datasets are composited to 1m intervals prior to grade estimation. This aligns with the most common sample length taken.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Orientation of drilling varies throughout the area; historic RC grade control was generally orientated across the lithology. However, this does not optimally intercept the vein orientation for stockwork orebodies. All recent drilling is specifically orientated to intercept the vein sets at an optimum angle.
	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.	Currently, the orientations drilled at Mt Percy are not considered to introduce any bias. Ongoing exploration drilling in the area will be used to geostatistically test any bias introduced by drilling orientation. If any holes are found to introduce a bias to the estimation, they will then be flagged during drill hole validation process they will be excluded from the Mineral Resource estimation datasets.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M26/353 and M26/359 and M26/131. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both Company and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g., total loss, spillage or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Sampling performed by KCGM staff and contractors is reviewed weekly by senior KCGM geology personnel including task observations and inspections. Data is reviewed regularly by senior KCGM geology personnel and low confidence data is excluded from the estimate. Audits and inspections of the commercial assay lab are completed monthly by the QA/QC geologist.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The tenement portfolio is located on land owned by the State of Western Australia on Crown reserves or vacant Crown land. KCGM manages the tenement portfolio for the KCGM operations on behalf of the Joint Venture Owners, Saracen Kalgoorlie Pty Limited (Saracen) and Northern Star (KLV) Pty Ltd (Northern Star). The portfolio comprises of 322 granted tenements which is a combination of Miscellaneous (73) and Prospecting Licenses (25), and General Purpose (107) and Mining Leases (117). The tenements cover a total area of approximately 34,000 hectares extending in a north-south direction over a distance of approximately 45km, centred on the Super Pit. There are two registered Native Title Claims that incorporate the KCGM leases. Claimant groups include the Maduwongga people (WC2017/001) and Marlinyu Ghoorlie (WC2017/007). These claims are currently before the tribunal for the Determination.
	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.	In the 1970s, the goldfield was controlled by three companies: Kalgoorlie Mining Associates (KMA), Kalgoorlie Lake View (the majority owner of KMA), and North Kalgurli Mines. In 1974, all operations on the Golden Mile had ceased, with the exception of the highly mechanized Mt Charlotte Underground Mine. Modern day surface mining commenced in 1983 in the Kemlo Pit followed by the Croesus and Eclipse pits, and the Central and Paringa pits in 1985. Mt Percy was mined previously between 1989 and 1995 by the West African Gold Recovery Company. KCGM was formed in 1989 to run the operation on behalf of its owners Homestake Gold of Australia Ltd (Homestake) and GMK, a subsidiary of Normandy Mining Limited. By 1992, all labour intensive, high cost underground mining of narrow zones stopped in the Main, Croesus, Chaffers, Lake View, and Perseverance shafts. Fimiston underground production ceased in 1994. In 2001, Homestake merged with Barrick to form Barrick Gold Australia, thereby becoming a 50% owner of KCGM. In 2002, Newmont acquired Normandy Mines Limited, thereby becoming a 50% owner of KCGM. In 2019, Saracen and Northern Star acquired the operation from Barrick and Newmont. In 2020, Northern Star announced a merger of equals and the operation is now wholly owned by Northern Star Resources Exploration drilling is ongoing from underground to extend the known mineral resources.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Geology	Deposit type, geological setting and style of mineralisation.	The Golden Mile deposit occurs in the Kalgoorlie Terrane, within the southern portion of the NNW trending Archaean Norseman-Wiluna Greenstone Belt. The greenstone belt has been multiply deformed and regionally metamorphosed to grades varying from lower greenschist to amphibolite grade (Swager, 1997). The stratigraphy of the Kalgoorlie Terrane consists of a lower mafic-ultramafic volcanic sequence overlain by a thick sequence of clastic sedimentary rocks and intermediate to felsic volcaniclastic rocks (Swager, 1997). Younger sedimentary basins, occurring along major faults or synclines, unconformably overly the greenstone sequence (Swager, 1997). Granitic intrusions occurring within the Norseman-Wiluna Greenstone Belt are divided into two categories: pre-folding and post-folding (Witt and Davy, 1997). The post-folding intrusions are further subdivided as syn-tectonic and late tectonic. The stratigraphy covered by the KCGM tenements consists of a basal ultramafic unit called the Hannan Lake Serpentinite. This ultramafic unit is overlain successively by the high magnesian Devon Consols Basalt, Kapai Slate, tholeiitic Paringa Basalt and the Black Flag sediments. Differentiated zones of dolerite and gabbro texture occur within the mafic sequence. The Golden Mile Dolerite, hosting the bulk of the Golden Mile and Mount Charlotte gold mineralisation, is a strongly differentiated layered gabbro, approximately 700m in thickness. The Golden Mile Dolerite is situated conformably between the Paringa Basalt and the Black Flag sediments. This entire stratigraphic sequence is intruded by numerous porphyry dykes of intermediate to felsic composition. Mineralisation at Mt Percy consists of both lode and stockwork mineralisation similar to Fimiston and Mt Charlotte Mineralisation. The Mt Charlotte style gold mineralisation, which accounts for the bulk of the economic gold ore of the Mt Percy deposit, is predominantly associated with pyrite in carbonate alteration haloes around quartz veins, with a minor proportion as relatively coarse free gold within the veins, commonly close to their margins. The veins vary in width from a few millimetres to a maximum of about two metres but are commonly between two centimetres and 50 cm wide. The vein spacing varies from 20 cm to tens of metres but is typically from 50 cm to two metres in areas mined as ore. Quartz is the dominant vein-fill mineral; accessory vein minerals include calcite, ankerite, scheelite, pyrite, pyrrhotite, and gold.
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	Refer to the drill hole information table in the Appendix of this report for significant assay results from KCGM for each lode represented throughout the report. All mineralised intercepts are shown in the table.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
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 a true intersection width where possible. All reported assay results within Mt Charlotte style stockwork mineralisation are reported using downhole widths, due to the nature of the mineralisation and orientation of the drill holes, true width calculations are not possible or are misleading.
	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.	Intercepts are aggregated based on underground and open pit reporting criteria. Cut off grades are based on assumed mining grades. Open pit lode mineralised zones were interpreted using a nominal cut-off grade (COG) of 0.5g/t with a maximum internal dilution of 5 meters. Open pit stockwork mineralised zones were interpreted using a nominal cut-off grade (COG) of 0.5g/t with a maximum internal dilution of 5 meters. Where a standout higher grade zone exists within the broader mineralised zone, the higher grade interval is reported also.
	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.	Downhole lengths only are reported
	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 estimated 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 mineralisation orientations are unknown, downhole lengths are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.

APPENDIX C: 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).	Further exploration and resource definition is planned to test for extensions and increase the confidence in the existing 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.	Data used for generating the mineral resource estimates is stored in an Acquire database. The Company employs a database administrator to manage the database. Where possible raw data is loaded directly into the database, with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the Acquire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the AcQuire database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator. Errors are corrected where possible. When not possible the data is flagged as confidence "0" or "1" in the database and the database is re-exported. This data will not be used in the estimation process.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person is a full-time employee of KCGM and is based in Kalgoorlie and has full access to ensure integrity across all geological disciplines.
	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.	Confidence in the interpretation varies for each deposit area dependant on geological setting and style of mineralisation. The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results, geochemical and geophysics.
	Nature of the data used and of any assumptions made.	The geological interpretation of the Mt Percy Project area has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core and RC chips were all used to help define the mineralised domains and regolith boundaries. Fault models were generated from in pit and surface mapping, diamond drilling, historic data and geophysics.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to reflect the current geological interpretations based on the style of mineralisation (lode, stockwork or oxide). Alternative interpretations were historically in place that reflected a predominantly higher grade underground mining approach reflective of a lower gold price.
	The use of geology in guiding and controlling Mineral Resource estimation.	Domains are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains. Geological domains were also used as estimation domains. A hard boundary approach was used during the Mineral Resource Estimation. Where there were mixed populations within the domains, they were subdomained to segregate the different populations or an estimation technique that can handle multiple populations was used.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Mineralisation and grade continuity is predominantly affected by rock type, structural setting within the stratigraphy and mineralisation style. Mineralisation styles are a combination of; • Mt Charlotte style stockwork veining (variable density, N plunging qtz veining with gold associated with quartz-Ankerite-Pyrite-Siderite vein halos). • Fimiston lode style veining (steep dipping N-S qtz veining with Ankerite-Sericite-Siderite-Au/Ag Telluride halos). • Dispersed mineralisation within the oxide and transitional regolith profiles. Rock type, structural deformation and vein density plays a role in the style, continuity, and stratigraphic positioning of mineralisation within the Golden Mile Dolerite, Paringa Basalt, Williamstown Dolerite, Hannans Lake Serpentinite and Devon Consuls basalt as well as local variations within these units.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The Mt Percy Project covers an area of 2km N-S x 1.5km E-W x 850m Vertical. Within the project area on a deposit scale the project can be broken into: Hannans North (1200mN x 450mE x 550mZ) which consists of Fimiston style subvertical lodes within the Golden Mile Dolerite U8 layer. Mineralisation is bound to the north by the Lamington fault and approximately to the South by the Mystery fault. Union Club (800mN x 300mE x 700mZ) which is a combination of Charlotte style stockwork and Fimiston style subvertical lodes running subparallel to the Kapai Slate in the Devon Consols Basalt and Williamstown Dolerite. Mystery (1200mN x 250mE x 450mZ) consists of stockwork/vein hosted mineralisation in felsic-intermediate porphyries that intrude the Hannans Lake Serpentinite. Mineralisation typically is most intense along the contacts of the porphyries. Mineralisation is bound to the North by the Mystery fault and so the South by the Charlotte fault. Sir John (450mN x 220mE x 250mZ) mineralisation is similar to Mystery, stockwork veins hosted in felsic-intermediate porphyries that intrude the Hannans Lake Serpentinite and the Devon Consols Basalt. Milanese (600mN x 500mE x 200mZ) is a series of low angle North dipping vein sets, located dominantly North of the Mystery fault hosted in the Golden Mile Dolerite. There is also a component of oxide mineralisation. Golden Goose (750mN x 300mE x 500mZ) is characterised by Charlotte style stockwork mineralisation within the Golden Mile Dolerite U8 layer. Mineralisation is bound to the South by the Charlotte fault. Golden Dream (750mN x 200mE x 150mZ) is dominantly oxide mineralisation over the contact between the Hannans Lake Serpentinite and the Golden Mile Dolerite. Mineralisation is bound to the South by the Charlotte fault and to the North by the Mystery fault.
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.	Mineralisation is domained based on geological continuity and style. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are created using a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond, RC and face samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Many of the lodes exhibit bi/multi-model grade populations. These internal populations are controlled by grade indicators based on inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1x5x2m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations. Additionally, check estimates including conventional ordinary kriging on all domains, hard boundaries on most sub-domains used in categorical indicator kriging.
	The assumptions made regarding recovery of by-products.	No assumptions are made on recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No other elements have been estimated.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 1m x1m to ensure high resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but typically equate to 1-1.5 times the current resource definition spacing. A 3 pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to stratigraphic position, structural orientation, recorded lithology and specific alteration assemblage. The geological interpretation is initially created from drill data and later calibrated with mapping of open pit and underground exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high-grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across most domain and sub-domain contacts; hard-soft boundaries were used at Kal East to help control the distribution of very high grades in the high-grade subdomain.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high-grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. A visual inspection of input composites is compared to the estimated block model in section for each domain to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate. End of month production and individual stope reconciliations in addition to ongoing field observations are used as a feedback loop to continuously calibrate and improve the interpretation and estimation.
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 adopted cut-off grades for Mineral Resource Estimation reporting are 0.5g/t for Open Pit Resources, these have been derived from current mining costs and parameters at $2,250/oz.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The open pit mineral resource inventory assumes open pit extraction and is reported within an AUD$2,250/oz pit optimisation shell generated using current mining parameters and constraints
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The prediction of the metallurgical performance of the Mt Percy is based on historical information that shows good recovery performance. Extensive multielement data is collected during drilling and metallurgical test work is carried out on all resources within the project area. Predicted mineralogy is expected to show a strong correlation to that experienced during historic operations.
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.	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for the Mt Percy Resource were determined from testing of representative intervals from diamond drill holes. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in fresh non-porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average of density measurements collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Mt Percy resource is classified as Measured, Indicated, Inferred assigned by boundary string by domain based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, search pass, kriging efficiency /slope of regression, grade and geological continuity. Mineralisation has been categorised as Measured if it has been exposed by mining (open pit or development), have drill spacing at <=12.5x12.5m for lode ore bodies and 8x30m for stockwork ore bodies, estimated in the first search pass, have established grade and geological continuity, and >50% kriging efficiency and >80% slope. Indicated material is assigned if drill spacing is between 12.5x12.5m and 25x25m for lode ore bodies and is between 8x30m and 16x30m for stockwork ore bodies, search pass either 1 or 2, established grade and geological continuity, positive kriging efficiency and >50% slope of regression. Inferred material is drill spacing between 25x25m and 50x50m for lode ore bodies and is between 16x30m and 16x60m for stockwork orebodies with established geological and grade continuity. All other mineralisation is assigned a Potential resource category.
	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 taken into account and are validated through rigorous QAQC of the drillhole database, geological knowledge and interpretation of the Mt Charlotte Project. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The reviewing process allows the Competent Person's to assess and sign off on the model.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	KCGM has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation KCGM undertake an extensive review of the model that covers; ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. KCGM uses a standard approach to resource estimation and the procedure requires the systematic completion of the KCGM Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No detailed production or reconciliation data is available.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Kanowna Belle: Resources and Reserves – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	For Mineral Resource estimation the Kanowna Belle deposits are sampled in majority by diamond drilling (DD) from underground platforms. Reverse Circulation (RC) drilling makes up a small proportion of the data set and has been carried out at the Kanowna Belle deposit for delineation of open pit material. Face sampling data (where validated) has been included in the Resource Estimate.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For DD samples, downhole depth is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist during core mark-up prior to logging to prevent incorrect logging and sampling errors. Sample intervals are then marked on the core by a geologist, to honour geological boundaries (i.e., lithology, mineral assemblage, veining percentage). Sample interval lengths vary from 0.3m to 1.3m. RC samples were homogenised by riffle splitting prior to sampling and then submitted for assay as either 1 m intervals or 2-4 m composites. 2-4 m composites returning significant assay results were re-assayed using the individual 1 m samples. Field duplicates samples to assess representivity were carried out for most RC programs. Frequency of the duplicates varied from approximately 1:25 to 1:50 (based on information available for historic data). Face channel sampling is constrained within geological and mineralised boundaries with a minimum (0.2 m) and maximum (1.3 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. The sample is taken across the grade line (1.5 m from floor) or perpendicular to the ore body. Face samples are taken by personnel trained and deemed competent to ensure sample representivity.
	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.	Historical sample preparation and assay procedures vary considerably due to the many generations of data captured. All data used in the Mineral Resource estimate is considered to have been collected using industry accepted practices. Current sample preparation and assay procedures employed by Northern Star Resources are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. The primary laboratories (Bureau Veritas and SGS) meet ISO 9001:2000
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	DD core is mostly NQ2 diameter with some BQ, HQ and LTK60 diameter core. Where possible diamond core was orientated using a spear, Ballmark™, Ezimark™, or ACE multi electronic tool. RC holes are either 5.5" or 5.25" diameter. For face sampling, a geological hammer was used with the sample collected directly into a calico sample bag
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD, all recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist. Any issues are communicated back to the drilling contractor. Recovery is generally very high (>95%) and there have been no significant sample recovery problems. Historic DD core stored on site shows excellent recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD, drilling contractors adjust the rate of drilling and method if recovery issues arise. Minor loss can occur when drilling through major fault zones such as the Fitzroy Fault. Areas of potential lower recovery are identified on drill plans provided to the drilling contractor, and controlled drilling techniques are employed to maximise recovery. Where sample loss occurs internal to an ore zone, the drillhole is usually excluded from the estimate.

Hole Type	No. of Collars	Total Meters	No. of Samples	number of additional collars	% of additional drillholes
Diamond	5399	837,473	853,217	174	3%
RC	197	24,554	24,043		
Underground Channels	2794	14,851	22,128	112	4%
Total Number of Drillholes	8,390	876,878	899,388	286	3%

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No specific study has been carried out on recovery and grade. As recoveries are generally very high (95%+) it is assumed that the potential for bias due to variable sample recovery is low.
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 DD core was logged by geologists with lithology, mineralisation, structure, alteration, veining and specific gravity recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation, thickness of veins and veins per metre were also recorded. Geotechnical measurements on DD core include RQD, Recovery, and Fracture Frequency. For selected holes joint sets, infill, infill thickness and roughness were also geotechnically measured. All mineralised intersections are logged and sampled. 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, alteration 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.	Geology logging is qualitative in nature with visual estimates made of mineralisation percentages for core. Structural and geotechnical logging is quantitative in nature. All core is photographed wet as standard practice. Historically some core may have also been photographed dry. 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.	The entirety of the drillhole is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Mineralised intersections are sampled with a minimum and maximum length of 0.3 m and 1.3 m respectively, generally to lithological or alteration contacts. DD core was orientated (where possible), measured and then sampled by cutting the core in half longitudinally using an "Almonte" diamond saw. The same half of the core is selected for each sample interval, placed in numbered calico bags and submitted to the laboratory for analysis. The other half of the core is left in the core tray which are stored and catalogued. Full core sampling is conducted on grade control holes where sufficient information is already available for the area should need arise.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Development face samples are chipped directly off the face into a sample bag aiming for sample size of at least 2.5 kg. Samples are a maximum of 1.3 m in width and honour geological boundaries. Samples are taken as close to perpendicular across the mineralisation as practicable. In some cases, multiple sample orientations are used where there is more than one mineralised trend in the face. All RC samples are split using a rig-mounted cone splitter to collect a 3 - 4 kg sample 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 mineralized zones spear samples were taken over a 4 m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples during the reporting year has been sent to three different labs. Sample preparation techniques for each lab is described below. SGS: Samples are oven dried and diamond samples subsequently processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300 g of the pulp is retained as the primary sub sample and the pulp reject stored for…… A pulp residue duplicate sample is taken at the request of the onsite geologist. A 40g catch weight for fire assay is extracted from the pulp packet, samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled, prills placed in tubes, dissolved on hot plates and analysed using AA finish with over range dilutions. MinAnalytical: Photon assay testing is carried out through MinAnalytical. This process involves a coarse crush stage, crushing samples to < 3 mm. 500 g of crushed material is then placed into single-use sample jars. Using a robotic shuttle, high energy x-rays are then fired at the sample causing excitation of atomic nuclei allowing detection of gold content. Photon analysis allows sampling of larger amounts of sample material providing a true bulk reading of gold content. The process is chemical free and non-destructive, samples are retained at the lab for a period of two months. Bureau Veritas: Samples are oven dried. All diamond samples are then processed through an Essa Jaw Crusher or an Orbis Crusher. Sample are crushed with the Orbis Crusher to 90% < 3 mm. 2.6 kg will be split for the primary and the remainder will be the coarse reject. The crushed sample is then pulverised for approximately 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. If the sample fails a grind check the lab must re-pulverise the pulp with the pulp reject. Approximately 250 - 300 g of the pulp is retained as the primary sub sample and the pulp reject stored for 3 months. A pulp residue duplicate sample is taken at a 1:50 ratio, which involves a second packet after pulverising.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		A 40g charge weight for fire assay is extracted from the pulp packet. The charge weight will be reduced to 20g charge weight in samples believed to have a high sulphide content. Samples are tested for sulphides and flux is adjusted. Approximately 170g of flux is added. Samples are fired, hammered and cupelled with final prill samples placed in test tubes. The prills are dissolved using a water bath and analysed using Atomic Adsorption Spectroscopy (AAS) finish over a range of dilutions.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Coarse grind checks at the crushing stage (3 mm) are carried out at a ratio of 1:25 samples with 90% of the sample volume reporting through the sieve required for a pass. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:25 samples with 90% of the sample volume reporting through the sieve required for a pass. Laboratory duplicate samples are taken for coarse crush (3 mm) and pulverising (75 µm) stages at a ratio of 1:25 samples. Repeat assays are carried out at a ratio of 1:10 on prepared pulp samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling of diamond core is occasionally undertaken for check assays, however routine field duplicates are not performed on diamond core as these are not considered to be true field duplicates.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage (3 mm) and pulverising stage (75 µm) requiring 90% of material to report through the relevant size for a pass. No specific study has been carried out to determine optimum sub-sample size fractions. These material sizes are assumed to be acceptable for the mineralisation style and material grain size present.
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.	Fire assay analysis is undertaken, and this is considered to be a total assay method. Monthly, quarterly, and annual QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for Mineral Resource estimation.
	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.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections Standard control samples and blanks are inserted at a ratio of 1:20. The standard control samples are changed on a 3-month rotation. The results are reviewed on a per-batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Blanks are inserted into the sample sequence at a ratio of 1:20. 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. When visible gold is observed in core, a barren flush is required. Laboratory performance is monitored using the results from the QA samples 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 and anomalous intersections are verified by a Senior Geologist during the drill hole validation process.
	The use of twinned holes.	No twinned holes were drilled for this data set. Redrilling of some drillholes has occurred due to issues downhole (e.g., bogged rods). These have been captured in the database as an 'A'. Re-drilled holes are sampled whilst the original drillhole is logged but not sampled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are stored and validated within the site Acquire database. Data import into the database is controlled by documented standard operating procedures, and by a set of validation tools included in Acquire import routines. Hard copies and electronic copies of all primary location, logging and sample results data are filed for each hole. Assay results are received in .csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Holes that cannot be accurately validated or do not meet the requirements of Kanowna QAQC are excluded prior to Mineral Resource estimation.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.

APPENDIX C: 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 the Mine Grid. All drill hole collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15 m and 30 m intervals down hole thereafter. Since the 1st of June 2015, a true north seeking gyroscopic tool has been used to line up the rig and record a zero-metre survey. Since May 2019, all DD holes are surveyed down hole only using DeviFlex, generally every 50 m during drilling of the hole and again at 3 m intervals upon completion of the drillhole. QAQC is performed on the running speed and misclose rate for each gyroscopic survey. Where issues are identified, a single survey run can be given a higher priority in the database. This data is converted to .csv format and imported into the AcQuire database where it is validated by the Project Geologist. If survey data is missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation.
	Specification of the grid system used.	A local grid system (KBMINE grid) is used. It is rotated anticlockwise 28.43 degrees to the MGA94 grid. Drill hole collars are located by the Mine Surveyors using a Laser system respective to the local mine grid and to the overall property in UTM or Australian grid coordinates.
	Quality and adequacy of topographic control.	Topographic control is not relevant to the underground mine, but relevant to the drillholes that define the open pit resource. In this case the topography is reconciled to the surface collar pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing is nominally 60 m x 60 m down to 20 m x 20 m in the main zones of mineralisation at the Kanowna Belle deposits. Secondary mineralised structures in the hanging wall and footwall of Kanowna Belle are typically narrower and less consistent so have a nominal drill spacing of <20 m x 20 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 spacings in the ore lodes at Kanowna Belle are considered sufficient to support the definition of Mineral Resources and Reserves as applied under the 2012 JORC Code. Appropriate geological and grade continuity have been demonstrated during the 20+ years of mining at the Kanowna Belle operations.
	Whether sample compositing has been applied.	No sample compositing has been applied. The datasets were composited to 1 m intervals prior to grade estimation. This aligns with the most common sample length taken.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of data is drilled perpendicular to the interpreted strike of the Kanowna Belle ore lodes however due to the repetition and stacked nature of the mineralised zones; actual drill intersections may be oblique to some of the non-targeted ore trends.
	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.	Holes with orientations that are considered likely to introduce sampling bias are flagged during drill hole validation and are excluded from the Mineral Resource estimation datasets.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M27/103. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both Company and Laboratory in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g., total loss, spillage, or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The last external audit was conducted in 2009 with the conclusion that industry best practice was being followed. Standards and procedures have remained largely unchanged since this time. A review of sampling techniques, assay results and data usage were conducted internally by the Companies' Principal Resource Geologist during 2015 with no material issues found.

APPENDIX C: 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.	The Kanowna Belle mine and associated infrastructure is located on Mining Leases M27/92 and M27/103. Mining lease M27/92 (972.65 ha) was granted on March 14, 1988, and M27/103 (944.25 ha) was granted on January 12, 1989. Both leases were granted for periods of 21 years after which they can be renewed for a further 21 years. The Mining Leases and most of the surrounding tenement holdings are 100% owned by Northern Star (Kanowna) Pty Limited, a wholly owned subsidiary of Northern Star Resources Limited. The mining tenements are either located on vacant crown land or on pastoral leases.
	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.	Kanowna was discovered in 1989 by Delta Gold, open pit mining occurred between 1993 and 1998 with underground operations beginning in 1998. In 2002, Delta Gold Limited and Goldfields Limited merged to form Aurion Gold Limited and Placer Dome Inc. (Placer Dome) subsequently acquired Aurion Gold Limited. In 2006 Barrick Gold Corporation acquired Placer Dome and in 2014 Northern Star acquired the operation from Barrick Gold. Exploration drilling is ongoing from underground to extend the known mineral resources.
Geology	Deposit type, geological setting and style of mineralisation.	Kanowna Belle is located within the Kalgoorlie Terrane, one of a number of elongate, broadly NNW-SSE striking structural-stratigraphic late Archaean greenstone terranes of the Eastern Goldfields of Western Australia. The Kanowna Belle gold mine is located close to the centre of the NNW-SSE trending, greenstone-dominated Boorara Domain, the eastern most subdivision of the Kalgoorlie Terrane. The Kanowna Belle deposit can be categorised as a refractory, Archean lode-gold type deposit. The orebody is comprised of several ore shoots, including the large Lowes Shoot, and several smaller lodes including Troy, Sims, Hilder, Hangingwall and Footwall shoots controlled by sets of structures of various orientations oblique to Lowes. Lowes contains some 80% of known gold mineralisation and strikes ENE, dips steeply SSW and plunges steeply SW. The Lowes shoot has a strike length of 500m, width between 5 m and 50 m and down-plunge extent greater than 1,250 m. The overall steep SE plunge is interpreted to reflect the intersection of D1 (ENE) and D2 (NW) structures. Kanowna Belle is one of the few known refractory pyritic orebodies in the Yilgarn Craton. Gold in the Kanowna Belle deposit occurs mostly as fine-grained (<10 µm) inclusions in pyrite or as very fine-grained gold located in arsenic-rich growth zones in pyrite. Typical ore assemblages contain 0.5% S to 1.5% S and 40 ppm As. The Kanowna Belle deposit is hosted by sedimentary volcanoclastic and conglomeratic rocks which are separated into hangingwall and footwall sequences by a major, steeply SSE dipping zone of structural disruption. This structure represents the product of at least three distinct stages of deformation, comprising the Fitzroy Mylonite, the Fitzroy Shear Zone and the Fitzroy Fault, which have produced clear structural overprinting relations. Importantly, this structure has localised emplacement of the Kanowna Belle porphyry which hosts at least 70% of known mineralisation. Localisation of high grade mineralisation and most intense alteration around the composite structure emphasises its importance for acting as the major plumbing system for fluids. Formation of the Fitzroy Mylonite and Fitzroy Shear Zone are interpreted to have occurred during regional south-to-north D1 thrusting. A switch in far-field stress axes to the approximately ENE-WSW D2 orientation caused reactivation of the Fitzroy Shear Zone, resulting in sigmoidal folding of pre-existing structures and formation of a shallow lineation associated with sinistral transcurrent shearing. The Kanowna Belle porphyry crosscuts fabrics associated with the D1 Fitzroy Mylonite and Fitzroy Shear Zone and is in turn overprinted by S2.
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 total of 5557 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Exclusion of the drilling information will not detract from the reader's view of the report. All material data is periodically released on the ASX, for this financial year: 21/04/2021; 22/07/2021; 19/10/2021; 20/01/2022
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
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 between mineralised samples has been permitted in the calculation of these widths.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Where an intersection incorporates short lengths of high grade results these intersections will be reported in addition to the aggregate value.
	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 mineralisation orientations are known, downhole lengths are reported.
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 maps and sections of any significant discoveries are included in the ASX announcements.
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).	The down dip, hangingwall extensions and the lateral continuation of the Kanowna Belle ore lodes will be drill tested from various underground drilling platforms as well as surface step out targets to test for ore continuity in the supergene position.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	It is not deemed appropriate to include diagrams of this work. Relevant information can be sourced from ASX announcements.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Data used for generating the mineral resource estimates is stored in an Acquire database. The Company employs a database administrator to manage the database. Where possible raw data is loaded directly into the database, with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the Acquire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used.
	Data validation procedures used.	Checks carried out on the imported data include: ▪ Collar details import checks - start and end dates are supplied, collar has location co-ordinate information, actual end of hole depth versus planned end of hole depth is within tolerance, cost code and location code information are supplied. ▪ Survey details import checks – final survey record is within tolerance with respect to end of hole depth, a survey exits at 0 depth, grid transformations have been performed, no duplicate survey points with the same priority exist. ▪ Geology details import checks - final lithology depth is within tolerance with respect to end of hole depth, structural measurement transformations have been performed, alteration/vein/mineralisation logging does not have overlaps and/or gaps. ▪ Samples/Assay import checks – total sample metres match end of hole depth, no duplicate samples with the same priority exist, sample intervals are continuous, no assay values have negative values, dispatch return date is recorded, no 'not sampled' intervals with assay values, QAQC passed.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Geotechnical details import checks – logged information depths are within tolerance with respect to end of hole depth. ▪ Bulk Density/SG details checks – logged information depths are within tolerance with respect to end of hole depth. 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 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. ▪ DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling. Only used in the Resource estimate where no other data is available and cannot be allowed to inform and Indicated or Measured Resource. ▪ DC 0 = Historic data; no original information or new drilling in proximity to verify. Not 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 the 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 the Project Resource Geologists onsite. The Senior Resource Geologist and the Resource Superintendent, a Competent Person for reviewing and signing off on estimations at Kanowna Belle reviewed geological interpretations and had frequent contact with site-based staff to ensure interpretive integrity.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	Open pit and underground mining since 1993 have provided a large database of mapping and drill hole sampling, which has confirmed the geological interpretation to date. The interpretation of all Kanowna Belle and Velvet (western hangingwall lodes) ore lode wireframes was conducted using the sectional interpretation method. Sections are commonly 10 m spacing where drill density allows it, with larger spaced polygons required where there is little data. Wireframes were checked for unrealistic volumes and updated where appropriate.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, underground face channel data, IMAGO photo imagery and structural measurements.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Interpretations remain consistent with previous releases and there are no alternatives to this well understood ore system.
	The use of geology in guiding and controlling Mineral Resource estimation.	The underlying geological and structural framework controls gold endowment at the Kanowna Belle deposit. Ore lode interpretations were developed using all available geological data to honour the geological and structural framework and constrain the Mineral Resource estimations.
	The factors affecting continuity both of grade and geology.	Continuity can be affected by changes in lithology, dilation of structures, intersecting structures, vein density and proximity to the main mineralized structures.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The near-surface weathered portion of the Kanowna Belle deposit shows significant gold depletion to at least 35 m above an undulating supergene "blanket" horizon. This mineralised supergene "blanket" had pre-mining plan dimensions of 600m strike x 250m across strike and a thickness of between 1 m and 10 m. The main Lowes shoot has a strike length of 500 m, width of 5 m to 50 m, and a down-plunge extent greater than 1,250 m. Hanging wall shoots have a maximum strike of 240 m, width of 2 m to 10 m and a current down plunge extent of no more than 800 m. Footwall shoots have a maximum strike of 240 m, width of 2 m to 20 m and a current down plunge extent of no more than 700 m.
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.	Grade estimation for Gold and Sulphur were completed using Datamine Studio RM software, version 1.10.69.0. Geostatistical analysis and variography were completed using Snowden's Supervisor v9 software. The Kanowna Belle Resource Model consists of ore lodes and mineralised envelopes. The mineralised envelopes or halos have been included to provide a realistic estimate of grades sitting between and adjacent to currently interpreted ore lodes. The interpretation is based on the prevailing lithology and the predominant ore trends. Details on the estimation is summarised below: Each ore lode interpretation is considered a separate estimation domain for both Kanowna Belle and Velvet estimations. All estimations use hard domain boundaries. Estimations for Gold used Ordinary Kriging, unless otherwise stated. Where insufficient data is available some historic domains, that are inactive, are still estimated using Inverse Distance. Estimations use 1 m composites with top cutting applied to Gold and Sulphur outlier values. CV values and other data statistics are used to support top cutting decisions. Histograms, log probability plots, mean and variance plots are used to decide top-cut values on a domain by domain basis. Search ellipse orientation is based on variogram rotations assessed for each domain. The orientations are determined by geological trends and the direction of major AU continuity. The search distance

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		for each lode is ~80% of the total semi-variance of the variogram. It is supported by KNA. The minimum and maximum samples and discretisation are determined by KNA for each domain. A multiple-pass estimation strategy is applied for estimations. For domains that exhibit mixed grade populations and high CV values, either 2 BIN or 3 BIN Categorical Indicator Kriging is used to estimate subdomains primarily to separate the waste or higher-grade populations from the median grade mineralisation. The COG thresholds for each bin are determined from the log probability plot, with the estimated probability determining the subdomains. AU is estimated, using hard boundaries into these subdomains as per the process outlined for the ore lodes. A mineralised envelope or halo was created as a numeric interpolant in Leapfrog version 2021.1. This was created at a cut-off grade of 0.3g/t. All valid data was used to define the halo geometry. Only Resource = Yes data which is not assigned to an ore domain is used in the estimation of the halo. Top cutting is used to remove outliers; however, this is a conservative measure for the Median Indicator Kriging (MIK) estimation used for the halo. The median variogram is used for the 12 BINS that are determined by grade thresholds. Variogram and search parameters are consistent to ensure the order of relations is maintained. The MIK estimation is validated by the ratio of the mean/median and % metal for each BIN. To guide the MIK estimation, dynamic anisotropy which is based on the mid planes of all the ore domains, is used. The resource categories of the halo were assigned by estimation quality where a slope value>0.7 was allocated an inferred, (3) status. This criterion is achieved in areas of high sample density. All other areas are assigned a resource category of unclassified, (4). The maximum distance of extrapolation is half the drill distance that defines the inferred drill spacing.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Comparative OK estimations are used and compared against 2-bin, 3-bin CIK for validation purposes.
	The assumptions made regarding recovery of by-products.	No assumptions are made on recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	Sulphur can be deleterious to the gold extraction process when it exceeds concentrations of 1.6 %. Samples are only sent for sulphur analysis assay if the assay sample returns a value than 2 m (true thickness) at 2 g/t or any sample greater than 10 g/t. Sulphur grade is estimated on the combined model as opposed to a lode by lode estimation. Where ore lodes have no sulphur data, a default value of 0.01 % is set.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block sizes vary depending on sample density. Due to the nature of the mineralisation, a 10 m x 5 m x 5 m parent block size is used and is supported by KNA. Sub-blocking to 0.5 m x 0.5 m x 0.5 m are implemented to adequately fill the domain shapes of the wireframes. Search ellipse dimensions were derived from the variogram model ranges with exact values dependent on the characteristics of the individual lodes. In general, the search distance ~80% of the total semi-variance of the variogram and are supported by KNA.
	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 values were assigned to the rock model based on regolith and lith type to ensure that variability is accounted from between different lithological units and weathering profiles.
	Description of how the geological interpretation was used to control the resource estimates.	Ore lodes and Halo are created using sectional interpretation honouring known geological, lithological and structural features. The ore lodes are used to define the high-grade mineralisation, whilst the halo captures the discontinuous mineralisation outside of the ore lodes. Each lode is considered as being a separate estimation domain. All estimations use hard domain boundaries. Where ore lodes display mixed populations 2 and 3 BIN CIK estimation is used to define internal subdomains which controls the volumes of waste and high grade populations.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts are applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts are selected based on a statistical analysis of the data within ore domains and subdomains. The top cut values are applied using influence limitation top capping. A top cut (AU) and high-top cut (*_HC) variable is created, as well as a spatial variable (*_IL) 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_HC (high- top-cut gold) ▪ AU_IL (spatial variable) The top-cut and high-top cut values are estimated using search ranges based on the modelled gold variogram, and the *_IL values are estimated using very small ranges (e.g., 7 m x 7 m x 7m). Where the *_IL values produce estimated blocks within these restricted ranges, the *_HC estimated values replace the original top cut estimated values (AU). In cases where the influence limitation is not applied (primarily CIK and MIK domains) hard top cuts to the domains and/or subdomains are applied to the AU.

APPENDIX C: TABLE 1

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.	After compositing and grade capping, a series of length and metal checks are completed to ensure the total length of the sample file is maintained and the metal loss due to grade capping can be quantified. Statistics are generated and analysed using Snowden Supervisor software for the raw, composited and top-cut and composited drill hole files to ensure the nature of the population has not been adversely affected by these processes. 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, top-cut composite data set and the average model grade must be within 10% (or a reasonable explanation given why this is not the case). Swath plots comparing declustered, top-cut composites to block model grades are prepared and visual checks summarising the critical model parameters. Visually, block grades are assessed against drill hole and face data.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The mineral resource estimate has been reported at a 1.26 g/t cut off within 3.0 m minimum mining width (excluding dilution) MSO's using a $A2,250/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.	All metallurgical assumptions are based on extensive operating history of the material through the Kanowna Belle processing facility.
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 Licences 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 Licences 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 Kanowna Belle and Velvet were completed and the mean densities by lithology were coded into the database. Where there were no measurements for a specific lithology a default of 2.77 t/m^3 was applied. Density values were assigned to the rock model based on regolith type and rock type to ensure that variability is accounted from between different lithological units and weathering profiles.
	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.	The in-situ competent rock mass does not exhibit significant 'vugs' or voids.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Assumptions on the average bulk density of individual lithologies are based on 22,000 bulk density measurements at Kanowna Belle. Assumptions were also made based on regional averages, on the default densities applied to oxide (2.1 t/m^3), soil (1.8 t/m^3) and transitional (2.52 t/m^3) material, due to lack of detailed measurements in these zones.

APPENDIX C: 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 ▪ Geological confidence ▪ Density of available drilling ▪ Statistical evaluation of the quality of the kriging estimate ▪ Confidence in historical data ▪ The presence of face channel data ▪ Data Class of the drill holes
	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 reflects 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.	The relative accuracy and confidence of the mineral resource model is reflected in the assigned Mineral Resource classifications.
	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 Kanowna Belle is a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The year-to-date mill call factor data should a general underperformance of the model with reconciliations of 2%, 15% and 17% respectively for tonnes, grade and ounces.

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 Resources Limited (NSR) 2022 Mineral 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.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into Ore Reserve.
	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.	Underground Ore Reserves are re-optimised on a yearly basis taking the most up to date geological model, gold price and cost forecasts into account. The Ore Reserve methodology at Kanowna Belle is to complete a full mine design built from the latest block model using calculated cut-offs as a guide for designing stopes. Stope shapes are designed around material greater than the variable stoping cut off and evaluated using design software.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Stope shapes generated are mineable stope shapes. The stope shapes do not include external dilution. Dilution is applied subsequently, based on historical stope performance. All design work is carried out with the software StudioUG Planner. The existing mine design provides the starting point for the Reserves. Planned stope geometry follows geotechnical design guidelines which have been in place for several years. The designs are evaluated for gold, sulphur and tonnes by Mineral Resource category bins. In this way, the Measured and Indicated portions of the design can easily be established. EPS is used as a flagging and calculation tool in the processing of ore Reserves. Factors for dilution and recovery are applied in EPS. All stope shapes are assessed with local financial evaluations to determine if they are profitable. Open Pit Ore Reserves have been calculated by generating detailed mining shapes for the proposed Kanowna Belle open pit cutback. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used parameters generated from NSR technical personnel and technical consultants. A detailed mine schedule and cost model has been generated and appropriate ore dilution and recoveries have been applied within the model.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Underground Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. • The applied AUD gold price is supplied by NSR corporate. • Mill recovery factors are based on test work and historical averages. • Various cut-off grades are calculated including a fully costed and variably costed stoping cut-off grade. The variably costed stope cut-off is used as the basis for stope design. Kanowna Belle operates at numerous horizons in the mine from as shallow as 170m down to over 1,000m of depth. With depth, come additional costs associated with increased ground support and fill requirements. Open Pit The pit cut-off grade has been calculated based on the key input components (mining, processing, recovery, gold price and administration). Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. • The AUD gold price as per corporate guidance. • Mill recovery factors are based on historical data and metallurgical test work. • Variable treatment costs to open pit mining for processing is a fundamental premise in the evaluation of open pit projects. Variable cut-off grade is used in the evaluation of open pit projects.
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).	Underground Mineral Resource is converted to Ore Reserve after completing a detailed mine design complete with a detailed financial assessment. The Mineral Resource block model is the basis for design and evaluation. Open Pit Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pit. All open pit mining shapes include planned and unplanned dilution, being waste material that is located within the minable shape. Open pit unplanned dilution has been modelled within the mining shapes as a skin of material likely to be taken additional to material considered to be the smallest mining unit (SMU). This method is considered to be appropriate given the expected ground conditions, orebody width and proposed mining style.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Underground Kanowna Belle underground mine is accessed via a portal within the open pit. The ore is accessed on a level spacing of 30m with development of footwall and ore drives to enable long hole open stoping. The mine is nominally subdivided vertically in mining blocks of 150 to 250 vertical metres. Ore is mined from the stopes and tipped into an ore pass system before being loaded into haul trucks to bring to surface. Stopes are nominally 30m vertically and 20m on strike. This may be increased or decreased depending on the local ground conditions. Once stopes are empty, they can be backfilled with paste reticulated from a surface paste plant. Where possible stopes are backfilled with waste to save haulage costs. Open Pit

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The selected mining method for the Kanowna Belle cutback is a bench mining open pit method. The proposed open pit cutback will be mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 120t class excavators and 90t trucks. This method is used widely in mines across Western Australia and is deemed appropriate given the nature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	The mine design takes geotechnical constraints into account and is reviewed by geotechnical engineers prior to been finalised. Underground operations at Kanowna Belle are subject to mine seismicity. Kanowna Belle has a relatively high stress rock mass and a history of seismic events. The mining environment is controlled by adherence to a geotechnically favourable extraction sequence and by the application of appropriate ground support.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Table 1 applies to both underground and open pit mining. A detailed interface review was conducted to ensure separation between underground and open pit Reserve material.
	The mining dilution factors used.	<u>Underground</u> Dilution factors are updated annually and are based on the historical performance of each mining block and evaluation of the geotechnical block model. Average stope dilution is currently 15% for mining shapes with a width greater than 5m and 0.8m dilution by width for stopes below 5m width. <u>Open Pit</u> Reserve physicals are reported within generated minable shapes which include internal dilution.
	The mining recovery factors used.	<u>Underground</u> The recovery factor is reviewed and updated annually based on historical recovery at the site. Average stope recovery is currently 88% for mining shapes with a width greater than 5m and 90% for narrower shapes. <u>Open Pit</u> For open pit material, mining recovery is built into the SMU dimensions.
	Any minimum mining widths used.	For underground, a minimum mining width of 3.0m has been used. For open pit areas, the minimum minable selective mining unit (SMU) dimensions are 3.5 m Wide x 2.5 m High x 4.0 m Long.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	For underground, designed stopes with greater than 50% Inferred/Unclassified blocks are excluded from the reported Ore Reserve. For open pit inferred material is not considered for the Ore Reserves but is considered for LOM planning purposes.
	The infrastructure requirements of the selected mining methods.	The Kanowna Belle mine infrastructure is developed and in place and includes mine dewatering pumps, compressed air supply, mine ventilation, and a small workshop on the 9860 level. Multiple vertical raises exist within the mine to assist with material storage and haulage. The main access ramp connects the mine to an adit in the Kanowna Belle open pit. The ramp is well maintained and is watered to reduce dust generation from the haul trucks. There is a radio communication system throughout the mine.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Kanowna Belle plant is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits. Ore is treated at the Kanowna Belle milling facilities. The Kanowna Belle Mill is designed to handle approximately 2.0 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. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 15 years’ continuous 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 since 2005, 15 years’ continuous 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 since 2005, 15 years’ continuous operation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	The Kanowna Belle Mine is operated subject to the requirements of the Western Australian Mining Act 1978 and the Mines (Safety) Act, regulated by the Department of Minerals and Petroleum Resources (DMPR) Mines Inspectorate. The Mining Leases covering the Kanowna Belle operation stipulate environmental conditions for operation, rehabilitation and reporting. A "Licence to Operate" is held by the operation which is issued under the requirements of the "Environmental Protection Act 1986". In 2019, Northern Star entered into an agreement with an external specialist contractor to transport arsenic trioxide to their new hazardous materials disposal facility, which is an open kaolin mine and complementary near-surface geological waste repository located near Kalgoorlie. The first shipment was successfully transported in November 2020.
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.	Access to the Kanowna Belle operation is provided by well-maintained public and private roads. Most employees reside in Kalgoorlie and commute to site daily. Normal communication channels, satellite and land-based facilities are available. Potable water for the Kanowna Belle operations is pumped from Kalgoorlie to a storage facility on site. Non-potable water requirements are sourced from bore fields up to 10 km away from the mine site. Makeup water for the Kanowna Belle process plant is supplied by pipeline from a bore field located in the Gidgi paleochannel approximately 15 km from the plant site with some water being sourced from abandoned pits. Electricity is provided by the state electricity grid. A 15 km long 33 kV line from Kalgoorlie provides all electricity requirements of the operations. Sources of fuel, such as diesel, gasoline, propane, etc., are readily available at competitive pricing from local suppliers, as there are multiple operating plants in the Kalgoorlie area.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs are projected through an annual budget process.
	The methodology used to estimate operating costs.	After an underground design is completed the mining sequence and processing sequence are scheduled. The schedules are costed in detail using a combination of zero-based budgeting system and a schedule of rates supplied by the contractor for the underground operation. To ensure estimated costs are reasonable they are compared to historic operating costs. The estimation of Open pit mine operating costs was based on a contractor mining and maintenance operation using first principles to determine equipment productivities and associated operating hours to generate mine schedules. Provided contract pricing were than applied to the schedule to calculate all unit costs.
	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.	The gold price is based on internal forecasts.
	The source of exchange rates used in the study.	Internal forecasts.
	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.	State Govt. 2.5% royalty is 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$1,750/oz gold price.
	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.	All product is assumed sold direct to the market.
	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.

APPENDIX C: TABLE 1

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.	NPV is used during Pre-Feasibility and Feasibility studies as required. Economic assumptions such as discount rate and estimated inflation are finalised at the time of the study. NPV is not used in the annual Reserve optimisation. Cut-off grades, derived from 12 month forward looking unit costs, form the basis of the annual Reserve optimisation.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities have been used with gold price ranges of A$1,500 to A$2,000 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:	
	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 include Proved (if any) and Probable classifications based off the underlying Resource model classifications whereby Measured Resource may convert to Proved or Probable, and Indicated material convert 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.
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.	Reconciliation results from past mining at Kanowna Belle has been considered and factored into the Ore Reserve assumptions where appropriate.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Velvet, Joplin: Resources and Reserves – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The sampling database for Velvet has been compiled from information collected by several different companies prior to Northern Star Resource in 2014. All information collected prior to involvement by Northern Star Resources is hereafter referred to as historical data. Only historical data that is deemed as having acceptable and traceable location and assay information has been included in the Mineral Resource estimation datasets for Velvet. For Mineral Resource estimation the Velvet deposit is sampled in majority by diamond drilling (DD) from underground platforms. Face sampling data (where validated) has been included. (see drill hole table below)
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For DD samples, metre delineation is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist during core mark-up prior to logging to prevent incorrect logging and sampling errors. Sample intervals are then marked on the core by a geologist, to honour geological boundaries. Sample interval lengths vary from 0.3 m to 1.3 m. DD core was orientated, measured, and then sampled by cutting the core in half longitudinally using an "Almonte" diamond saw. Cutting was along orientation lines. The same half of the core is always selected for each sample interval, placed in numbered calico bags and submitted to the laboratory for analysis. The other half of the core is left in the core tray which was stamped for identification, stored and catalogued. Face channel sampling is constrained within geological and mineralised boundaries with a minimum (0.2 m) and maximum (1.3 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. The sample is taken across the grade line (1.5m from floor).
	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.	Historical sample preparation and assay procedures are variable due to the duration of historical work and the numerous companies involved. All historical sampling accepted for use in the Mineral Resource estimates are considered to have been collected by acceptable practices. Current sample preparation and assay procedures employed by Northern Star Resources are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. The primary laboratory, Bureau Veritas, meets ISO 9001:2000. For preparation samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 – 300 g of the pulp is retained and a 40 g charge weight for fire assay is extracted from the pulp packet. Samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled. Prills placed in tubes, dissolved on hot-plates, and analysed using AAS (atomic adsorption spectroscopy) finish with over-range dilutions. Sample preparation for Sulphur determination follows the same process as for Gold, with assaying taking place using the LECO method.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	DD core is mostly NQ diameter with some BQ, HQ and LTK60 diameter core. Where possible diamond core was orientated using a spear, Ballmark™, Ezimark™, or ACE multi electronic tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For DD, all recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist. Any issues are communicated back to the drilling contractor. Recovery is generally high, more than 95%, but this will vary between areas based on the presence of faulting. Overall, there have been no significant sample recovery problems for Velvet.

Hole Type	No. of Collars	Total Meters	No. of Samples	number of additional collars	% of additional drillholes
Diamond	1029	126,349	128,724	52	5%
Underground Channels	532	2,829	4,215	27	5%
Total Number of Drillholes	1,561	129,178	132,939	79	5%

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD, drilling contractors adjust the rate of drilling and method if recovery issues arise. Minor loss occurs when drilling through fault zones such as the Fitzroy Fault or Panglo Unconformity. Areas of potential lower recovery are generally known before hand and controlled drilling techniques employed to maximise recovery.
	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.	No specific study has been carried out on recovery and grade. As recoveries are generally high it is assumed that the potential for bias due to variable sample recovery is low.
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 DD core was logged by geologists with lithology, mineralisation, structure, alteration, veining and specific gravity were recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation, thickness of veins and veins per metre were also recorded. Geotechnical measurements on DD core include RQD, Recovery, and Fracture Frequency. For selected holes joint sets, infill, infill thickness and roughness were also geotechnically measured. All mineralized intersections are logged and sampled. 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.	Geology logging is qualitative in nature with visual estimates made of mineralisation percentages for core. Structural and geotechnical logging are quantitative in nature. All core is photographed wet as standard practice. Historically some core may have also been photographed dry. 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.	100% of the drill core is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Mineralised intersections are sampled with a minimum and maximum length of 0.3 m and 1.3 m respectively, generally to lithological or alteration contacts. DD core was orientated (where possible), measured and then sampled by cutting the core in half longitudinally using an "Almonte" diamond saw. The same half of the core is selected for each sample interval, placed in numbered calico bags and submitted to the laboratory for analysis. The other half of the core is left in the core tray which are stored and catalogued. Full core sampling is conducted on grade control holes where sufficient information is already available for the area should need arise. Field duplicates to assess sample representivity are not performed on diamond core as these are not considered to be 'true' field duplicates.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Development face samples are chipped directly off the face into a sample bag aiming for sample size of at least 2.5 kg. Samples are a maximum of 1.3 m in width and honour geological boundaries. Samples are taken as close to perpendicular across the mineralisation as practicable. In some cases, multiple sample orientations are used where there is more than one mineralised trend in the face. All RC samples are split using a rig-mounted cone splitter to collect a 3 - 4 kg sample 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 mineralized zones spear samples were taken over a 4 m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples during the reporting year has been sent to three different labs. Sample preparation techniques for each lab is described below. SGS: Samples are oven dried and diamond samples subsequently processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250 - 300 g of the pulp is retained as the primary sub sample and the pulp reject stored for…… A pulp residue duplicate sample is taken at the request of the onsite geologist. A 40g catch weight for fire assay is extracted from the pulp packet, samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled, prills placed in tubes, dissolved on hot plates and analysed using AA finish with over range dilutions. MinAnalytical: Photon assay testing is carried out through MinAnalytical. This process involves a coarse crush stage, crushing samples to < 3 mm. 500 g of crushed material is then placed into single-use sample jars. Using a robotic shuttle, high energy x-rays are then fired at the sample causing excitation of atomic nuclei allowing detection of gold content. Photon analysis allows sampling of larger amounts of sample material providing a true bulk reading of gold content. The process is chemical free and non-destructive, samples are retained at the lab for a period of two months. Bureau Veritas: Samples are oven dried. All diamond samples are then processed through an Essa Jaw Crusher or an Orbis Crusher. Sample are crushed with the Orbis Crusher to 90% < 3 mm. 2.6 kg will be split for the primary and the remainder will be the coarse reject. The crushed sample is then pulverised for approximately 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. If the sample fails a grind check the lab must re-pulverise the pulp with the pulp reject.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Approximately 250 - 300 g of the pulp is retained as the primary sub sample and the pulp reject stored for 3 months. A pulp residue duplicate sample is taken at a 1:50 ratio, which involves a second packet after pulverising. A 40g charge weight for fire assay is extracted from the pulp packet. The charge weight will be reduced to 20g charge weight in samples believed to have a high sulphide content. Samples are tested for sulphides and flux is adjusted. Approximately 170g of flux is added. Samples are fired, hammered and cupelled with final prill samples placed in test tubes. The prills are dissolved using a water bath and analysed using Atomic Adsorption Spectroscopy (AAS) finish over a range of dilutions.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Coarse grind checks at the crushing stage (3 mm) are carried out at a ratio of 1:25 samples with 90% of the sample volume reporting through the sieve required for a pass. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:25 samples with 90% of the sample volume reporting through the sieve required for a pass. Laboratory duplicate samples are taken for coarse crush (3 mm) and pulverising (75 µm) stages at a ratio of 1:25 samples. Repeat assays are carried out at a ratio of 1:10 on prepared pulp samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling of diamond core is occasionally undertaken for check assays, however routine field duplicates are not performed on diamond core as these are not considered to be true field duplicates.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage (3 mm) and pulverising stage (75 µm) requiring 90% of material to report through the relevant size for a pass. No specific study has been carried out to determine optimum sub-sample size fractions. These material sizes are assumed to be acceptable for the mineralisation style and material grain size present.
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.	Fire assay analysis is undertaken, this is considered to be a total assay method. Monthly QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for Mineral Resource estimation.
	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.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:20. The standard control samples are changed on a 3 month rotation. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Blanks are inserted into the sample sequence at a ratio of 1:20. 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. When visible gold is observed in core, a barren flush is required. 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 and anomalous intersections are verified by a Senior Geologist during the drill hole validation process.
	The use of twinned holes.	No twinned holes were drilled for this data set. Redrilling of some drillholes has occurred due to issues downhole (e.g., bogged rods). These have been captured in the database as an 'A'. Re-drilled holes are sampled whilst the original drillhole is logged but not sampled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are stored and validated within the site Acquire database. Data import into the database is controlled by documented standard operating procedures, and by a set of validation tools included in Acquire import routines. Hard copies and electronic copies of all primary location, logging and sample results data are filed for each hole.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Assay results are received in .csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Holes that cannot be accurately validated or do not meet the requirements of Kanowna QAQC are excluded prior to Mineral Resource estimation.
	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 the Mine Grid. All drill hole collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15 m and 30 m intervals down hole thereafter. Since the 1st of June 2015, a true north seeking gyroscopic tool has been used to line up the rig and record a zero-metre survey. Since May 2019, all DD holes are surveyed down hole only using DeviFlex, generally every 50 m during drilling of the hole and again at 3 m intervals upon completion of the drillhole. QAQC is performed on the running speed and misclose rate for each gyroscopic survey. Where issues are identified, a single survey run can be given a higher priority in the database. This data is converted to .csv format and imported into the AcQuire database where it is validated by the Project Geologist. If survey data is missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation.
	Specification of the grid system used.	A local grid system (KBMINE grid) is used. It is rotated anticlockwise 28.43 degrees to the MGA94 grid. Drill hole collars are located by the Mine Surveyors using a Laser system respective to the local mine grid and to the overall property in UTM or Australian grid coordinates.
	Quality and adequacy of topographic control.	Topographic control is not relevant to the underground mine.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing is nominally 60 m x 60 m down to 20 m x 20 m in the main zones of mineralisation at the Kanowna Belle deposits. Secondary mineralised structures in the hanging wall and footwall of Kanowna Belle are typically narrower and less consistent so have a nominal drill spacing of 10 m x 10 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 spacings in the ore lodes at Kanowna Belle are considered sufficient to support the definition of Mineral Resources and Reserves as applied under the 2012 JORC Code. Appropriate geological and grade continuity have been demonstrated during the 20+ years of mining at the Kanowna Belle operations.
	Whether sample compositing has been applied.	No sample compositing has been applied. The datasets were composited to 1 m intervals prior to grade estimation. This aligns with the most common sample length taken.
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 data is drilled perpendicular to the interpreted strike of the main Velvet lode (VM01). However, at depth, the drill angle is more oblique due to the position of available drill platforms.
	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.	Holes with orientations that are considered likely to introduce sampling bias are flagged during drill hole validation and are excluded from the Mineral Resource estimation datasets.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M27/103. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both Company and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g., total loss, spillage or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The last external audit was conducted in 2009 with the conclusion that industry best practice was being followed. Standards and procedures have remained largely unchanged since this time. A review of sampling techniques, assay results and data usage were conducted internally by the Companies' Principal Resource Geologist during 2015 with no material issues found.

APPENDIX C: 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.	The Velvet and Kanowna Belle mine and associated infrastructure is located on Mining Leases M27/92 and M27/103. Mining lease M27/92 (972.65 ha) was granted on March 14, 1988, and M27/103 (944.25 ha) was granted on January 12, 1989. Both leases were granted for periods of 21 years after which they can be renewed for a further 21 years. The Mining Leases and most of the surrounding tenement holdings are 100% owned by Northern Star (Kanowna) Pty Limited, a wholly owned subsidiary of Northern Star Resources Limited. The mining tenements are either located on vacant crown land or on pastoral leases.
	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.	Kanowna was discovered in 1989 by Delta Gold, open pit mining commenced between 1993 and 1998 resulting in a 220m deep pit. Underground operation began in 1998. In 2002, Delta Gold Limited and Goldfields Limited merged to form Aurion Gold Limited, and Placer Dome Inc. (Placer Dome) subsequently acquired Aurion Gold Limited. In 2006 Barrick Gold Corporation acquired Placer Dome and in 2014 Northern Star acquired the operation from Barrick Gold. Exploration drilling is ongoing from underground to extend the known mineral resources.
Geology	Deposit type, geological setting and style of mineralisation.	The Velvet orebody is located approximately 600 m west of the Kanowna Belle deposit at a vertical depth of 700 m below surface. The currently defined Mineral Resource is contained within a northwest-dipping main lode and 34 secondary lodes, developing in the hanging wall of the main lode. Velvet main lode, VM01, is open at depth with current dimensions of 454 m (dip) by 355 m (strike); the secondary, oblique lodes are open along strike. The Velvet deposit is interpreted to be part of the Kanowna Belle gold mineralised system. The geology and mineralisation of the Velvet deposit is dominated by the intersection of the Fitzroy Shear Zone and the Velvet Mylonite, a hanging wall splay of the Fitzroy Shear Zone. The Velvet Mylonite is characterized by a well-developed porphyroblastic fabric and is separated from the Fitzroy shear Zone by a zone of massive dolomite breccia. The Fitzroy Shear Zone separates the local stratigraphy into distinct footwall and hanging wall lithological domains. A succession of thick-bedded, dacitic volcaniclastic breccia (Grave Dam Grit) is the dominant lithology in the hanging wall domain, with a moderately southwest-dipping sequence of clast-supported polymictic conglomerate and fine-grained felsic volcaniclastic rocks (Golden Valley Conglomerate) occupying the footwall domain. The Grave Dam Grit and Golden Valley Conglomerate have maximum depositional ages of 2668 ± 9 Ma and 2669 ± 7 Ma respectively. The Grave Dam Grit has been intruded by a suite of fractionated felsic to intermediate intrusions which can be locally distinguished by subtle differences in texture and geochemical composition. Five types of intrusion have been identified at Velvet: two types with Kanowna Belle Porphyry-like compositions, the Panglo Porphyry, hornblende porphyry and a lamprophyre dyke of intermediate composition. The latter is the principal host to gold mineralisation, although late quartz-calcite veins containing coarse-grained visible gold occur sporadically in all hanging wall lithologies. The lamprophyre host rock is typically massive, aphyric and comprises fine-grained clinopyroxene micro-phenocrysts in a very fine-grained groundmass of plagioclase, ferromagnesian minerals and minor Fe-Ti oxide crystals. It and the earliest gold mineralisation phase are crosscut by all other intrusions. Both lithological domains and the hanging wall intrusions are truncated to the west by an erosional unconformity at the base of the Panglo Basin. Polymictic conglomerate and coarse-grained lithic arenite units of the Panglo Basin are correlated with the ~2650 Ma Kurrawang Formation.
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 total of 783 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Exclusion of the drilling information will not detract from the reader's view of the report. All material data is periodically released on the ASX, for this financial year: 21/04/2021; 22/07/2021; 19/10/2021; 20/01/2022
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
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 between mineralized samples has been permitted in the calculation of these widths.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Where an intersection incorporates short lengths of high grade results these intersections will be reported in addition to the aggregate value.
	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 mineralisation orientations are known, downhole lengths are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	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).	Mine planning work is planned for this area of the Mineral Resource model. The up-dip and hangingwall extensions of the Velvet Mineral Resource will be drill tested from various underground drilling platforms.
	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.	Data used for generating the mineral resource estimates is stored in an Acquire database. The Company employs a database administrator to manage the database. Where possible raw data is loaded directly into the database, with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the Acquire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used.
	Data validation procedures used.	Checks carried out on the imported data include: ▪ Collar details import checks - start and end dates are supplied, collar has location co-ordinate information, actual end of hole depth versus planned end of hole depth is within tolerance, cost code and location code information are supplied. ▪ Survey details import checks – final survey record is within tolerance with respect to end of hole depth, a survey exits at 0 depth, grid transformations have been performed, no duplicate survey points with the same priority exist. ▪ Geology details import checks - final lithology depth is within tolerance with respect to end of hole depth, structural measurement transformations have been performed, alteration/vein/mineralisation logging does not have overlaps and/or gaps. ▪ Samples/Assay import checks – total sample metres match end of hole depth, no duplicate samples with the same priority exist, sample intervals are continuous, no assay values have negative values, dispatch return date is recorded, no 'not sampled' intervals with assay values, QAQC passed.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Geotechnical details import checks – logged information depths are within tolerance with respect to end of hole depth. ▪ Bulk Density/SG details checks – logged information depths are within tolerance with respect to end of hole depth. 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 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. ▪ DC 1 = Historic data; same criteria as DC 2 but cannot be verified with recent drilling. Only used in the Resource estimate where no other data is available and cannot be allowed to inform and Indicated or Measured Resource. ▪ DC 0 = Historic data; no original information or new drilling in proximity to verify. Not 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 the Project Resource Geologists onsite. The Senior Resource Geologist and the Resource Superintendent, a Competent Person for reviewing and signing off on estimations at Kanowna Belle reviewed geological interpretations and had frequent contact with site-based staff to ensure interpretive integrity.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	Open pit and underground mining since 1993 have provided a large database of mapping and drill hole sampling, which has confirmed the geological interpretation to date. The interpretation of all Velvet ore lode wireframes was conducted using the sectional interpretation method. Sections are commonly 10 m spacing where drill density allows it, with larger spaced polygons required where there is little data. Wireframes were checked for unrealistic volumes and updated where appropriate.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, underground face channel data, 3D photogrammetry and structural measurements.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	There are no alternative interpretations
	The use of geology in guiding and controlling Mineral Resource estimation.	The underlying geological and structural framework controls gold endowment at the Kanowna Belle deposit. Ore lode interpretations were developed using all available geological data to honour the geological and structural framework and constrain the Mineral Resource estimations.
	The factors affecting continuity both of grade and geology.	Continuity can be affected by changes in lithology, dilation of structures, intersecting structures, vein density and proximity to the main mineralized structures.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The main VM01 ore lode in Velvet has a strike length of 50-400 m, width of 2-30 m, and a down-plunge extent of greater than 500 m.
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.	Grade estimation for Gold and Sulphur were completed using Datamine Studio RM software. Geostatistical analysis and variography were completed using Snowden's Supervisor v9 software. The Velvet Resource Model consists of ore lodes and mineralised envelopes. The mineralised envelopes or halos have been included to provide a realistic estimate of grades sitting between and adjacent to currently interpreted ore lodes. The interpretation is based on the prevailing lithology and the predominant ore trends. Details on the estimation is summarised below: Each ore lode interpretation is considered a separate estimation domain for both Kanowna Belle and Velvet estimations. All estimations use hard domain boundaries. Estimations for Gold used Ordinary Kriging, unless otherwise stated. Where insufficient data is available some historic domains, that are inactive, are still estimated using Inverse Distance. Estimations use 1 m composites with top cutting applied to Gold and Sulphur outlier values. CV values and other data statistics are used to support top cutting decisions. Histograms, log probability plots, mean and variance plots are used to decide top-cut values on a domain by domain basis. Search ellipse orientation is based on variogram rotations assessed for each domain. The orientations are determined by geological trends and the direction of major AU continuity. The search distance for each lode is ~80% of the total semi-variance of the variogram. It is supported by KNA. The minimum and maximum samples and discretisation are determined by KNA for each domain. A multiple-pass estimation strategy is applied for estimations. For domains that exhibit mixed grade populations and high CV values, either 2 BIN or 3 BIN Categorical Indicator Kriging is used to estimate subdomains primarily to separate the waste or higher-grade populations from the median grade mineralisation. The COG thresholds for each bin are determined from the log probability plot, with the estimated probability determining the subdomains. AU is estimated, using hard boundaries into these subdomains as per the process outlined for the ore lodes. A mineralised envelope or halo was created as a numeric interpolant in Leapfrog version 2021.1. This was created at a cut-off grade of 0.3g/t. All valid data was used to define the halo geometry. Only Resource = Yes data which is not assigned to an ore domain is used in the estimation of the halo. Top cutting is used to remove outliers, however this

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		is a conservative measure for the Median Indicator Kriging (MIK) estimation used for the halo. The median variogram is used for the 12 BINS that are determined by grade thresholds. Variogram and search parameters are consistent to ensure the order of relations is maintained. The MIK estimation is validated by the ratio of the mean/median and % metal for each BIN. To guide the MIK estimation, dynamic anisotropy which is based on the mid planes of all the ore domains, is used. The resource categories of the halo were assigned by estimation quality where a slope value>0.7 was allocated an inferred, (3) status. This criterion is achieved in areas of high sample density. All other areas are assigned a resource category of unclassified, (4). The maximum distance of extrapolation is half the drill distance that defines the inferred drill spacing.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Comparative OK estimations are used and compared against 2-bin, 3-bin CIK for validation purposes.
	The assumptions made regarding recovery of by-products.	No assumptions are made on recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	Sulphur can be deleterious to the gold extraction process when it exceeds concentrations of 1.6%. Samples are only sent for assay if the core sample comes back as anything greater than 2 m (true thickness) at 2 g/t, or any sample greater than 10 g/t. The estimation approach for sulphur has been reviewed since the June 2019 Resource models. Sulphur is now estimated on the combined model as opposed to a lode by lode estimation. Top cuts, variography and estimation approach were completed as per the gold estimation procedure described above.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block sizes vary depending on sample density. Due to the nature of the mineralisation, a 10 m x 5 m x 5 m parent block size is used. Sub-blocking to 0.5 m x 0.5 m x 0.5 m are implemented to adequately fill the domain shapes of the wireframes. Search ellipse dimensions were derived from the variogram model ranges with exact values dependent on the characteristics of the individual lodes.
	Any assumptions behind modelling of selective mining units.	Selective mining units were not used during the estimation process.
	Any assumptions about correlation between variables.	All variables were estimated independently of each other. Density has used estimation parameters based on gold.
	Description of how the geological interpretation was used to control the resource estimates.	Ore lodes and halos were created using sectional interpretation. The ore lodes were used to define the high-grade mineralisation, whilst the halo captures the discontinuous mineralisation outside of the ore lodes. Each lode is considered as being a separate estimation domain. All estimations use hard domain boundaries.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts are applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts are selected based on a statistical analysis of the data within ore domains and subdomains. The top cut values are applied using influence limitation top capping. A top cut (AU) and high-top cut (*_HC) variable is created, as well as a spatial variable (*_IL) 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_HC (high- top-cut gold) ▪ AU_IL (spatial variable) The top-cut and high-top cut values are estimated using search ranges based on the modelled gold variogram, and the *_IL values are estimated using very small ranges (e.g., 7 m x 7 m x 7m). Where the *_IL values produce estimated blocks within these restricted ranges, the *_HC estimated values replace the original top cut estimated values (AU). ▪ In cases where the influence limitation is not applied (primarily CIK and MIK domains) hard top cuts to the domains and/or subdomains are applied to the 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.	After compositing and grade capping, a series of length and metal checks are completed to ensure the total length of the sample file is maintained and the metal loss due to top cutting can be quantified. Statistics are generated and analysed using Snowden Supervisor software for the raw, composited and top-cut and composited drill hole files to ensure the nature of the population has not been adversely affected by these processes. 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, top-cut composite data set and the average model grade must be within 10%. Swath plots comparing declustered, top-cut composites to block model grades are prepared and visual checks summarising the critical model parameters. Visually, block grades are assessed against drill hole and face data.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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 1.26 g/t cut off within 3.0 m minimum mining width (excluding dilution) MSOs using a $AUD2250/oz gold price.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	No mining assumptions have been made during the resource wireframing or estimation process.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical test work results show that the mineralisation is amendable to processing through the Kanowna Belle treatment plant. Ore processing throughput and recovery parameters were estimated based on historic performance and potential improvements available using current technologies and practices.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	A "Licence to Operate" is held by the operation which is issued under the requirement of the "Environmental Protection Act 1986", administered by the Department of Environment (DoE). The licence stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater Licences 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 Licences 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. 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 Kanowna Belle and Velvet were completed and the mean densities by lithology were coded into the database. Where there were no measurements for a specific lithology a default of 2.77 t/m^3 was applied. Density values were assigned to the rock model based on regolith type and rock type to ensure that variability is accounted from between different lithological units and weathering profiles.
	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.	The in-situ competent rock mass does not exhibit significant vugs or pores and is considered solid core.
	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 22,000 bulk density measurements at Kanowna Belle.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: ▪ Geological confidence ▪ Geologic grade continuity ▪ Density of available drilling ▪ Statistical evaluation of the quality of the kriging estimate ▪ Confidence in historical data ▪ Data class of drillholes ▪ Presence of face channel data
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All relevant factors have been given due weighting during the classification process.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The resource model methodology is appropriate, and the estimated grades reflect the Competent 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 reviews.

APPENDIX C: 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 relative accuracy and confidence of the mineral resource model is reflected in the assigned Mineral Resource classifications.
	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.	Velvet is a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The year-to-date mill call factor data should a general underperformance of the model with reconciliations of 2%, 15% and 17% respectively for tonnes, grade and ounces.

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 Resources Limited (NSR) 2022 Mineral 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.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into Ore Reserve.
	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.	Ore Reserves are re-optimised on a yearly basis taking the most up to date geological model, gold price and cost forecasts into account. The Ore Reserve methodology at Kanowna Belle is to complete a full mine design built from the latest block model using calculated cut-offs as a guide for designing stopes. Stope shapes are designed around material greater than the variable stoping cut off and evaluated using design software. Stope shapes generated are mineable stope shapes. The stope shapes do not include external dilution. Dilution is applied subsequently, based on historical stope performance. All design work is carried out with the software StudioUG Planner. The existing mine design provides the starting point for the Reserves. Planned stope geometry follows geotechnical design guidelines which have been in place for several years. The designs are evaluated for gold, sulphur and tonnes by Mineral Resource category bins. In this way, the Measured and Indicated portions of the design can easily be established. EPS is used as a flagging and calculation tool in the processing of ore Reserves. Factors for dilution and recovery are applied in EPS. All stope shapes are assessed with local financial evaluations to determine if they are profitable.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. • The applied AUD gold price is supplied by NSR corporate. • Mill recovery factors are based on test work and historical averages. • Various cut-off grades are calculated including a fully costed and variably costed stoping cut-off grade. The variably costed stope cut-off is used as the basis for stope design. Kanowna Belle operates at numerous horizons in the mine from as shallow as 170m down to over 1,000m of depth. With depth, come additional costs associated with increased ground support and fill requirements.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e., either by application of appropriate factors by optimisation or by preliminary or detailed design).	Mineral Resource is converted to Ore Reserve after completing a detailed mine design complete with a detailed financial assessment. The Mineral Resource block model is the basis for design and evaluation.
	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.	Kanowna Belle underground mine is accessed via a portal within the open pit. The ore is accessed on a level spacing of 30m with development of footwall and ore drives to enable long hole open stoping. The mine is nominally subdivided vertically in mining blocks of 150 to 250 vertical metres. Ore is mined from the stopes and tipped into an ore pass system before being loaded into haul trucks to bring to surface. Stopes are nominally 30m vertically and 20m on strike. This may be increased or decreased depending on the local ground conditions. Once stopes are empty, they can be backfilled with paste reticulated from a surface paste plant. Where possible stopes are backfilled with waste to save haulage costs.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	The mine design takes geotechnical constraints into account and is reviewed by geotechnical engineers prior to been finalised. Underground operations at Kanowna Belle are subject to mine seismicity. Kanowna Belle has a relatively high stress rock mass and a history of seismic events. The mining environment is controlled by adherence to a geotechnically favourable extraction sequence and by the application of appropriate ground support.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Table 1 applies to both underground and open pit mining. A detailed interface review was conducted to ensure separation between underground and open pit Reserve material.
	The mining dilution factors used.	Dilution factors are updated annually and are based on the historical performance of each mining block and evaluation of the geotechnical block model. Average stope dilution is currently 15% for mining shapes with a width greater than 5m and 0.8m dilution by width for stopes below 5m width.
	The mining recovery factors used.	The recovery factor is reviewed and updated annually based on historical recovery at the site. Average stope recovery is currently 88% for mining shapes with a width greater than 5m and 90% for narrower shapes.
	Any minimum mining widths used.	For underground, a minimum mining width of 3.0m has been used. For open pit areas, the minimum minable selective mining unit (SMU) dimensions are 3.5 m Wide x 2.5 m High x 4.0 m Long.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	For underground, designed stopes with greater than 50% Inferred/Unclassified blocks are excluded from the reported Ore Reserve. For open pit inferred material is not considered for the Ore Reserves but is considered for LOM planning purposes.
	The infrastructure requirements of the selected mining methods.	The Kanowna Belle mine infrastructure is developed and in place and includes mine dewatering pumps, compressed air supply, mine ventilation, and a small workshop on the 9860 level. Multiple vertical raises exist within the mine to assist with material storage and haulage. The main access ramp connects the mine to an adit in the Kanowna Belle open pit. The ramp is well maintained and is watered to reduce dust generation from the haul trucks. There is a radio communication system throughout the mine.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Kanowna Belle plant is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits. Ore is treated at the Kanowna Belle milling facilities. The Kanowna Belle Mill is designed to handle approximately 2.0 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. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 15 years' continuous 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 since 2005, 15 years' continuous 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 since 2005, 15 years' continuous 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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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.	The Kanowna Belle Mine is operated subject to the requirements of the Western Australian Mining Act 1978 and the Mines (Safety) Act, regulated by the Department of Minerals and Petroleum Resources (DMPR) Mines Inspectorate. The Mining Leases covering the Kanowna Belle operation stipulate environmental conditions for operation, rehabilitation and reporting. A "Licence to Operate" is held by the operation which is issued under the requirements of the "Environmental Protection Act 1986". In 2019, Northern Star entered into an agreement with an external specialist contractor to transport arsenic trioxide to their new hazardous materials disposal facility, which is an open kaolin mine and complementary near-surface geological waste repository located near Kalgoorlie. The first shipment was successfully transported in November 2020.
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.	Access to the Kanowna Belle operation is provided by well-maintained public and private roads. Most employees reside in Kalgoorlie and commute to site daily. Normal communication channels, satellite and land-based facilities are available. Potable water for the Kanowna Belle operations is pumped from Kalgoorlie to a storage facility on site. Non-potable water requirements are sourced from bore fields up to 10 km away from the mine site. Makeup water for the Kanowna Belle process plant is supplied by pipeline from a bore field located in the Gidgi paleochannel approximately 15 km from the plant site with some water being sourced from abandoned pits. Electricity is provided by the state electricity grid. A 15 km long 33 kV line from Kalgoorlie provides all electricity requirements of the operations. Sources of fuel, such as diesel, gasoline, propane, etc., are readily available at competitive pricing from local suppliers, as there are multiple operating plants in the Kalgoorlie area.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs are projected through an annual budget process.
	The methodology used to estimate operating costs.	After an underground design is completed the mining sequence and processing sequence are scheduled. The schedules are costed in detail using a combination of zero-based budgeting system and a schedule of rates supplied by the contractor for the underground operation. To ensure estimated costs are reasonable they are compared to historic operating costs. The estimation of Open pit mine operating costs was based on a contractor mining and maintenance operation using first principles to determine equipment productivities and associated operating hours to generate mine schedules. Provided contract pricing were than applied to the schedule to calculate all unit costs.
	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.	The gold price is based on internal forecasts.
	The source of exchange rates used in the study.	Internal forecasts.
	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.	State Govt. 2.5% royalty is 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$1,750/oz gold price.
	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.	All product is assumed sold direct to the market.
	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.

APPENDIX C: TABLE 1

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.	NPV is used during Pre-Feasibility and Feasibility studies as required. Economic assumptions such as discount rate and estimated inflation are finalised at the time of the study. NPV is not used in the annual Reserve optimisation. Cut-off grades, derived from 12 month forward looking unit costs, form the basis of the annual Reserve optimisation.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities have been used with gold price ranges of A$1,500 to A$2,000 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:	
	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 include Proved (if any) and Probable classifications based off the underlying Resource model classifications whereby Measured Resource may convert to Proved or Probable, and Indicated material convert 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.
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.	Reconciliation results from past mining at Kanowna Belle has been considered and factored into the Ore Reserve assumptions where appropriate.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Crossroads – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using a Reverse circulation (RC) and HQ Diamond Drilling (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	RC samples were split using a rig-mounted cone splitter at 1m intervals to obtain a ~3kg sample for assay, a ~5kg sample for backup (e.g., duplicate in case of grade intersection) and a pile of dirt disposed on the ground. The 1m samples of ~3kg were immediately submitted for assay.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist from the HQ diamond core, generally being around one metre in length, but with sample widths ranging between approximately 30cm and 120cm as dictated by the geology. Sample lengths varied because drill core samples were allocated to not cross significant geological boundaries. Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverizing the entire sample to <75µm. 300g Pulps splits were then dispatched to Genalysis Perth for 50g Fire assay charge and AAS analysis. 250g Pulp samples were retrieved from secure onsite storage and sent to Genalysis Perth for 48 multi-element analysis using mixed acid digest with a Mass Spectroscopy (ICPMS) or Optical Emission Spectroscopy (ICPOES) finish.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The majority of drillholes are 130-145mm reverse circulation drillholes but supplemented with a small proportion NQ diamond drillholes. The diamond drillholes were of NQ or NQ2 diameter in fresh rock; however, HQ or HQ3 triple tube drilling was used through the regolith, which includes the main mineralised zones.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Moisture content and RC drill recoveries were logged by the geologist or field assistant whilst drilling. These recoveries were based on visual estimation of the proportion of sample returned relative to a full one-metre sample. Diamond drilling recoveries were accounted for by recording core loss intervals measured in linear downhole metres to the nearest five centimetres.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC drilling contractors adjust their drilling approach to specific conditions to maximize sample recovery. Sample recovery may be poor at the beginning of RC drill holes, this is normal for this type of drilling in the overburden. Good recovery is qualitative monitored and sample split weights are measured using scales and samples are kept dry in fresh rocks where possible. Partial resampling may be performed if holes show poor recovery and wet samples to assess if any grade had been impacted. This resampling may involve pick up of primary ~5kg field duplicate samples and rifle split of dirt piles sitting on the ground where the recovery of the primary field duplicate was insufficient. Diamond drilling, the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship has been observed between recovery and grade.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core is logged for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones. RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, primary lithology, alteration, veining and mineralisation are all recorded for the chips.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Most geological data that requires description is qualitative, and where measured, such as structural and geotechnical data is quantitative. Qualitative and quantitative logging of historic data varies in its completeness. RC chip trays and core trays are photographed at the end of the drilling program.
	The total length and percentage of the relevant intersections logged.	In all instances, the entire drill hole is logged.
Sub-sampling techniques and	If core, whether cut or sawn and whether quarter, half or all core taken.	All regolith diamond core is fully sampled down to a depth where the core has been deemed competent enough to saw. All fresh diamond core is cut, and half the core is taken for sampling. The remaining half is stored for later use.

APPENDIX C: 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/riffle splitter to collect a 1m sample, averaging 3-4kg in size. Sample weights are recorded by the laboratory and recorded in company database. Moisture content of the sample is recorded and noted if wet samples are obtained.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples are submitted to laboratories for sample preparation in Kalgoorlie and analysis in Perth. 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 to15mm particle size or smaller. If the sample is greater than 3kg a Boyd crusher with a rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverized to 85% to 90% passing 75µm, using a bowl pulveriser. 300g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Grind checks are performed at both the crushing stage (3mm) and pulverising stage (75µm), requiring 85% to 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.	Field duplicates were taken for RC samples at a rate of 1 in 50
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g Fire assay charge is used with a lead flux, dissolved in the furnace. The pill is totally digested by HCl and HNO3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis. A 0.5g charge is used for multi-element analyses and the sample is digested using aqua regia, perchloric acid and hydrofluoric acid before analysis using Inductively Coupled Plasma Spectroscopy with Mass Spectroscopy (ICPMS) or Optical Emission Spectroscopy (ICPOES).
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples, this is random, except where high-grade mineralisation is expected. Here, a Blank is inserted after the high-grade sample to test for contamination. Failures above 0.2g/t are followed up, and re-assayed. New pulps are prepared if failures remain. Field Duplicates are taken for all RC samples (1 in 50 samples). No Field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified during the drill hole validation process and signed off by the Competent person.
	The use of twinned holes.	No Twinned holes were drilled for this data set
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is directly entered into a robust database (AcQuire) Assay files are received in csv format and loaded directly into the database via an importer object by the project's responsible geologist. All data is validated by inbuilt validation functions.
	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.	Drillhole collars from 2008 onwards were picked up by differential GPS in the MGA94 Zone 51 map grid. Earlier drillholes were mostly picked up by theodolite on a local exploration grid (if not also by DGPS) and later referenced back to the MGA94 map grid. The lack of QAQC data for the older (pre-2008) collar locations prompted a field check of a random selection of older holes as part of the 2013 resource estimate. The older drillholes were all found to be at the location reported in the Acquire database within the ~5m precision of a hand-held GPS. Post 2008 all drillholes had digital magnetic downhole surveys at least every thirty metres, with greater than ten percent of those confirmed by a gyroscopic downhole survey. Many pre-2008 holes were not surveyed but rather the downhole trace projected as straight from the setup angle. Given that the depth to mineralisation is generally quite shallow, estimates based on an abnormally large downhole deviation show that the desurveyed mineralisation intercepts will all be within two metres of the actual position. This uncertainty is greater than that desired, but not significant enough to materially affect the resource estimate. A topographic survey was conducted in 2011, by Cardno-Spectrum Surveys. This survey was used to create the topographic surface of the block model and all drillholes were projected to this surface to provide a consistent, reliable elevation for the drill data
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51 and all collars picked up using the local grid were verified in the field and converted to MGA94 Zone 51

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Quality and adequacy of topographic control.	The Differential GPS returns reliable elevation data with an appropriate level of precision for resource drilling.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drillhole spacing across the area is variable and dependent on the interpreted geometries of geology and mineralisation at individual prospects.
	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.	Only exploration results are being reported.
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	All drilling was oriented as close to perpendicular as practicable to the interpretation of mineralisation orientation.
	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 and previous companies in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound and tracked through their chain of custody and via audit trails
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits of the sampling techniques or data have been conducted for this project.

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 drill holes mentioned in this report are located within tenements M24/462, M24/640 and M27/497. Tenements M24/462 and M24/640 fall with Ascent Capital Royalty. M27/497 is part of a JV with Zebina Minerals Pty Ltd (XX) and Northern Star Resources ASX: NST (YY%) as of December 31st, 2019. The tenement is located approximately 18km NE of Kalgoorlie WA.
	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 tenement is in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The prospect referred to in this report is a project generated by Northern Star based on work previously undertaken by several different companies. Historic work includes RAB/AC/RC/DD programs.
Geology	Deposit type, geological setting and style of mineralisation.	The Crossroads deposit is located in the Boorara domain of the Kalgoorlie Terrane (Norseman-Wiluna greenstone belt) on the southern closure of the shallow SSE plunging Scotia-Kanowna Anticline. The core of the anticline is occupied by monzogranite that is interpreted to underlie the northern portion of the tenement block M24/462. The Scotia stratigraphy comprises a sequence of komatiite to tholeiitic basalts with interflow black shale horizons that form a basal greenstone sequence around the nose of the anticline. The greenstone sequence has been intruded by a suite of porphyritic and granitic bodies. To the west, the greenstone sequence is unconformably overlain by Panglo Basin sediments. Outcrop of the basal greenstone unit is truncated by the NW-SE trending Panglo Unconformity that separates the basalts from the sediments. The Panglo Basin sequence forms an essentially linear belt that is seemingly unaffected (post-dates) by D2 folding and felsic intrusions associated with emplacement of the Scotia Kanowna Dome. The basin broadly fines from conglomerates and sandstones in the north and east, through a central package of siltstone and sandstone, into an upper stratigraphy dominated by black shales. The dominant rock type at Crossroads is basalt, of variable composition (tholeiitic and high magnesium basalts), which has been intruded by a suite of dacitic porphyries associated with the Scotia monzogranite. To the southwest, the moderately south dipping Panglo unconformity juxtaposes younger siltstones from the Panglo Basin Sequence against the greenstone unit. The Crossroads supergene mineralisation is a collection of horizontal mineralised surfaces stretching along 2.8 km of strike in the direction 125°-310°. That strike follows the strike of the Panglo Unconformity, the base of a late Archaean sedimentary sequence. In the underlying basalt and felsic intrusives host a shear zone approximately ten metres below, and parallel to, the unconformity. The shear zone comprises two principal high strain zones that are weakly mineralised and are believed to be the primary source of the supergene gold
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:	All holes in this programme are tabulated in the main body of the report.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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	
	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.	All drill holes are reported in the body of this report regardless of the results returned. Exclusion of the drill information will not detract from the understanding of the report.
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. Barren material between mineralised samples has been permitted in the calculation of these widths where the resultant average composite grade of samples beyond (and not including) the mineralised zone exceeds the cut-off grade used for intercept calculation.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top cut for the purpose of this report. A lower cut-off of 0.3g/t has been used to identify significant results. Where the target zone does not exceed the 0.3g/t cut-off the intercept has been calculated across the target structure with no cut-off grade applied.
	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.	N/A
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Downhole lengths have been reported and are not an indication of true width.
	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').	Downhole widths have been clearly specified when used. True widths have not been used.
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 maps and sections are included in the body of this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	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.	All material exploration data has been reported within the report body, including samples analysed for geochemical purposes.
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further DD drilling is planned to test the NW and SE extensions with similar geological settings with the potential to add ounces to current 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.	NA

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Data used for generating the mineral resource estimates is stored in an Acquire database. The Company employs a database administrator to manage the database.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Where possible raw data is loaded directly into the database, with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the Acquire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used. Barrick / NSR drill holes were validated by compiling a hardcopy of all relevant data on a hole-by-hole basis with a coversheet for each. As each piece of information was checked against the information in the database the relevant section of the coversheet was signed off by the person who completed that check. All holes since 2008 were validated by compiling a hardcopy of all relevant data. As each piece of information was checked against the information in the database the relevant section of the coversheet was signed off by the person who did that check. The hole was then flagged as 'validated' in the database. Older holes could only be validated by checking their consistency with more recent drilling.
	Data validation procedures used.	Checks carried out on the imported data include: ▪ Collar details import checks - start and end dates are supplied, collar has location co-ordinate information, actual end of hole depth versus planned end of hole depth is within tolerance, cost code and location code information are supplied. ▪ Survey details import checks – final survey record is within tolerance with respect to end of hole depth, a survey exits at 0 depth, grid transformations have been performed, no duplicate survey points with the same priority exist. ▪ Geology details import checks - final lithology depth is within tolerance with respect to end of hole depth, structural measurement transformations have been performed, alteration/vein/mineralisation logging does not have overlaps and/or gaps. ▪ Samples/Assay import checks – total sample meters match end of hole depth, no duplicate samples with the same priority exist, sample intervals are continuous, no assay values have negative values, dispatch return date is recorded, no 'not sampled' intervals with assay values, QAQC passed. ▪ Geotechnical details import checks – logged information depths are within tolerance with respect to end of hole depth. ▪ Bulk Density/SG details checks – logged information depths are within tolerance with respect to end of hole depth. ▪ 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. It has been accepted that historic holes may be missing information such as start and end date, assay method and collar pick up method. Historic hole location was visually confirmed where possible or using recent drilling as confirmation. 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 model interpretation was competed by site-based personnel, and this was handed over the technical services team to complete the grade estimate. Grade estimation was completed by Senior Geologist – Resources, part of Corporate Technical services team. Principal Geologist – Resources, is a competent person for reviewing and signing off on estimations maintained a presence throughout the process.
	If no site visits have been undertaken indicate why this is the case.	Discussions were held online due to travel restrictions.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is a high level of confidence in the geological context of mineralisation with a good spatial relationship between the horizontal supergene 'blankets' and the fresh-rock source. The interpretation of all the Crossroads ore lode wireframes was conducted using the implicit modelling function in Leapfrog Geo. Wireframes were checked for unrealistic volumes and updated where appropriate. During modelling process, every attempt was made to consistently honour host lithologies to ensure homogeneity of geological domains is preserved. Each lode was treated as a separate geological domain for estimation purposes. Discrete lode modelling was assisted by existence of reasonable geological and grade continuity across most mineralised horizons, with an arbitrary cut of grade of 0.3g/t to guide the interpretation and to ensure that most of the mineralised material is captured within the appropriate mineralised envelopes.
	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 measurements.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Much of the regolith logging was of inadequate quality to constrain the depth and position of the supergene mineralisation surfaces so a grade-based constraint was used to interpret the exact position of the mineralised surface in the drillholes. This grade constraint was not a strictly applied cut-off grade but more so a selection of intervals within the drillhole showing elevated gold grades and a lateral consistency with surrounding drillholes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Given that supergene mineralisation is known to be flat lying there was little room for alternate interpretations. A thicker or thinner mineralised surface could be interpreted based on higher or lower grade constraints when defining individual intercepts. The nominal (as previously stated the interpretation was not based on a grade criterion alone) grade for defining the mineralised surfaces was 0.3g/t which encapsulated the vast majority of metal in the system. The Crossroads supergene mineralisation is a collection of horizontal mineralised surfaces stretching along 2.8 km of strike in the direction 125°-310°. That strike follows the strike of the Panglo Unconformity, the base of a late Archaean sedimentary sequence. In the underlying basalt and felsic intrusives host a shear zone approximately ten metres below, and parallel to, the unconformity. The shear zone comprises two principal high strain zones that are weakly mineralised and are believed to be the primary source of the supergene gold. These low-grade shears were modelled as part of this estimate, but do not constitute part of the reported resource.
	The use of geology in guiding and controlling Mineral Resource estimation.	The shear hosted surfaces were evident from veining and strong shear fabrics in the RC chips or core. The supergene mineralisation surfaces appear to have been controlled by palaeowater table levels. This style of mineralisation has resulted in extremely good spatial continuity at the scale of drilling, but poor grade continuity.
	The factors affecting continuity both of grade and geology.	Continuity can be affected by changes in lithology, dilation of structures, intersecting structures, vein density and proximity to the main mineralised structures.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The reported resource figures cover eight flat-lying supergene mineralised surfaces up to 700m long, 200m wide and up to 8m thick. The two-shear hosted mineralised surfaces are moderately southwest dipping and the reported resource covers higher confidence patches of these structure of up to 250m metres of strike 50 metres of dip extent and the full 4 metres of width of the mineralised shear zone. ▪ All the reported resource is between 30 and 100m below surface. ▪ The geological model of the Crossroads area covers two kilometres of strike (strike of the shear hosting the primary source mineralisation) 400m of width and models all known mineralised surfaces to a depth of 160 metres.
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.	Grade estimation for Gold was completed in Datamine Studio RM software. Geostatistical analysis and variography were completed using Snowden's Supervisor v9 software. The Crossroads Resource Model consists of 20 individual ore lodes or domains with a waste box surrounding these. The waste was given a default 0.001 g/t. Each ore lode interpretation is considered as being a separate domain for estimation. All estimations use hard domain boundaries. Estimates use 1m composites with grade capping or top cutting applied to Au outlier values. Outlier analysis was completed using a combination of histograms, log probability plots, mean and variance plots, cumulative metal plots and change in CV of composite to determine top cutting values on a domain-by-domain basis. Many of the principal lodes exhibit bimodal grade populations. These internal populations are controlled by grade indicators derived from inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 2 x 2 x 1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 10x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Search ellipse orientation and distances (major, semi-major and minor) were based on variogram rotations and variogram ranges on a domain-by-domain basis. A multiple-pass (three pass) estimation strategy was applied to all domains for grade estimations. Minimum and maximum samples for first pass search are 4 and 14 respectively, 4 and 20 for the second pass and 2 and 20 for the third pass.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The final estimates are compared to the previous model estimate, completed in December 2013.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements detected or estimated. However high clay content has been identified in the channel mineralisation.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 10m (East- West) x 10m (North-South) x 5m (vertical) and optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 2m x 2m x1m to ensure high volume resolution at ore boundaries. Search ellipse dimensions were derived from the variogram model ranges with exact values dependent on the characteristics of the individual lodes. A three-pass nested search strategy is employed, generally with the first pass set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.
	Description of how the geological interpretation was used to control the Resource estimates.	Both mineralised lodes and lithology wireframes were generated using implicit modelling function in Leapfrog Geo. An arbitrary cut-off grade of 0.3g/t was used to define mineralised envelopes during modelling process. Each lode is considered as being a separate estimation domain. All estimations use hard domain boundaries.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	After compositing and grade capping, a series of length and metal checks are completed to ensure the total length of the sample file is maintained and there is no metal loss in the compositing process. A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. Domain composites are visually compared to the estimated block model in cross and long section to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate.
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.	Based on Northern Star's current economic operations at Carosue Dam, and the natural grade distinction above background, a cut-off grade of 0.56g/t has been implemented.
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 To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.56g/t cut off for the open pit resources.
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 conducted in 2009 (AMTEC limited Report No. A11762, 2009) returned recoveries of greater than 95% for crossroads supergene mineralisation samples. Slow settling dispersive clays was identified as a potential issue with Crossroads Ore in the 2009 Mining Proposal (Mining Proposal Crossroads Stage 1 Open Pit September 2009) it was proposed that this issue would be mitigated at the Kanowna Belle mill by blending of Crossroads feed with other ore source.
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 Licences 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 Licences 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.	Bulk density measurements have been taken within the Crossroads project area by various previous owners of the project, however those measurements are sparse and are, in most cases, spurious hence resulting in low confidence data set. Due to the absence of any new information, values listed below were hardcoded into the most recent resource model based on the oxide surfaces as listed below, in line with SG values applied to previous iteration of the Crossroads model. ▪ Transported: 1.8 t/m3 ▪ Oxide: 1.8 t/m3 ▪ Transitional: 2.0 t/m3

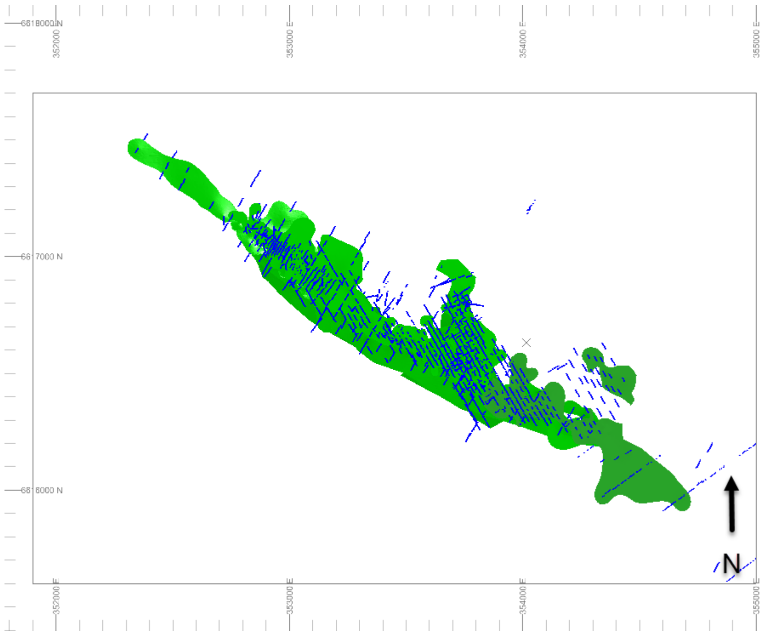
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Fresh rock: 2.8 t/m3
	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 or minimal voids are encountered in the ore zones.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Assumptions on the average bulk density of individual lithologies are based off historic reports. SG measurements will be required before mining to assess if these values are appropriate.
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 ▪ Geological confidence ▪ Density of available drilling ▪ Statistical evaluation of the quality of the kriging estimate ▪ Confidence in historical data ▪ Data Class of the drillholes
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity, and distribution of the data).	All relevant factors have been given due weighting during the classification process.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The resource model methodology is appropriate, and the estimated grades reflect the Competent Persons' view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	All resource models completed within Technical Services group 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.	The relative accuracy and confidence of the mineral resource model is reflected in the assigned Mineral Resource classifications.
	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 Crossroads Resource model is a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No reconciliation factors are applied to the resource post-modelling.

APPENDIX C: TABLE 1

CROSSROADS - REPRESENTATIVE PLAN AND CROSS SECTION

Plan view of Crossroads deposit with wireframes displayed as green solids and drillholes displayed as blue strings.



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.	The Mineral Resource estimate for the Crossroads Project was used as a basis for the conversion to the Ore Reserve estimate reported and was compiled by Northern Star Resources (NSR).
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	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.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into ore Reserve.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pits. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used parameters generated from NSR technical personnel and technical consultants. A detailed mine schedule and cost model has been generated using an excel spreadsheet model. Appropriate ore dilution and recoveries have been applied within the excel spreadsheet model. The processing parameters have been based on metallurgical test work and actual costs of the Fimiston Processing Plant. The current study level demonstrates high confidence that the project can achieve the mine plan and be operated in a technically sound and economically viable manner.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The pit cut-off grade has been calculated based on the key input components (processing, recovery, and administration) Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. The AUD gold price as per corporate guidance. Mill recovery factors are based on metallurgical test work.
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 complete with a detailed financial assessment. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used costs and inputs derived from current operational data, contractors, and independent consultant recommendations.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining method for the Crossroads deposit is bench mining open pit. The proposed open pit cutback will be mined using conventional open pit mining methods (drill, blast, load and haul) utilising similar class excavators and trucks used in other NSR open pit mining operations. This method is used widely in mines across Western Australia and is deemed appropriate given the nature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Independent Geotechnical Consultants Dempers & Seymour Pty Ltd completed a geotechnical study for the Crossroads project. Recommended wall angles were applied to the Whittle optimisation and subsequent detailed pit designs. The Grade control method to be employed at the Crossroads project will use Reverse circulation drilling to obtain samples.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	
	The mining dilution factors used.	A mining dilution factor of 10% at zero grade has been applied for the reporting of Reserve physicals.
	The mining recovery factors used.	A mining recovery factor of 95% has been applied reporting of Open pit Reserve physicals.
	Any minimum mining widths used.	A minimum operating width of 25m has been adopted for the primary excavation fleet.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Reserve estimate (treated as waste) but has been considered in LOM planning. The amount of inferred material has no impact on the sensitivity of the project.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Crossroads project have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. Ore from the Project will be processed through the Fimiston Processing Plant at the KCGM operation; hence no processing infrastructure is required. Required infrastructure will be established at Crossroads and will include Offices, workshops and associated facilities, dewatering pipeline, Waste Rock Storage Dump; and ROM Pad.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed in the existing Fimiston Processing Plant. The facility is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits. and has the capability to treat both refractory and free milling ores. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested, the existing Fimiston Processing Plant has been operating for over 25 years.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Based on metallurgical test work carried out and milling experience gained through processing similar ore material through the Fimiston processing facility. The metallurgical recoveries for the project were set at 90% for oxide, 90% for transitional, 90% for fresh rock, which corresponds with metallurgical test work undertaken.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements. Test work indicates there are no deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Based on metallurgical test work carried out and milling experience gained through processing similar material through the Fimiston processing facility.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	The Crossroads operation will utilise the existing Fimiston Processing Plant for processing and TSF storage facilities that lay on granted mining leases. Heritage, flora and fauna studies were completed in 2008 and will require updating. Waste rock characterisation and hydrological studies completed. Mining proposal and mine closure planning to be submitted.
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.	The Crossroads Project is located 20km north of Fimiston and is considered an extension of the KCGM Mine Site. The Crossroads operation will require minimum infrastructure given close proximity to well established Fimiston operation. A new haul road will be constructed to connect Crossroads to existing NSR haul roads. Minor infrastructure will be established at Crossroads to support the project. Access to the Fimiston operation is provided by well-maintained public and private roads. Employees reside in Kalgoorlie and commute to site daily.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the establishment, mobilisation and pre striping of the pit were not included in the optimised parameter inputs but included in the financial modelling.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate. The estimation of Open pit mine operating costs was based on a dry-hire mining, contract drilling, and contractor maintenance operation using first principles to determine equipment productivities and associated operating hours to generate mine schedules. Provided contract pricing were than applied to the schedule to calculate all unit costs.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected based on metallurgical test work.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a gold price of A$1,750 per ounce as per NST corporate guidance
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Transportation costs for ore haulage from Crossroads to Fimiston have been based on current NSR contractor quotes. Transportation costs also include an allowance haul road maintenance and dust suppression.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on actual plant processing costs. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. Private royalty of 2%. Private royalty of $10/ounce. Private royalty of $1/tonne processed.
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.	All financial analysis and gold price have been expressed in Australian dollars and no direct exchange rates have been applied. Revenue factors within the whittle optimisation process were used. A revenue factor shell was selected and used to complete a detailed pit design. A gold price of A$1,750 per ounce has been used in the optimisation of the Crossroads Project.
	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.	Gold doré from the mine is to be sold at the Perth mint.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not Applicable.
	Price and volume forecasts and the basis for these forecasts.	Not Applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model that is reflective of current operational costs and contract conditions. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,750 ± $250 per ounce. Due to the current short life, the project is not seen as highly sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current / under negotiation with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	No issues.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The classification of Open Pit Ore Reserves has been carried out in accordance with the JORC code 2012.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Reserve has been internally reviewed in line with Northern Star Resources governance standard for Reserves and Resources. There have been no external reviews of this Ore Reserve estimate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The design, schedule and financial model on which the Crossroads Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	All modifying factors have been applied to design mining shapes on a global 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.	Not applicable.

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Kanowna Surface (Six Mile Deposit) – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Samples were obtained using reverse circulation (RC) drilling and HQ diamond drilling (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For 2014, RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. 4m Composite spear samples were collected for the entirety each hole. The 1m split samples were then taken for any composite sample that returned an assay grade >0.1gpt. The 1m splits were also taken for composite samples either side of the anomalous composite. For 2015, RC drilling the 1m cone-split sample was submitted for assay for all intervals. For DD drilling, half core samples were submitted for assay. Holes were sampled at a nominal 1m sample interval, although this was varied to match geological criteria. The minimum sample size used is 0.3m.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g pulp splits were then dispatched to Genalysis Perth for fire assay 50gm charge and AAS finish analysis. Anticipated high grade zones were analysed by 1kg Leachwell or triplicate fire assay analysis.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is completed using a 5.75" drill bit, downsized to 5.25" at depth. Historically, RAB, Aircore, RC and DD holes have been drilled in the area. Historic DD in the area has been conducted in NQ2 diameter (50.5mm). Recent DD core was drilled in HQ diameter and oriented using the Reflex ACT Core orientation system.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Core is measured and any determined loss recorded in the database. RC samples are routinely weighed to assess recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified during 2014-2015 RC drilling. For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No bias has been noted.
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.	RC chips were sieved, washed and logged. RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all logged separately for each metre. Where possible, quantitative measures are used such as percentage values for individual minerals or vein types. All DD holes were logged to end of hole for regolith, lithology, alteration, veining and mineralisation. Where possible, quantitative measures are used such as percentage values for individual minerals or vein types. Quantitative structural measurements were also taken.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded.
Sub-sampling techniques and	If core, whether cut or sawn and whether quarter, half or all core taken.	For DD highly oxidized saprolite, full core samples were submitted for assay as the sample deteriorates significantly upon cutting. Once competent core is reached, sampling switches to half core sampling.

APPENDIX C: 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 1m sample 3-4kg in size. These samples were submitted to the lab from any zones approaching known mineralisation and from any areas identified as having anomalous gold. Outside of mineralised zones, spear samples were taken over a 4m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation is considered appropriate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field duplicates were taken for RC samples at a rate of 1 in 20. For the composite samples the spearing process was repeated from the opposite side of the green bag. For 1m split samples, the full rig sample was passed through a riffle splitter to provide a duplicate. For 2015 RC drilling, the duplicate was taken from the cone splitter. No duplicate sampling of core (sending the remaining half core sample) has been conducted as the geological value of the core is considered higher than the need to duplicate sample.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Sample preparation was conducted at Genalysis Kalgoorlie, commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Core samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg, a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. For fire assay, 300g pulp subsample is taken with an aluminium scoop and stored in labelled pulp packets. For Leachwell, 1kg of pulped sample is taken.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g Fire assay charge is used with a lead flux, dissolved in the furnace. The prill is totally digested by HCl and HNO3 acids before Atomic Absorption Spectroscopy. Repeatability of sub-samples was outside acceptable limits with 2014 DD drilling indicated the presence of coarse gold within cm scale stockwork veining as the likely cause for the poor repeatability. In order to improve assay repeatability test work analysing 1kg samples using the Leachwell technique with AAS finish, was completed on coarse bulk reject sample from 2014 RC and DD drilling. Leachwell is not to "total" technique but is considered to approximate the cyanide extractable gold that would be recovered in routine metallurgical processes. The initial conditions involved a 12-hour bottle roll. A fire assay on the Leachwell tails was completed to assess how effective the method had been in extracting the gold. The initial test work indicates a slightly longer bottle roll is required to leach the coarse gold. Additional test work utilizing a 24hr bottle roll is planned. Leachwell was not available for 2015 diamond drilling, so a triplicate fire assay was sued for zones with anticipated coarse gold. The average was then taken as the final sample grade.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. blanks are inserted into the sample sequence at a rate of 1 per 20 samples. This is random, except where high grade mineralisation is expected. Here, a Blank is inserted after the high-grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. Field Duplicates are taken for all RC samples (1 in 20 sample). No Field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by 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.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is entered directly into an Acquire database. Logs are exported to csv files. A hardcopy and electronic copy of this csv file is then stored. Assay files are received in csv format and loaded directly into the database by the Project Geologist. A geologist then checks that the results have inserted into the database correctly. Hardcopy and electronic copies of these are also kept. No adjustments are made to this assay data.
	Discuss any adjustment to assay data.	Planned holes are pegged using a Differential GPS (DGPS) by field assistants. During drilling, single-shot magnetic surveys are taken every 30m to ensure the hole remains close to design. This is performed by the driller using the Globaltech Pathfinder DS1 survey system and checked by the supervising geologist. A final survey is taken once the end of hole is reached. The final collar is picked up after hole completion by Differential GPS in the MGA 94 Zone 51 grid.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	
	Specification of the grid system used.	

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Quality and adequacy of topographic control.	For 2014 DD drilling, each hole was gyroscopic surveyed to verify the single shot surveys. Topographic control is through an airborne survey conducted in 2009 by Survey Graphics mapping consultants using airborne DGPS (Differential Global Positioning System). Alternative frames were orthorectified using a 30m DEM within the mapping area and a 50m DEM outside the mapping area, captured using photogrammetry. This topographic control has been verified by the DGPS pickup of numerous hole collars
Data spacing and distribution	Data spacing for reporting of Exploration Results.	No exploration results reported.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered appropriate. Drill hole spacing across the area greatly varies. Up to 100m below surface, spacing is typically 40m x 40m which is reduced at depth where few drill holes intersect ore.
	Whether sample compositing has been applied.	No compositing has been applied during sampling.
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.	No sampling bias is considered to have been introduced by the drilling orientation.
	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.	There are various mineralised orientations at Six Mile, including porphyry contacts and stockwork lodes, with two main shear orientations: NW-trending shears dipping steeply (70-80°) to the SW and ENE trending shears dipping steeply (70-80°) to the South. Many of the drill holes in the Six Mile area have been drilled at poor orientations to these structures due to poor understanding of the geology prior to the recent interpretation. Wherever this has occurred, it is clearly noted in the report. These holes are only suitable as an exploration tool for further targeting and are unlikely to be used in any future Resource.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories, they are stored in a secure fenced compound and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of RC sampling has been conducted to determine if the low repeatability is due to coarse gold, poor sampling or both. A number of steps have been taken to improve the primary sampling including the fitting of an additional arm and spirit level to the cone splitter to ensure it is kept straight and training drill offsiders in sample theory to help ensure a more consistent sample.

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 on Mining Lease M27/63, held by The Kanowna Mines Ltd, a wholly owned subsidiary of Northern Star Resources.
	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.	Western Mining Corporation (WMC) commenced exploration in the Six Mile AREA in 1983. Early exploration consisted of costeans, followed by RC drilling. A Resource of 119,482 tonnes @ 3.2gpt was calculated and mining began in 1986. Mining ceased in 1988 due to reconciliation issues. In the mid 1990's, 3 DD holes were drilled by WMC to test for mineralisation below the main pit, although assay results were poor. The current location of the core is unknown. Delta Gold acquired the tenement in 2000 and drilled 20 RC holes and 1 DD hole below the existing pit. This allowed a Resource to be calculated of 2.6 million tonnes @ 2.1gpt. Placer Dome subsequently acquired the tenement through their takeover of Aurion Gold in 2002 and conducted no exploration until the Barrick takeover in 2004. Barrick Gold conducted channel sampling of the pit walls in 2007 followed by 2 DD holes in 2008 with limited success.
Geology	Deposit type, geological setting and style of mineralisation.	The Six Mile deposit is situated within the Boorara domain of the Kalgoorlie Terrane, part of the Norseman-Wiluna Greenstone Belt. The Scotia-Kanowna dome, a D2

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		granodiorite pluton, intrudes a Boorara domain sequence of lower basalt, komatiites, upper basalt and felsic volcanics The Six Mile area is dominated by massive chlorite-amphibole basalt with at least two phases of quartz feldspar porphyry intrusion. Two main shear orientations exist within the pit. NW-trending and ENE-trending. Mineralisation occurs within quartz-carbonate veins hosted by these discrete shears Stockwork mineralisation is hosted within the basalt in proximity to shallow to moderately dipping lodes. Mineralisation also exists on the Footwall and Hangingwall of porphyry contacts. The Main Fletcher Porphyry hosts consistent low-grade mineralisation, and a supergene lode exists in the Main Pit zone.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	Too many holes to practically list the complete dataset, the long section and plan reflect the hole positions used for previous estimation stated. No exploration results reported.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results reported
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	No exploration results reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results reported.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results reported.
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 further relevant work has been carried out at the Six Mile project.
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).	Following the reinterpretation of the Six Mile project, and the creation of a new geological model, a Resource modelling exercise was undertaken. It is envisaged that further drilling will be undertaken to increase the confidence in the area and convert the Inferred Resource to Indicated, as well as increasing the size of the reportable 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.	

APPENDIX C: 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.	All data is stored in a digital database with logging of changes and management of data integrity. Validation is enforced when the data is captured. Data is exported to ASCII files before importation into Resource modelling software, no manual editing is undertaken on any data during the export/import process.
	Data validation procedures used.	Random checks through use of the data and data validation procedure prior to Resource estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person has visited the site in 2015 Multiple site visits undertaken by geologists supervising the drilling programs and preparing the geological interpretation.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is reasonable confidence in the geological interpretation. The geological interpretation is based on a combination of geological logging and mapping within the existing pit. Geological logging includes both contemporary and historic data. The main geological features are exposed in the existing pit and are believed to be well understood. Geological features not exposed are solely supported by drill data.
	Nature of the data used and of any assumptions made.	Nil.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative estimates have been conducted.
	The use of geology in guiding and controlling Mineral Resource estimation.	Wireframes of the interpreted geology have been used to constrain mineralisation.
	The factors affecting continuity both of grade and geology.	Grade continuity is affected by a high component of coarse gold distributed throughout the mineralisation. Geological structures are complex interplay of structure and intrusive bodies.
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 identified over a strike length of approximately 600m and over a depth of approximately 350m. Mineralised horizons vary in thickness between 2.6m and 15m, with an average thickness of around 3.0m.
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.	Drill holes were composited into 1m intervals down hole within each interpreted domain. The composite lengths were allowed to vary between half and one and a half times the nominal composite length to ensure that no sampling was lost during the compositing process. The average grade and total length of the composite data was compared against the average grade and total length of the un-composited data to check the compositing process. The distribution of composite lengths was checked to ensure that the majority of the composites were close to the targeted length. Simple Ordinary Kriging was used to estimate all mineralised domains. The local mean values used during Simple Kriging was estimated from the declustered mean of the top-cut composited sample data.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The estimated grades were assessed against sample grades and, where applicable, previous estimates.
	The assumptions made regarding recovery of by-products.	No assumptions are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Grades were estimated into 20m(E-W) x 5m(N-S) x 20m (RL) panels for the majority of domains. Two supergene domains were estimated using 20m(E-W) x 20m(N-S) x 5m(RL) panels. The majority of domains were estimated in 2D, where a significant proportion of the domain was thicker than 5m, grades were estimated in 3D. Search distances used for estimation based on variogram ranges and vary by domain.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs.

APPENDIX C: TABLE 1

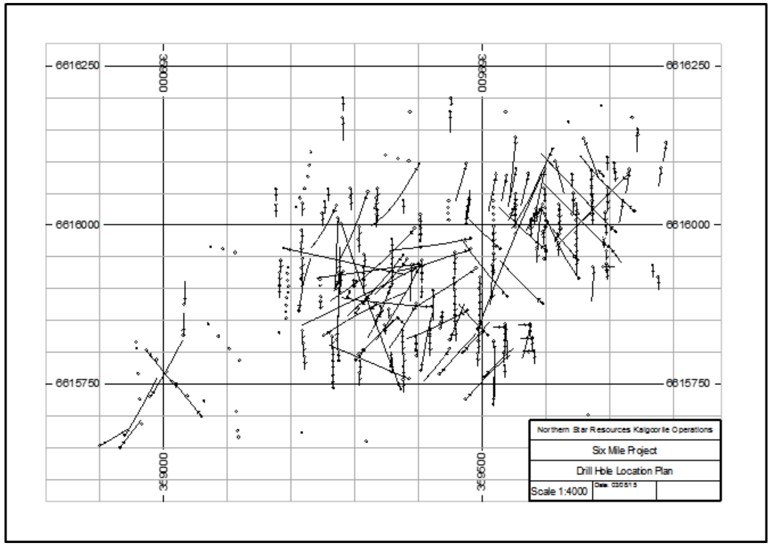
Criteria	JORC Code explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were applied to the sample data based on a statistical analysis of the data and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Kriging neighbourhood was refined using statistical measures of Kriging quality. The estimated grades were assessed against sample grades and against declustered mean values.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Cut-off grades for reporting the Resource were developed using a gold price of AUD$2,250 and budgeted Kanowna Belle mining costs for 2019-20.
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.	An open pit optimisation study was run to select the portion of the model to be included in the Resource tabulation. Dilution and recovery factors were included in the optimisation study. Mining costs were developed with reference to typical unit costs currently available. The reported Resource is contained within the optimum shell for an A$1,700/oz. gold price.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical recovery factors have been developed based on extensive experience processing similar material from the Kanowna area.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The utilisation of existing Kanowna Belle infrastructure will minimise the impact of development of the project. It has been assumed that the permits required for the operation will be readily obtainable.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density measurements from project drilling and from production within the area were used to assign values within interpreted weathering horizons.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	No/minimal voids are encountered in the ore zones.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk densities are applied to domains for the ore zone and by oxidation state.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: ▪ Geologic grade continuity. ▪ Density of available drilling. ▪ Statistical evaluation of the quality of the kriging estimate.
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Appropriate account has been taken of relevant factors.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral Resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource model has been reviewed internally by Northern Star Principal Resource Geologist.

APPENDIX C: TABLE 1

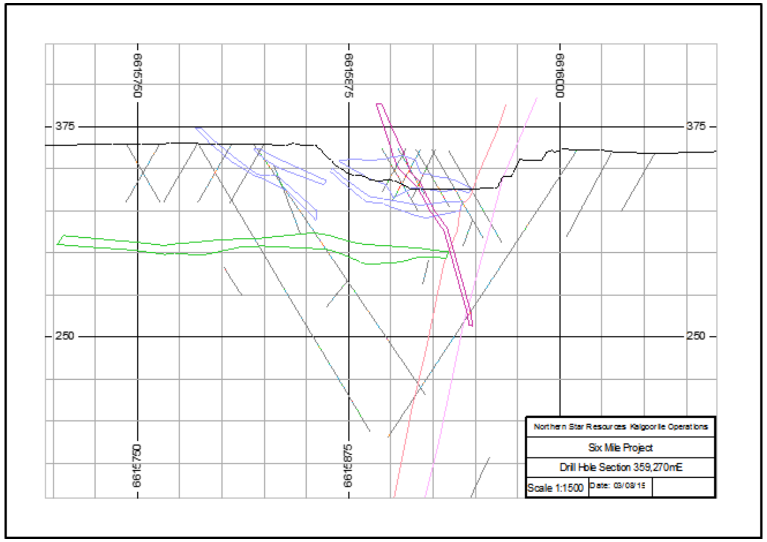
Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of 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.	This Mineral Resource estimate is considered as robust and representative of the Six Mile style of mineralisation. The estimate is considered to be robustly estimated on a global scale for material classified as Inferred.
	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.	Global estimate, with local variation to be expected.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production data to compare.

SIX MILE - REPRESENTATIVE PLAN AND CROSS SECTION

Plan view: Six Mile Resource drill collars and Traces



Cross Section: Six Mile Resource with drill traces and mineralisation interp



APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

White Feather Reward– 31 March 2022

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 diamond drilling (DD) and surface Reverse Circulation drilling (RC). All RAB holes were excluded from the estimate.
<table>
<tr><th>Lode</th><th>Total Holes</th><th>#DD</th><th>#RCD</th><th>#RC</th><th>12 month RC</th><th>12 month DD</th><th>12 month total</th><th>% drilled in last 12 Monts</th><th>DD samples</th><th>RC samples</th><th>Total samples</th></tr>
<tr><td>WF1</td><td>51</td><td>18</td><td>6</td><td>27</td><td>0</td><td>2</td><td>2</td><td>4%</td><td>55</td><td>122</td><td>177</td></tr>
<tr><td>WF2</td><td>23</td><td>11</td><td>1</td><td>11</td><td>0</td><td>1</td><td>1</td><td>4%</td><td>35</td><td>47</td><td>82</td></tr>
<tr><td>WF3</td><td>22</td><td>12</td><td>4</td><td>6</td><td>0</td><td>1</td><td>1</td><td>5%</td><td>39</td><td>28</td><td>67</td></tr>
<tr><td>WF4</td><td>40</td><td>23</td><td>6</td><td>11</td><td>0</td><td>0</td><td>0</td><td>0%</td><td>52</td><td>63</td><td>115</td></tr>
<tr><td>WF6</td><td>12</td><td>7</td><td>5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0%</td><td>15</td><td>5</td><td>20</td></tr>
<tr><td>WF7</td><td>13</td><td>8</td><td>5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0%</td><td>18</td><td>8</td><td>26</td></tr>
</table>
Sampling is by both diamond drilling (DD) and Reverse Circulation (RC) drilling completed by both NSR and previous operators.
Reverse circulation drilling was used to obtain 1m samples from which 2kg (Delta Gold holes) or 3kg (Barrick/NSR holes) was pulverised to produce a 50g charge for fire assay. For the Delta Gold holes, less prospective zones or wet zones were sampled with five metre composites that were assayed with aqua-regia digest and AAS finish on a 50g charge. All composite intervals returning greater than 0.01gpt Au were subsequently re-sampled from one metre intervals retained in plastic bags, dried, riffle split, and then treated as above.</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>Core is aligned and measured by tape, comparing back to downhole core blocks consistent with industry practice.
RC metre intervals are delineated with spray paint to determine metres drilled. Sample rejects are left on the sample pad to indicate metres drilled for the hole.</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 1m samples from which 3kg 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 3kg.
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 <3mm if required. For samples <3kg the entire sample is pulverised to 75µm to produce a 50g charge for fire assay or either a 1000g or 400g sample for Leachwell analysis. Samples >3kg may be split at the <3mm crush stage using a rotary splitter to produce a 3kg subsample.
Visible gold is observed in the core and coarse gold is characteristic. The larger volume analysed in Leachwell method has been used to mitigate against the coarse gold distribution characteristic of the deposit. Where visible gold was observed, samples were submitted for screen fore assay utilising a 75µm screen. The entire half core sample is pulverised, then split to produce a 1kg sample. The sample is passed through a 75µm screen to produce a coarse and fine fraction sample. The entire coarse fraction (and screen) is fired to calculate the amount of coarse gold. Two 50g charges of the fine fraction are fire assayed to determine gold in the fine fraction. The weighted average grade of the coarse fraction assays is reported as calculated gold grade for the interval.</td></tr>
<tr><td>Drilling techniques</td><td>Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</td><td>Both RC and Diamond drilling techniques were used to drill the White Feather deposit.
Surface diamond drillholes were completed using HQ2 (63.5mm) and NQ2 (50.7mm) coring. Recent diamond core is routinely orientated using the Reflex ACT Core orientation system.
RC Drilling was completed using a 5.75" face sampling drill bit, downsized to 5.25" at depth. For NSR RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. There are limited records for historical RC splitting methods used.
Seven RC pre-collars were drilled followed by diamond tails. Pre-collar depth was determined in the drill design phase depending on the target been drilled and production constraints.</td></tr>
<tr><td rowspan="2">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 captured by the logging geologist and entered as interval into the hole log.
RC drill recoveries were logged by the geologist or field assistant whilst drilling based on a visual estimation of the proportion of sample returned relative to a full one metre sample. Moisture was logged as wet, moist.</td></tr>
<tr><td>Measures taken to maximise sample recovery and ensure representative nature of the samples.</td><td>RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. No recovery issues were identified during 2014 - 2015 RC drilling.</td></tr>
</table>

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery was excellent for diamond core and no relationship between grade and recovery was observed. Average recovery for the project is 98%. No sample bias was noted.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Diamond core was placed in core trays for logging and sampling. Samples intervals are defined by the geologist to honour geological boundaries. Diamond core samples are mainly HQ and NQ2 and vary between 0.3m and 1.2m (NQ2) or between 0.2m and 1m (HQ). For 2018 drilling, maximum HQ sample interval was reduced to 0.7m. 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 1m 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 an AcQuire database using suitable pre-set dropdown codes and validation functions to remove the likelihood of human error. All core and chips have been logged to the detailed exploration logging scheme of Delta Gold/Placer Dome/Barrick/Northern Star (i.e., a single logging scheme that has evolved with only minor changes over time).
	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 left half being stored for later reference. Full core sampling may be undertaken 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.	All RC samples are split using a rig-mounted inverted cone splitter to collect a 1m sample weighing 3-4kg. All samples were intended and assumed to be dry and moisture content was recorded for every sample.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Preparation of NSR samples was conducted at Genalysis and MinAnalytical preparation facilities. Sample preparation commenced with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal 3mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to 3kg at a nominal <3mm particle size. For fire assay and Leachwell determinations, the entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300 g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets for fire assay. Leachwell samples had a 1,000g or 400g pulp sub-samples collected. The specific details of the sub-sampling techniques and sample preparation for the Delta Gold holes is not well documented but is believed to be somewhat similar to the methods described above. 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 (3mm) and pulverising stage (75µm), 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.	Field duplicates were taken for RC samples on a ratio of 1 in 20.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered appropriate for the material been sampled.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50 g fire assay charge is used with a lead flux in the furnace. The prill is totally digested by HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis. FA is considered to report total gold content of the sample. A 400 g (or 1,000g) leach well charge is bottle rolled with water and sodium cyanide. The settled solution is sampled for analysis with AAS. Leach well digestion is a partial extraction. The tailings residue from 1 in 10 or 1 in 20 Leach well results is sampled and assayed by 25g fire assay with AAS finish to determine residual grade. Delta Gold composite samples were assayed with aqua-regia digest and AAS finish on a 50g charge. Aqua regia digest is considered a partial digest. NSR samples with visible gold were routinely screen fire (1kg) assayed using a 75µm mesh.
	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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples. The insertion points are selected at random, except where high grade mineralisation is expected. In these cases, a blank is inserted after the high-grade sample to test for contamination. Results greater than 0.2gpt 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. 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.	Twinned holes were only drilled in circumstances of intercepting significantly high grades (>5,000gpt) to evaluate repeatability and grade trends. Re-drilling of some drillholes has occurred due to issues downhole (e.g., bogged rods). These have been captured in the database as an 'A'. Re-drilled holes are sampled whilst the original drillhole 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 or .sif format and loaded directly into the database using an AcQuire importer object. Assays are then processed through a form in AcQuire for QAQC checks. Hardcopy and noneditable electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	A planned hole is pegged using a Differential GPS by the field assistants. The final collar is picked up after hole completion by field assistants with a Differential Global Positioning System (DGPS) rover unit in the MGA 94_51 grid. During drilling single-shot surveys are conducted every 30m 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 two methods of surveying have been utilised in 2018. Two holes utilised driller operated north seeking Reflex EZ-Gyro in-rod survey instrument taking readings every 10m, In and Out runs and reported in 5m intervals. Three holes utilised a surveyor operated DeviFlex RAPID continuous in rod survey instrument taking readings every 2 seconds, In and Our runs and reported in 3m intervals. Historical mine workings have been digitised and located in 3D by reference to surface features. Location of these working is treated as inaccurate and thus mineralisation surrounding the inferred position of workings has been excluded from the resource.
	Specification of the grid system used.	Collar coordinates and survey azimuth are recorded in 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 across the area varies from approximately 20m to 100m 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.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites, then resampled to 1m samples in mineralised zones. Compositing of the data to 1m was used in the estimate.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of the historically mined White Feather Reward is well known and suggests the drilling direction originally undertaken by NSR during resource definition drilling was perpendicular to the orientation of mineralisation. See Appendix for picture of orebodies.
	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 drillholes have been particularly oblique, they have been flagged as unsuitable for resource estimation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits have been undertaken of the data and sampling practices at this stage.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.).)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All holes are located within the M27/164 tenement, which is owned by Kanowna Mines Pty Ltd, a wholly owned subsidiary of Northern Star Resources. The tenement on which the White Feather Reward deposit is hosted (M27/164) covers the historic gazetted Kanowna town site. The town site boundary is approximately 500m south-west of White Feather Reward. White Feather Reward is located on Crown Reserve 4459 – Common. M27/164 has a partial royalty to Oxford Credits Corporation Pty Ltd however this royalty does not extend over the area of drilling that is the subject of this release.
	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.	Gold discovered in October 1893 with underground mining continuing into the early 1900s. The bulk of mining on the White Feather trend was completed by 1918, with periods of small-scale tribute mining coming to an end in the mid 1940s due to significant water ingress. White Feather Reward was mined to a maximum depth of 150m below surface. Systematic exploration of the prospect was initiated by Amax Limited in the early 1980s with surface sampling and costeaning. Gencor continued exploration with 35 shallow holes spaced 70-130m seeking a shallow resource. Delta drilled 17 RC holes focusing on porphyry mineralisation, surface mapping and consolidation of project literature including the compilation of underground mine plans. Aurion (2001) and Placer Dome (2002-2005) drilled broad spaced deep holes identifying more than one vein beneath the project. Barrick Gold held tenure of the project from 2006 up to 2014 with limited exploration. Early 2014 saw Northern Star Resources purchase the Kanowna camp from Barrick Gold which initiated a review of the project due to its close proximity to Kanowna Belle Mine and Mill infrastructure.
Geology	Deposit type, geological setting and style of mineralisation.	The White Feather trend is an approximately N-S striking, (tending NE striking in the White Feather Reward area), moderate to steeply east dipping fault system that occupies the hinge of a regional anticline cored by Ballarat Conglomerate and quartz porphyry. White Feather is located within the Talbot Formation of the Boorara Domain. The White Feather Fault is thought to be a reactivated D1 fault, similar to the Fitzroy Fault which hosts the Kanowna Belle Deposit. Gold mineralisation along the White Feather fault zone occurs within quartz veins outcropping over a strike of approximately 3.5km that preserve a variety of textures including shear laminations, brecciation and undeformed open space infill. Veins are narrow (0.3m to 2m) aligned to northeast strike in the White Feather Reward area. Porphyries exhibit a background pervasive low-grade tenor of Au mineralisation to <0.3gpt. The main mineralising event is associated with the dominant N-S to NE quartz lodes. The lodes are typically hosted in the mafic-ultramafic conglomerate and show a spatial association with the porphyry contacts although the main mineralised structural fabric penetrates the porphyry bodies. Gold occurs as coarse grains within these veins.
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 White Feather project can be found above. The collar locations are presented in plots contained in the NSR 2020 resource report. Drillholes vary in survey dip from -53 to -90 degrees, with hole depths ranging from 24m to 584m, with an average depth of 254m. The assay data acquired from these holes are described in the NSR 2020 resource report. All validated drill hole data were used directly or indirectly for the preparation of the resource estimates described in the resource report.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No material data has been excluded from this report.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No assay results have been top cut for the purpose of this report. A lower cut-off of 1gpt has been used to identify significant results, although lower results are included where a known ore zone has been intercepted and the entire intercept is low grade.
	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 @ ##.##gpt including ##.#m @ ##.##gpt.
	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 2020 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).	Further drilling is contingent upon project review and assessment of exploration potential along the greater White feather trend.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams accompany this release.

Section 3: Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is either recorded on paper and manually entered into a database system or is captured digitally via a logging laptop and directly loaded into the database system. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly into the database from laboratory and survey derived files.
	Data validation procedures used.	The complete exported data base including drill and face samples is brought into Datamine and checked visually for any apparent errors i.e., holes 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, ▪ Review of source data within the data base including, collar surveys, down hole surveys and assays 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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Historical drilling located within 100m of recent Northern Start drilling has been classified with a Data Class system, assigning a numerically higher confidence to these holes for the consideration of classifying the estimate. Holes that are located greater than 100m from recent Northern Star drilling are classified with a numerically lower Data Class and assist with assigning lower confidence in the estimate. 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.	Site visits were undertaken by the Geology Manager.
	If no site visits have been undertaken indicate why this is the case.	Site visits were undertaken
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the White Feather project 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 from drilling. The interpretation of all the White Feather project wireframes was conducted using the sectional interpretation method in Datamine RM software. Where drilling data was present sectional interpretation was completed at approximately 20m spacing. Wireframes were checked for unrealistic volumes and updated where appropriate.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, and structural models.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	There are no alternative interpretations as White Feather is well understood from previous mining history.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the mineralised White Feather structures is based on the presence of quartz veining/shearing and continuity between sections of these structures and adjacent mineralised structures.
	The factors affecting continuity both of grade and geology.	The White Feather structure is continuous over the length of the deposit, limited drill density to the South has resulted in the interpretation being shortened with either quartz or the controlling structure used to guide this interpretation.
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 White Feather structure is approximately 1,500m. The primary mineralised zone has been interpreted over 700m. Mineralisation is known to occur from the base of cover to approximately 430m 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.	WF1 and halo – lithologically controlled as a narrow quartz vein structure of a single mineralised domain and sub economic gold enriched halo. Domain was analysed for top cuts, variography was completed and indicates grade continuity in the SE plunge direction. The domain was estimated with Ordinary Kriging and the halo estimated with Inverse Distance Squared, using a search range of ~120m in direction 1 and 80m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 7 samples and a maximum of 12 samples. WF2 and halo – lithologically controlled as a narrow quartz vein structure of a single mineralised domain and sub economic gold enriched halo. Domain was analysed for top cuts, variography was completed and indicates grade continuity in the NE plunge direction. The domain was estimated with Ordinary Kriging and the halo estimated with Inverse Distance Squared using a search range of ~70m in direction 1 and direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 5 samples and a maximum of 12 samples. WF3 and halo – lithologically controlled as a narrow quartz vein structure of a single mineralised domain and sub economic gold enriched halo. Domain was analysed for top cuts, variography was completed and indicates grade continuity in the NE plunge direction. The domain was estimated using the Inverse Distance Squared method with a search range of ~85m in direction 1 and 60m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 4 samples and a maximum of 12 samples. WF4 and halo - lithologically controlled as a narrow quartz vein structure and sub economic mineralised halo, comprised of two domains determined by narrow geometry and orientation. Domains have been analysed for top cuts, variography was completed and indicates grade continuity in the SE plunge direction. The domain was estimated with Ordinary Kriging and the halo estimated with Inverse Distance Squared using a search range of ~115 -120m in direction 1 and 50 - 80m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 7 samples and a maximum of 12 samples.

APPENDIX C: TABLE 1

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>WF6 – lithologically controlled as a narrow quartz vein structure material of a single mineralised domain. Domain was analysed for top cuts, variography was completed and indicates grade continuity in the east plunge direction. The domain was estimated using the Inverse Distance Squared method with a search range of 60m in direction 1 and 50m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 5 samples and a maximum of 12 samples.

WF7 – lithologically controlled as a narrow quartz vein structure material of a single mineralised domain. Domain was analysed for top cuts, variography was completed and indicates grade continuity in the east plunge direction. The domain was estimated using the Inverse Distance Squared method with a search range of 60m in direction 1 and 50m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 5 samples and a maximum of 12 samples.

WFI – gold estimate, lithologically controlled porphyry intrusion of a single mineralised domain. Domain was analysed for top cuts, variography was completed and indicates grade continuity in the east plunge direction. The domain was estimated with Ordinary Kriging using a search range of 100m in direction 1 and 90m in direction 2. Three passes were used for estimation with distances based on variography. The first pass had a minimum of between 5 samples and a maximum of 12 samples.</td></tr>
<tr><td></td><td>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource Estimate takes appropriate account of such data.</td><td>Multiple estimation techniques were used to verify the final estimate grade. These included (where possible) OK, ID^2 and ID^3 and Nearest Neighbour estimation.</td></tr>
<tr><td></td><td>The assumptions made regarding recovery of by-products.</td><td>No assumptions are made and only gold is defined for estimation.</td></tr>
<tr><td></td><td>Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).</td><td>No deleterious elements estimated in the model.</td></tr>
<tr><td></td><td>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</td><td>Block size was determined by sample density and where drill spacing is approximately 30 – 40m, a 10 x 10 x 20m block size was chosen.
<table><tr><td>Domain</td><td>XMIN</td><td>YMIN</td><td>ZMIN</td><td>XMAX</td><td>YMAX</td><td>ZMAX</td><td>XINC</td><td>YINC</td><td>ZINC</td><td>#X</td><td>#Y</td><td>#Z</td></tr><tr><td>White Feather</td><td>367,100</td><td>6,613,900</td><td>- 100</td><td>367,600</td><td>6,614,500</td><td>400</td><td>10</td><td>10</td><td>20</td><td>50</td><td>60</td><td>25</td></tr></table>All the varying block sizes are added together after being estimated individually.

Search ellipse dimensions were derived from the variogram model ranges.</td></tr>
<tr><td></td><td>Any assumptions behind modelling of selective mining units.</td><td>No selective mining units are assumed in this estimate.</td></tr>
<tr><td></td><td>Any assumptions about correlation between variables.</td><td>No other elements other than gold have been estimated.</td></tr>
<tr><td></td><td>Description of how the geological interpretation was used to control the resource estimates.</td><td>Ore wireframes were created as solids in Datamine Studio RM version 1.4 software. The geology model was used as a guide for the creation of the ore lodes:

All lodes except the halos used the presence of veining and grade as an indicator of an ore lode.

The geology model was used for the mineralised intrusive porphyry domain.

For mine planning purposes a waste model was created by sectional polygon extending at least 20m from mineralisation</td></tr>
<tr><td></td><td>Discussion of basis for using or not using grade cutting or capping.</td><td>The influence of sample distribution outliers in the composited data has been reduced by top-cutting where required.

Top-cut analysis was carried out on the composite gold values, by ascertaining where a break in the grade population occurred in the upper percentiles of each ore lode or domain. Where the high grades were deemed to be significantly anomalous for that grade population, a top cut was applied using the method outlined below.

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. For example, the following variables were created and estimated:
▪ AU (top cut gold)
▪ AU_NC (non- top-cut gold)
▪ AU_BC (spatial variable to determine where non-top cut estimate occurred)

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., 10 x 10 x 10m). Where the *_BC values produce estimated blocks within these restricted ranges, the *_NC estimated values replace the original top cut estimated values (AU).

This process allows blocks close to high grade samples to be estimated with the full uncut dataset but blocks outside this restricted range are estimated using the top cut dataset. This limits the spread of very high grades but retains the high local value in these blocks, which more closely reflects the style of mineralisation.

WF1 ore lode had both a “hard” top cut and influence limitation top cuts applied, due to extreme outliers.</td></tr>
</table>

APPENDIX C: TABLE 1

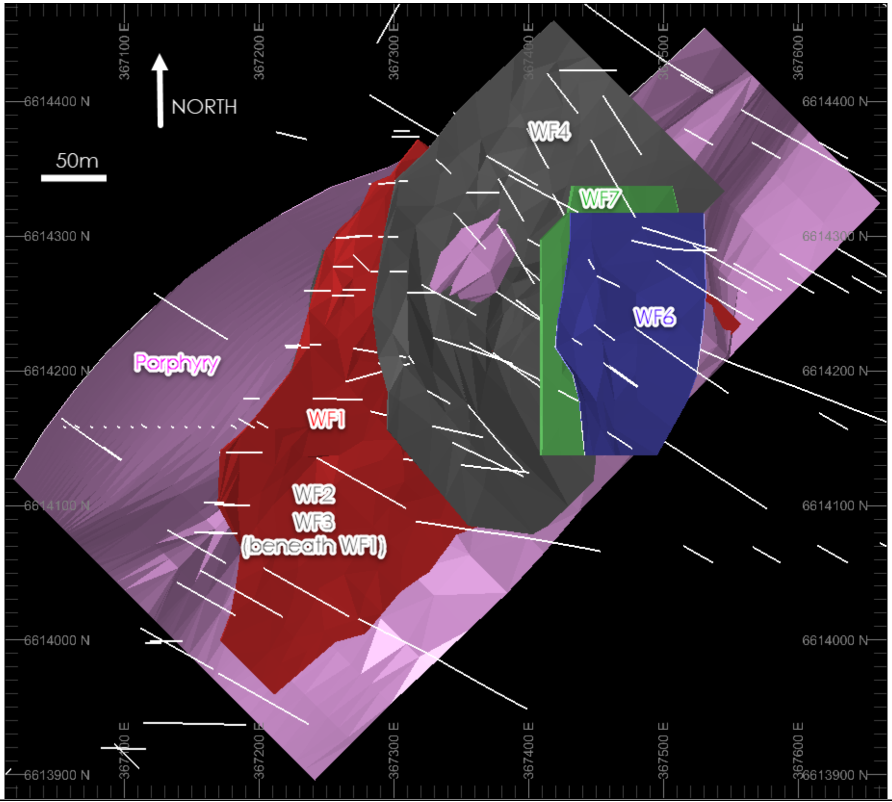
Criteria	JORC Code explanation	Commentary
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Model validation has been carried out including visual comparison of the composites and block model, swath plots of the declustered composites and estimated blocks; global statistics and check for negative or absent grades.
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 2.0gpt cut off using a 2.5m minimum mining MSO at a $AU1,750/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 minimum 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 or recovery assumptions have been made during the Mineral Resource Estimate.
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.	No environmental assumptions have been made during the Mineral Resource Estimate.
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.	An investigation into average density values for the various lithological units White Feather was completed and the mean densities by lithology were coded into the block model post estimation.
	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.	Bulk density measurements were taken using the Archimedes technique onsite; 42 measurements were taken, the majority of which were taken from the 2017 and 2018 diamond drill programs.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	There have been assumptions made based on the consistency of bulk density values within lithologies logged at White Feather. Porphyry and mineralised veins were assigned a bulk density of 2.7 with the encompassing conglomerate and waste assigned a density of 2.77.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The resource classification has been applied to the Mineral Resource Estimate based on the drilling data spacing, grade and geological continuity, data integrity, and kriging confidence (slope of regression), where appropriate.
	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).	The classification considers the relative contributions of geological and data quality and confidence, as well as grade confidence and continuity.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The classification reflects the view of the Competent Person.
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	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

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	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.	Historic production records are incomplete, so no comparison or reconciliation has been made.

WHITE FEATHER PROJECT

. Plan view of the White Feather project and the data used in each resource estimate



APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Woodline – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Reverse circulation drilling was used to obtain 1m samples from which 2kg (Delta Gold holes) or 3kg (Barrick/NSR holes) was pulverised to produce a 50g charge for fire assay. For the Delta Gold holes, less prospective zones or wet zones were sampled with 5m composites that were assayed with aqua-regia digest and AAS finish on a 50g charge. All composite intervals returning greater than 0.01g/t Au were subsequently re-sampled from 1m intervals retained in plastic bags, dried, riffle split, and then treated as above. Diamond drill core was half-core sampled on a nominal 1m sample length and was pulverised to produce a 50g charge for fire assay. For the Delta gold holes, less prospective zones sampled by V-cut in 4 m intervals and then treated as above. Any significant anomalous composite intervals were re-sampled by taking all core from the remaining hemisphere of the V-cut as 1m samples and then treated as above.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sample intervals are marked on the core by a geologist typically every 1m or less to honour geological boundaries. Sample interval lengths vary from 0.3m to 1.2m (NQ). The same half of the core was selected for each sample interval, placed in numbered calico bags, and submitted to the laboratory for analysis. The other half of the core was left in the core tray, which was stamped for identification, stored, and catalogued.
	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.	Assaying is by fire assay with a 40 or 50g charge and AAS analysis for gold. All sampling data is entered onto logging sheets or tablet computer and entered into the central Acquire database.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Most drill holes are 130-145 mm reverse circulation and supplemented with a small proportion NQ diamond drill holes. The diamond drill holes were of NQ or NQ2 diameter in fresh rock; however, some HQ3 triple tube drilling was used through the regolith, which includes the main mineralised zones.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond drilling recoveries were accounted for by recording core loss intervals measured in linear downhole metres to the nearest five centimetres. All diamond core was dried before sample preparation making the original moisture of the sample irrelevant to sample and assay integrity. For Barrick/NSR RC drill holes: RC drill recoveries were logged by the geologist or field assistant whilst drilling. These recoveries were based on a visual estimation of the proportion of sample returned relative to a full one metre sample. Moisture was logged as wet, moist, or dry where wet means all or part of the sample was a slurry, moist means the material was wet enough to clump together and therefore not split effectively through a riffle or cone splitter and dry was any sample that was sufficiently free of moisture to properly run through a riffle or cone splitter. For Delta Gold RC drill holes: Drilling reports show that moisture and recovery for RC drill holes was noted through the drilling campaign and sampling techniques modified accordingly, however this information is not contained within the Northern Star drill database, so no analysis of this data is possible.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Where recovery data is available, that data shows that 96% of samples have sufficient recovery to be considered a representative sample.
	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.	Where moisture data is available, that data shows that 4% of samples were wet and therefore may not be representative. A negligible proportion of samples were moist (samples where there may be a small effect on the reliability of the gold grade of the sample).
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 drill core was logged by geologists where lithology, mineralisation, structure, alteration, veining and regolith fields were recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation, thickness of veins and veins per metre were also recorded. Geotechnical measurements on diamond drill core include RQD (rock quality designation), recovery, and fracture frequency. Photographs are taken of each core tray when wet and where available are stored on the online cloud-based database Imago. All mineralised intersections are logged and sampled. All core and chips have been logged to the detailed exploration logging scheme of Delta Gold/Barrick/Northern Star (i.e., a single logging scheme that has evolved with only minor changes over time).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Selected diamond core has been geotechnically logged as required.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and all core is photographed, and half core retained in archive for future reference. Visual estimates are made for mineralisation percentages for core.
	The total length and percentage of the relevant intersections logged.	100% of the drill core and RC chips are geologically logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All diamond drill core was sawn or cut longitudinally and one half submitted to the laboratory. Diamond drill core is sampled by sawn half-core on intervals controlled by geological domaining represented by mineralisation, alteration, and lithology. A selected number of grade control holes were full cored. Mineralised intersections are sampled with a maximum and minimum length of 1.2 m and 0.2 m, respecting lithological or alteration contacts. The down hole depth of all sample interval extents is recorded.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC drill samples were either cone or riffle split on the drill rig and that sample was then submitted to the laboratory.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	For Barrick/NSR drill holes: Sub sampling: Laboratory Sample Preparation – Diamond drillholes: Drill core samples submitted to the laboratory are crushed to a nominal 6mm in a jaw crusher (no grind checks used for this step) and then pulverised to 90% passing 75µm in an LM5 puck mill. Samples too large (>3kg) for the LM5 mill are first crushed in a Boyd crusher to 90% passing 3mm and the sub-sampled to less than 3kg with a rotary splitter. Laboratory Sample Preparation - RC: Samples are pulverised to 90 % passing 75 µm in an LM5 puck mill. Samples too large (>3kg) for the LM5 mill are first jaw-crushed to 90% passing 3mm and then sub-sampled to less than 3kg with a rotary splitter. For the crushing and pulverising steps above grind checks are conducted on a 1 in 25 samples basis to confirm effectiveness. Field Duplicates: Field duplicates were taken on a one-in-twenty samples basis for RC drilling with a second split of the 1m sample to provide a second, nominally 3kg, sample to be processed identically to all original samples. Diamond core did not have duplicate samples taken. Laboratory Splits: A second pulp 250-300g was taken from the LM5 mill on a 1 in 50 samples basis and processed identically to other samples for the remainder of the assay workflow. The specific details of the sub-sampling techniques and sample preparation for the Delta Gold holes is not well documented but is believed to be somewhat resemble the methods described above.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Most holes have all intervals sampled. Approximately 80% of the latest round of RC drilling (WDRC17*** and WDRC18***) were not sampled over the top 30m, as results from previous drilling campaigns have demonstrated to be barren.
	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.	Quarter core sampling is often undertaken as a check.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage (3mm) and pulverising stage (75µm) requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	All one metre samples were assayed with a 50g charge weight with an AAS (atomic absorption spectroscopy) finish. This method is considered to report the total gold content of the sample. Delta Gold composite samples were assayed with aqua-regia digest and AAS finish on a 50g charge. Laboratory Checks: The laboratories used were required to routinely repeat a fire assay from the pulp for 1 in 20 samples. Laboratory Repeats: Higher grade samples (above a nominal 1g/t cut-off) were re-assayed from the original pulp until the result was deemed repeatable, by the laboratory. Delta Gold reports document the use of company supplied standard material and that the results were acceptable, being within 10% of the accepted value, but the exact details of the protocol(s) are not described, and the QA data is not available.
	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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories (minimum >5 %). ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections For Barrick / NSR drill holes, commercially produced, certified standards were submitted to the laboratory on a 1 in 20 basis. Ground Bunbury Basalt (similar in appearance to an RC sample from mafic rocks), of a gold concentration known to be below normal ppm detection limits (but not certified), was submitted in the sample stream on a 1 in 50 basis to be processed identically to all original samples. Primary laboratory Bureau Veritas meets ISO 9001:2000. MinAnalytical labs are NATA accredited for compliance with ISO/IEC17025:2005
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	The significant intercepts of the Woodline area are considered to be verified on the basis that the project has been drilled with different methods by different teams from two different parent companies over twenty years and has returned results that are consistent with each other and demonstrate continuity of grade and thickness of mineralisation. All recent assay data (all Barrick/NSR assay data), has been directly imported into the digital database directly from laboratory reports, eliminating any potential for typographical errors.
	The use of twinned holes.	Five RC holes were drilled in 2017 attempting to replicate the long high-grade intercepts in earlier RAB drilling. While high grade was intercepted, the new holes did not replicate the downhole length. Trenching data (TR), Rotary Air Blast (RAB) and Air core (AC) hole types were not used in the grade estimation, however, were used in the geological interpretation.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All assay data adheres to Kanowna QAQC standards and is further validated by a qualified person before it can be used in the Resource estimation process. All data is stored in the site Acquire database with hard copies of all logging and sample results filed for each hole. Assay files are received in csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Hardcopy and electronic copies of these are also kept.
	Discuss any adjustment to assay data.	Assay adjustment: Stored in the NSR Acquire database are various 'priorities' of sampling. This does not reflect the quality of sample but is due to the combining of two historic databases. A series of holes have assays in both priorities with one defaulting to zero, and the other actual grades. Samples were adjusted outside of the AcQuire database to only contain real assays.
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.	Newer drill hole collars were picked up by differential GPS in the MGA94 Zone 51 map grid. Earlier drill holes were mostly picked up by theodolite on a local exploration grid and later referenced back to the MGA94 map grid. Prior to use, all pre-2017 collars were adjusted vertically to match the 2012 Lidar surface, 2017 drilling RLs were within 10cm or the Lidar surface. All recent drill holes were surveyed downhole by various methods; including a single shot downhole camera, EMS (Electric Multi Shot) method, or in-rod gyroscopic survey tools. Holes are typically surveyed at 15m and 30m intervals down hole thereafter. Data from electronic tools was imported directly into the digital database from electronic data files to avoid typographical errors. Survey Adjustment: Stored in the NSR Acquire are various types of survey azimuths. Due to the combining of two historic databases, and inconsistent conversion to MGA grid resulted in bearings that were not plausible. Some holes use "OLD BRG" some "MGA BRG", with discrepancies showing mainly in collar shot (gets adjusted depending on what grid is nominated in the collar file, but this is unreliable) Azimuths for 64 holes were adjusted outside of the AcQuire database.
	Specification of the grid system used.	MGA 94
	Quality and adequacy of topographic control.	A digital terrain model was commissioned from Cardno-Spectrum Surveys in 2017 for the purpose of this Resource estimate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The drilling delineating the sub-horizontal paleo channel mineralisation is at approximately 10mx10m spacing. The subvertical mineralised structures hosted basalt/porphyry shear contact, are sparsely drilled at approximately 40x40m or less.
	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.	This drill spacing is considered appropriate for an indicated resource classification for this deposit.
	Whether sample compositing has been applied.	No sample compositing has been applied. The datasets were composited to 1m intervals prior to grade estimation. This aligns with the most common sample length taken.
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 drilling is oriented between 55° and 60° dip on an azimuth roughly perpendicular to the strike of the controlling porphyry dyke. This drill orientation adequately tests both the sub-horizontal paleo channel and supergene surfaces and the sub-vertical porphyry-related surfaces without introducing a sampling bias.
	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.	Holes with orientations that are considered likely to introduce sampling bias are excluded from the estimation during the validation process.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M27/103. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a: ▪ Job number ▪ Number of Samples ▪ Sample Numbers (including standards and duplicates) ▪ Required analytical methods ▪ A job priority rating A Chain of Custody is demonstrated by both Company and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g., total loss, spillage, or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s).
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Woodline deposit is on mining Lease M27/37 which is 100% owned by Northern Star Resources and held in good standing. A gazetted, but disused, road passing through the prospect is in the process of being either closed or degazetted so that mining may proceed.
	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.	All Resource quality drilling (RC and Diamond) on the Woodline prospect has been undertaken by the one company operating the Kanowna Belle Gold Mine, albeit with a succession of different parent companies having ownership of that operation (Delta Gold, Aurion Gold, Placer Dome, Barrick Gold and now Northern Star Resources).
Geology	Deposit type, geological setting and style of mineralisation.	The Woodline deposit encompasses two distinct mineralisation styles. The primary mineralisation is mineralisation is associated with a felsic dyke that has intruded a shear zone passing through a basalt sequence. The intrusive has elevated gold grades of the order of 0.2 g/t throughout, with high grade zones on the sheared margins associated with pervasive sericite-albite alteration and fine disseminated pyrite. Syn- or post- intrusion shearing has also produced a narrow but laterally continuous quartz-ankerite-chlorite-arsenopyrite-pyrite vein with high gold grades that roughly follows the sheared intrusive margin.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Supergene processes have laterally dispersed gold away from the primary source at the base of weathering to create the lowermost sub-horizontal mineralised surface. Other supergene surfaces occur at the base of channels of transported sands. Alluvial gold in the base of the channels, which are nested on top of each other, is believed to have nucleated the precipitation of supergene gold mobilised from the primary source by weathering processes.
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	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.	Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being released.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being released.
	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.	No exploration results are being released.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results are being released.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being released.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No exploration results are being released.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results are being released.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	A 2012 SAM (sub-audio magnetics) geophysical survey over the Woodline Prospect was targeting the larger-scale exploration potential of the area and as such is not relevant to the local scale of this Resource estimate.
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).	Data coverage is already quite dense, up to 10m x 10m in places, and any future drilling should be guided by an open pit optimisation that can identify areas where that optimisation is sensitive to local grade estimates or added geological complexity. Additional drilling is recommended for delineating any anomalous grade shoots hosted within subvertical structures at depth.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Not included.

APPENDIX C: 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.	Data used for generating the mineral resource estimates is stored in an Acquire database. The Company employs a database administrator to manage the database. Where possible raw data is loaded directly into the database, with adjustments such as survey transformations occurring within the database so that they are fully traceable. Extensive validation is built into the Acquire database to ensure data integrity and user access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking are used. Barrick / NSR drill holes were validated by compiling a hardcopy of all relevant data on a hole-by-hole basis with a coversheet for each. As each piece of information was checked against the information in the database the relevant section of the coversheet was signed off by the person who completed that check.
	Data validation procedures used.	Checks carried out on the imported data include: ▪ Collar details import checks - start and end dates are supplied, collar has location co-ordinate information, actual end of hole depth versus planned end of hole depth is within tolerance, cost code and location code information are supplied. ▪ Survey details import checks – final survey record is within tolerance with respect to end of hole depth, a survey exits at 0 depth, grid transformations have been performed, no duplicate survey points with the same priority exist. ▪ Geology details import checks - final lithology depth is within tolerance with respect to end of hole depth, structural measurement transformations have been performed, alteration/vein/mineralisation logging does not have overlaps and/or gaps. ▪ Samples/Assay import checks – total sample meters match end of hole depth, no duplicate samples with the same priority exist, sample intervals are continuous, no assay values have negative values, dispatch return date is recorded, no 'not sampled' intervals with assay values, QAQC passed. ▪ Geotechnical details import checks – logged information depths are within tolerance with respect to end of hole depth. ▪ Bulk Density/SG details checks – logged information depths are within tolerance with respect to end of hole depth. ▪ 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. It has been accepted that historic holes may be missing information such as start and end date, assay method and collar pick up method. Historic hole location was visually confirmed where possible or using recent drilling as confirmation. 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.	Both geological interpretations underpinning this resource model and subsequent grade estimation were completed by Senior Geologist – Resources, part of Corporate Technical services team. Principal Geologist – Resources, is a competent person for reviewing and signing off on estimations maintained a presence throughout the process.
	If no site visits have been undertaken indicate why this is the case.	Previous work was well documented and personnel who completed the work no longer employed the company for site-based handover.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is a reasonable level of confidence in the interpretation of the fresh-rock and lower-most supergene mineralisation surfaces. There is good support with the increased drilling, for the interpretation of the paleochannel surface(s) from drill hole logging data and the lateral continuity of these surfaces is reasonable. The spatial interpretation of these surfaces and general geological context is supported by a detailed study of the genesis of mineralisation in a similar nearby prospect (Golden Valley and Moonlight paleochannel deposits).
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, structural measurements and previous interpretations and reports.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	During modelling process, every attempt was made to consistently honour host lithologies to ensure homogeneity of geological domains is preserved. Each lode was treated as a separate geological domain for estimation purposes. Discrete lode modelling was assisted by existence of reasonable geological and grade continuity across most mineralised horizons, which contrasts with previous April 2020 model update, which tended to include wider zone of mineralisation into the modelled envelopes using a lower cut of grade of 0.2g/t. Distinct broad geological and/or grade domains have been identified within Woodline/Fenceline project area:

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ 3000 series lodes: Flat lying low to medium grade alluvium hosted lodes which sit above the paleochannel HW contact ▪ 1000 series lodes: Flat lying low to medium grade lodes located on the contact between alluvium and Paleochannel HW contact ▪ 2000 series lodes: Flat lying low to medium grade lodes located on the contact between transitional/Fresh rock and Paleochannel FW contact ▪ 4000 series lodes: Subvertical low grade fresh rock hosted lodes situated along porphyry and basalt. The fresh rock ore lodes are based on veining and increased shearing along a basalt-porphyry contact. All ore lodes are booleaned to the top of fresh rock surface For the current interpretation, a lower cut-off grade of 0.5 g/t was used to guide the interpretation and to ensure that most of the mineralised material is captured within the appropriate mineralised envelopes.
	The use of geology in guiding and controlling Mineral Resource estimation.	Interpretations and confining wireframes are developed using the geology related to the mineralised lodes. This includes lithology, alteration, veining, structure, and mineralisation. This data is sourced from geological logging of drill holes and mapping. The 2017-2018 drilling focused heavily on identifying/defining the Woodline Paleochannel.
	The factors affecting continuity both of grade and geology.	Continuity can be affected by expected variations in local deposition within the larger paleochannel.
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.	Average dimensions of the Woodline paleochannel hosted mineralisation cover approximately 1000m of strike length, 450m lateral width and with average thickness of the paleochannel oxide package at 80m. Basalt-porphyry shear hosted contact (fresh-rock) mineralisation is modelled over 1100m of strike extent and with a dip extent of between 50m and 250m depending on the extent of drilling, with the individual mineralised surfaces within that zone between one and two metres wide.
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.	Grade estimation for Gold was completed in Datamine Studio RM software. Geostatistical analysis and variography were completed using Snowden's Supervisor v9 software. The Woodline Resource Model consists of 14 ore lodes with a waste box surrounding these. The waste was given a default 0.001 g/t. Each ore lode interpretation is considered as being a separate domain for estimation. All estimations use hard domain boundaries. Estimates use 1m composites with grade capping or top cutting applied to Au outlier values. Outlier analysis was completed using a combination of histograms, log probability plots, mean and variance plots, cumulative metal plots and change in CV of composite to determine top cutting values on a domain-by-domain basis. Several principal lodes exhibit bimodal or mixed grade populations. These internal populations are controlled by grade indicators derived from inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 2 x 2 x 1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 10x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Search ellipse orientation and distances (major, semi-major and minor) were based on variogram rotations and variogram ranges on a domain-by-domain basis. A multiple-pass (three pass) estimation strategy was applied to all domains for grade estimations. Minimum and maximum samples for first pass search are 4 and 20 respectively, 4 and 20 for the second pass and 2 and 20 for the third pass.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Comparative OK estimates without CIK subdomaing are available. The final estimates are compared to the previous model estimate, completed in April 2020.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements detected or estimated. However high clay content has been identified in the channel mineralisation.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 10m (East- West) x 10m (North-South) x 5m (vertical) and optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 2m x 2m x1m to ensure high volume resolution at ore boundaries. Search ellipse dimensions were derived from the variogram model ranges with exact values dependent on the characteristics of the individual lodes. A three-pass nested search strategy is employed, generally with the first pass set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	Selective mining units were not used during the estimation process.
	Any assumptions about correlation between variables.	No assumptions made.

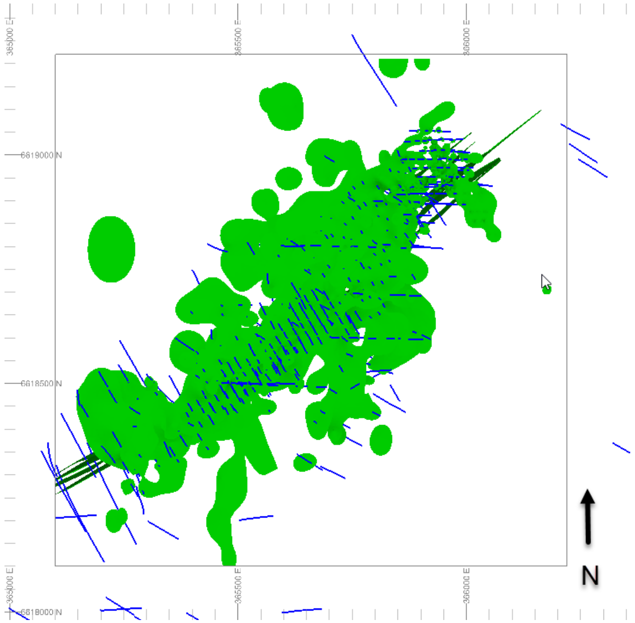
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Description of how the geological interpretation was used to control the Resource estimates.	Both mineralised lodes and lithology wireframes were generated using implicit modelling function in Leapfrog Geo. An arbitrary cut-off grade of 0.5g/t was used to define mineralised envelopes during modelling process. Each lode is considered as being a separate estimation domain. All estimations use hard domain boundaries.
	Discussion of basis for using or not using grade cutting or capping.	▪ Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top-cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	After compositing and grade capping, a series of length and metal checks are completed to ensure the total length of the sample file is maintained and there is no metal loss in the compositing process. A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. Domain composites are visually compared to the estimated block model in cross and long section to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate.
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.	Blocks above the pit optimization shell have been reported above 0.53 g/t using a $2250/oz gold price assumption.
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. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.53g/t cut off for the open pit resources.
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, however high clay content has been identified in the channel mineralisation. Ore processing throughput and recovery parameters were estimated based on limited metallurgical sampling.
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.
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.	No Specific Gravity (SG) measurements have been recorded within the Woodline model area. There are, however, references to SG measurements in historic reports, which were used in previous models, completed in September 2019, and April 2020 respectively. These same values were hardcoded into the most recent resource model based on the oxide surfaces as listed below: ▪ Transported: 1.8 t/m3 ▪ Oxide: 1.8 t/m3 ▪ Transitional: 2.0 t/m3 ▪ Fresh rock: 2.8 t/m3
	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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Assumptions on the average bulk density of individual lithologies are based off historic reports. SG measurements will be required before mining to assess if these values are appropriate.
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 ▪ Geological confidence ▪ Density of available drilling ▪ Statistical evaluation of the quality of the kriging estimate ▪ Confidence in historical data ▪ Data Class of the drillholes
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All relevant factors have been given due weighting during the classification process.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The resource model methodology is appropriate, and the estimated grades reflect the Competent Persons' view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	All resource models completed within Technical Services group 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.	The relative accuracy and confidence of the mineral resource model is reflected in the assigned Mineral Resource classifications.
	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 Woodline Resource model is a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No reconciliation factors are applied to the resource post-modelling.

APPENDIX C: TABLE 1

WOODLINE DEPOSIT
Plan view of Woodline deposit with wireframes displayed as green solids and drillholes displayed as blue strings. 

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.	The Mineral Resource estimate for the Woodline - Fenceline Project used as a basis for the conversion to the Ore Reserve estimate reported was compiled by Northern Star Resources (NSR).
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	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.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into ore Reserve.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pits. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used parameters generated from NSR technical personnel and technical consultants. A detailed mine schedule and cost model has been generated using an excel spreadsheet model. Appropriate ore dilution and recoveries have been applied within the excel spreadsheet model.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The pit cut-off grade has been calculated based on the key input components (processing, recovery, and administration) Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. The AUD gold price as per corporate guidance. Mill recovery factors are based on metallurgical test work.
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 complete with a detailed financial assessment. A series of nested optimised pit shells were generated using Whittle software, an analysis of the shells was completed to select one which was then used to complete a detailed pit design to closely resemble the selected whittle shell. The Whittle optimisation used costs and inputs derived from current operational data, contractors, and independent consultant recommendations.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining method for the Woodline - Fenceline deposit is of a bench mining open pit method. The proposed open pit would be mined using conventional open pit mining methods (drill, blast, load and haul) utilising 200 t class excavators and 140t trucks This method is used widely in mines across Western Australia and is deemed appropriate given the nature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Independent Geotechnical Consultants Dempers & Seymour Pty Ltd completed a geotechnical study for the Woodline - Fenceline project. Recommended wall angles were applied to the Whittle optimisation and subsequent detailed pit designs. The Grade control method to be employed at the Woodline – Fenceline project will use Reverse circulation drilling to obtain samples.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 10% of zero grade has been applied for the reporting of Reserve physicals.
	The mining recovery factors used.	A mining recovery of 95% has been applied.
	Any minimum mining widths used.	A minimum operating width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across all open pit operations and reflects the suitability and efficiency of the mining performance.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Reserve estimate (treated as waste) but has been considered in LOM planning. The amount of inferred material has no impact on the sensitivity of the project.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Woodline - Fenceline project have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. the infrastructure in place at the nearby Kanowna Belle underground operations will be shared with the project. Additional facilities required include Offices, workshop, dewatering pipeline, Waste Rock Storage Dump, and ROM Pad. Ore from the Project will be processed through the Kanowna Belle Gold Mine Processing Plant at the Kanowna Belle operation; hence no processing infrastructure is required.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed in the existing Kanowna Belle Gold Mine Processing Plant, is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits. The milling facilities are designed to process approximately 2.0 million tonnes per annum. The plant has the capability to treat both refractory and free milling ores, through either a 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. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Based on metallurgical test work carried out and milling experience gained through processing similar ore material through the Kanowna Belle processing facility. The metallurgical recoveries for the project were set at 92% for oxide, 92% for transitional, 92% for fresh rock, which corresponds with metallurgical test work undertaken.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements. Test work indicates there are no deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Based on metallurgical test work carried out and milling experience gained through processing similar material through the Kanowna Belle processing facility.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	All ore from the Woodline-Fenceline Project will be trucked to the Kanowna Belle Processing Plant for processing. The Kanowna Belle Mine is operated subject to the requirements of the Western Australian Mining Act 1978 and the Mines (Safety) Act, regulated by the Department of Mines, Industry Regulation and Safety. The Mining Leases covering the Kanowna Belle operation stipulate environmental conditions for operation, rehabilitation, and reporting. A "Licence to Operate" is held by the operation which is issued under the requirements of the "Environmental Protection Act 1986". Kanowna Belle holds groundwater licence GWL 62498-6 which includes the Woodline Project mining tenements. There are no native title issues. Heritage surveys have been completed in the proposed project area. There are no heritage sites identified that impact on the designed pits or associated infrastructure. Flora & Fauna and hydrogeological studies have been completed. Soil characteristics studies have been completed.
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.	The Woodline-Fenceline Project is located 6km north of Kanowna Belle and will be operated from the Kanowna Belle Mine Site. 2.5km of new haul road will be constructed to connect Woodline to existing NSR haul roads. The new section of haul road is on NSR 100% owned mining tenements. Minor infrastructure will be established at Woodline to support the project. Access to the Kanowna Belle operation is provided by well-maintained public and private roads. Employees reside in Kalgoorlie and commute to site daily. Potable water for the Kanowna Belle operations is pumped from Kalgoorlie to a storage facility on site. Non-potable water requirements are sourced from bore fields up to 10 km away from the mine site. Makeup water for the Kanowna Belle process plant is supplied by pipeline from a bore field located in the Gidgi paleochannel approximately 15 km from the plant site with some water is sourced from abandoned pits. Electricity is provided by the state electricity grid.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the establishment, mobilisation and topsoil stripping were not included in the optimised parameter inputs but included in the financial modelling.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate. The estimation of Open pit mine operating costs was based on a dry-hire mining, contract drilling, and contractor maintenance operation using first principles to determine equipment productivities and associated operating hours to generate mine schedules. Provided contract pricing were than applied to the schedule to calculate all unit costs.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected based on metallurgical test work.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a gold price of A$1,750 per ounce as per NST corporate guidance
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Transportation costs for ore haulage from Woodline - Fenceline to Kanowna Belle have been based on current NSR contractor quotes. Transportation costs also include an allowance haul road maintenance and dust suppression.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on actual plant processing costs. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%.
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.	All financial analysis and gold price have been expressed in Australian dollars and no direct exchange rates have been applied. Revenue factors within the whittle optimisation process were used. A revenue factor shell was selected and used to complete a detailed pit design. A gold price of A$1,750 per ounce has been used in the optimisation of the Woodline - Fenceline Project. 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold doré from the mine is to be sold at the Perth mint.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not Applicable.
	Price and volume forecasts and the basis for these forecasts.	Not Applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not Applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	▪ The Ore Reserve estimate is based on a financial model that is reflective of current operational costs and contract conditions. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,750 ± $250 per ounce. Due to the current short life, the project is not seen as highly sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the Reserve is contingent.	No issues.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The classification of Open Pit Ore Reserves has been carried out in accordance with the JORC code 2012.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Reserve has been internally reviewed in line with Northern Star Resources governance standard for Reserves and Resources. There have been no external reviews of this Ore Reserve estimate.
	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	The design, schedule and financial model on which the Woodline - Fenceline Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	
	The 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.	All modifying factors have been applied to design mining shapes on a global 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.	Not applicable.

JORC Code, 2012 Edition – Table 1 Report

HBJ (Hampton Boulder Jubilee)– 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	A combination of sample types was used to collect material for analysis including underground diamond drilling (DD), surface diamond drilling (RC), face channel (FC) and sludge (SL) sampling.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond drill-core (DD) is geologically logged and then sampled according to geology (minimum sample length of 0.3 m to maximum sample length of 1.2 m), where consistent geology is sampled, a 1 m length is used for sampling the core. RC sampling is from a 5½" face sampling hammer, three-tier riffle splitter (approximately 5 kg sample), split to a 12.5% fraction (approximately 3kg) or to a 12% fraction via a rig-mounted cone splitter. All residual material is retained on the ground in rows of 10 or 20 samples. Four metre composites are obtained via representative scoop / spear sampling of the one metre residual bags which are retained until required for re-split analysis (samples returning Au >0.2ppm) or eventual disposal. Historical RC drilling is assumed to employ similar practices.
	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.	Underground face samples (FS) are taken by chip sampling across the face using a geological hammer, collecting the sample in a calico bag held in a steel frame. Wherever possible, the faces are sampled along a channel approx. 1.5 m above the floor RL. Face sample intervals are determined by alteration and or lithological contacts or in all other cases, a standard interval of 1 m (minimum sample length of 0.2 m to maximum sample length of 1.0 m). Sludge sampling (SL) is done routinely during underground development for grade control and ore direction purposes. Samples are collected at 1 m intervals from jumbo and production drill rig fines. Exploration DD core is sawn half-core with one half sent for analysis and the other half retained. Grade Control DD core is whole core sampled and sent for analysis. Core selected for half core sampling is cut using an Almonte core saw then bagged in pre-determined sample ID calicos; sampling practices ensure that circa 99% of half core sample is collected.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	DD is used for either testing / targeting deeper mineralised systems or to define the orientation of the host geology. Many of the holes drilled from surface had RC pre-collars generally to a depth of between 60 – 120 m, followed by a diamond tail. These diamond tails have been drilled at NQ2 size with minor HQ sized core. Diamond holes collared from underground are drilled at NQ2 size for the entire length.

Type	# Holes	Total Meters	# Samples
Diamond drilling	2,511	489,732	381,934
RC drilling	3,045	154,577	143,164
Face Sample	7,828	36,176	43,477
Sludge Sample	5,304	23,548	23,634
Total	18,688	704,032	592,209

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		All diamond holes were surveyed during drilling with downhole cameras, and then at end of hole using a downhole gyro/DeviFlex tool at regular intervals (1-10 m). Drill hole collars were surveyed by onsite mine surveyors. RC drilling is used predominantly for defining and testing for near-surface mineralisation and utilises a face sampling hammer with the sample being collected on the inside of the drill-tube. RC drill holes utilise downhole single or multi shot cameras. Drill hole collars were surveyed by onsite mine surveyors.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC drilling contractors adjust their drilling approach to specific conditions to maximize sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified during RC drilling programs. Recovery was poor at the very beginning of each hole, as is normal for this type of drilling in overburden. Limited information is available on the drill sample recovery of historic drilling. DD drilling contractors measure each individual run prior to pulling the inner tube. If the full run cannot be drilled out, the remaining meterage is calculated by measuring with a tape measure, the remaining tube and back calculating the stickup off the steel tube length. This drill length is measured against the recovered core from the run. Where there is a discrepancy, core blocks are used to annotate the calculated core loss, and whether the loss is due to poor recovery or intersected voids (noted by a loss of water pressure during the drilling process).
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Representation is assured through qualified geologists identifying intervals for sampling which are related directly to observed geology.
	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.	No defined relationship exists between sample recovery and grade. Nor has sample bias due to preferential loss or gain of fine or coarse material been noted.
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.	Northern Star surface diamond drillholes are all oriented and have been logged in detail for geology, veining, alteration, mineralisation, and orientated structure. Northern Star underground drill-holes are logged in detail for geology, veining, alteration, mineralisation, and areas of significance are orientated for structural measurements. Core has been logged in enough detail to allow for the relevant mineral resource estimation techniques to be employed. Surface core is photographed both wet and dry and underground core is photographed wet. All photos are stored on the companies' servers, with the photographs from each hole contained within separate folders. Development faces are mapped geologically for each sample interval. RC chips are geologically logged. Sludge drilling is logged for lithology, mineralisation, and vein percentage. All holes are logged in their entirety.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	In all instances, the entire drill hole is logged to a level of detail to support the Mineral Resource estimate.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	NQ2 and HQ diameter core is sawn in half core using a diamond-blade saw, with one half of the core consistently taken for analysis. The unsampled half of diamond core is retained for check sampling if required. Smaller sized core (LTK48 and BQ) is whole core sampled HBJ staff collect the sample in pre-numbered calico sample bags which are then submitted to the laboratory for analysis. Delivery of the sample is by a contractor.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples are collected at 1 m intervals with the samples being riffle split through a three-tier splitter. The samples are collected by the RC drill crews in pre-numbered calico sample bags which are then collected by Northern Star staff for submission.
	For all sample types, the nature, quality, and appropriateness of the sample preparation technique.	Upon delivery to the laboratory, the sample numbers are checked against the sample submission sheet. Sample numbers are recorded and tracked by the laboratory using electronic coding. Sample preparation techniques are considered appropriate for the style of mineralisation being tested for – this technique is industry standard across the Eastern Goldfields.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Procedures are available to guide the selection of sample material in the field. Standard procedures are used for all process within the laboratory. For fire assay samples, coarse grind checks at the crushing stage (3 mm) are carried out at a ratio of 1:25 samples with 90% passing required. Pulp grind checks at the pulverising stage (75 µm) are carried out at a ratio of 1:25 samples with 90% passing required. Laboratory duplicate samples are taken for coarse crush (3 mm) and pulverising (75 µm) stages at a ratio of 1:25 samples. Repeat assays are carried out at a ratio of 1:10 on prepared pulp samples. For photon assay samples, coarse grind checks at the crushing stage (3 mm) are carried out at a ratio of 1:25 samples by the robot. If the grind check is > 3mm, the robot stops, and samples are looped back through and re-crushed.
	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.	For RC chips field duplicates are collected and analysed for significant variance to primary results.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	For fire assay, grind checks are performed at both the crushing stage (3mm) and pulverising stage (75 µm) requiring 90% of material to pass through the relevant size. No specific study has been carried out to determine optimum sub-sample size fractions. These material sizes are assumed to be acceptable for the mineralisation style and material grain size present. For photon assay samples, grind checks are performed by the robot at the crushing stage (3mm). Multiple internal studies were conducted and determined at a particle size of 3mm, the effect of coarse grain gold on precision is acceptable. The minimal reduction in precision is offset by the ability to take a larger volume sample than traditional fire assay.
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.	Only nationally accredited laboratories are used for the analysis of the samples collected at HBJ. Current sample preparation and assay procedures employed by Northern Star Resources are considered as following industry standard practice. All assay determinations are conducted by internationally recognised laboratories. For fire assay samples (pre-2020), the primary samples were analysed through Bureau Veritas, which met ISO 9001:2000 standards. For preparation, samples are oven dried until a constant mass is achieved. All samples are then processed through an Essa Jaw Crusher or a Boyd Crusher to 90% < 3 mm. The crushed sample is then pulverised for 4 minutes in an LM5 pulveriser for a product of 90% passing < 75 µm. Approximately 250g – 300g of the pulp is retained and a 40 gm catch weight for fire assay is extracted from the pulp packet. Samples are tested for sulphides and flux adjusted, flux is added at a ratio of 1:4. Samples are fired, hammered and cupelled. Prills placed in tubes, dissolved on hotplates, and analysed using AA finish with over-range dilutions. For photon samples (2020 onwards), the primary samples are analysed through MinAnalytical. For preparation, samples are oven dried at 105 degrees until dry (2+ hours, longer for sludge samples). Hygroscopic tests are performed using a cold spatula. All samples are fed into a robot where the remaining sample preparation is automated. The robot weighs the samples, crushes the sample through the Boyd crusher to <3 mm. The crushed sample is then split through the smart linear splitter which calculates how to split each individual sample to achieve the 500 gm quotient. The 500 gm jar is analysed using PAA finish.
	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.	Sampling and assaying QAQC procedures include: ▪ Periodical resubmission of samples to primary and secondary laboratories ▪ Submittal of independent certified reference material ▪ Sieve testing to check grind size ▪ Sample recovery checks. ▪ Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:20. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Blanks are inserted into the sample sequence at a ratio of 1:20. 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. 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. There is limited information available on historic QA/QC procedures, the available data is generally accepted at face value. Where there are concerns of quality, Resource classification applied to the Mineral Resource takes this into account. The analytical techniques used are considered appropriate for the style of mineralisation being tested.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All data used in the calculation of Mineral Resources and Ore Reserves are compiled in databases which are overseen and validated by senior geologists and database administrators.
	The use of twinned holes.	No specific twinned holes were drilled at HBJ. Re-drilling of some drillholes 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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collected and entered directly in AcQuire. Inbuilt validation procedures prevent the input of simple errors. The information is stored in a SQL database server and verified.
	Discuss any adjustment to assay data.	All data used in the calculation of Mineral Resources and Ore Reserves are compiled in databases (underground and open pit) which are overseen and validated by project geologists. No adjustments have been made to any 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.	Collar coordinates for surface RC and diamond drill-holes were generally determined by either RTK-GPS or a total station survey instrument. Underground drill-hole locations were all surveyed using a Leica reflector less total station. Recent surface diamond holes were surveyed during drilling with Axis down-hole north seeking Gyro-inclinometer and a full hole continuous survey competed at the end of the hole by Gyro-Inclinometer at 1 m - 10 m intervals. Historical holes not gyro-surveyed were surveyed using Eastman single shot cameras at 20 m intervals. RC drill-holes utilised down-hole single shot camera surveys spaced every 15 m to 30 m down- hole. Historical down-hole surveys for underground diamond drill-holes were taken at 15 m – 30 m intervals by Reflex single-shot cameras. Recent practice for down-hole surveys in underground diamond drilling utilises a DeviFlex survey tool whereas current practice utilises a DeviGyro survey tool. A true north seeking gyroscopic tool has been used to line up the rig and record a zero-metre survey. Downhole deviations recorded by the DeviGyro are back calibrated to the zero-metre survey. Completed collars are picked up by the mine survey department for location and to confirm starting bearing and inclination. QAQC is performed on the speed of running and the misclose rate for each gyroscopic survey. Where issues are identified, a single survey run can be chosen as preferred with the remaining data ignored. This data is converted to .csv format and imported into the AcQuire database where it is validated by the project geologist
	Specification of the grid system used.	Data is captured predominately in local grid. Where required, conversion between local, magnetic and an MGA grid has been verified by the HBJ survey department and applied as a calculated field in AcQuire.
	Quality and adequacy of topographic control.	Topographic control is generated from RTK GPS. This methodology is adequate for the resources in question.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill spacing ranges from 20 m x 20 m grade control drilling to 80 m x 80 m at the extents of the resource.
	Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Interpretation of the area is well understood and is supported by the knowledge from open pit and underground operations. 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.	Drilling intersections are nominally designed to be as perpendicular to the orebody as far as underground infrastructure constraints / topography allows. Development sampling is nominally sampled perpendicular to mineralised structure.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	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.	Samples are picked up by a third-party transport service, who relay them to the independent laboratory contractor. Samples are stored securely until they leave site.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Site generated resources and reserves and the parent geological data is routinely reviewed by the Northern Star Corporate technical team.

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.	State Royalty of 2.5% of revenue applies to all mining tenements but not to the 16 freehold titles (Location land) which host the majority of SKO's Resource inventory. There are several minor agreements attached to a specific tenements and locations with many of these royalty agreements associated with tenements with no current Resources and/or Reserves. Private royalty agreements are in place that relate to production from HBJ open pit at $10/ oz. In addition, a 1.75% NSR royalty is payable on the total gold ounces produced from the following resources: Shirl Underground, Bellevue, HBJ Open-pit, Mount Martin open-pit, Mount Martin stockpiles and any reclaimed tailings.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The South Kalgoorlie Operations consists of 35 Mining Leases and 19 Exploration and Prospecting Licences. The Project also includes 9 Miscellaneous Licences, 2 groundwater Licences and 16 Freehold Lots known as the Hampton "Exempted East Locations". The Area of the leases covers approximately 35,638 Hectares with a further 71,861 Hectares of Freehold Land.
	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.	All leases and licences to operate are granted and in the order of up to 21 years. There are no known impediments to continued operation.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The HBJ 'line of lode' is a 6 km zone of mineralisation that extends from Golden Hope in the south to Celebration in the north. The existing HBJ pit was mined for over 25 years producing approximately 1.6Moz Au and was owned by separate companies across the Location 48 and Location 50 tenement boundary. Gold was first discovered in the New Celebration area in 1919 and a short-lived gold rush ensued. Intermittent exploration for gold and nickel was undertaken by a variety of companies in the 1960s and 1970s. The rising gold price further rekindled interest in the area in the 1980s, and open-pit mining at New Celebration started in 1986 by a joint venture comprising Newmont Holdings Limited (subsequently Newcrest; 60%), Hampton Areas Australia Ltd., (25%) and Mt Martin Gold Mines (15%), which merged with Titan Resources in 1993. The New Celebration project includes the Hampton Boulder deposit. In June 2001 Hill 50 Gold agreed to purchase the New Celebration project from Newcrest Mining. In December 2001 Harmony Gold Mining acquired Hill 50 Gold, the transaction giving Harmony Gold Mining a 100% interest in the New Celebration project. The Jubilee deposit located south of the Hampton Boulder deposit was evaluated and mined by Hampton Areas Australia Ltd from 1984 to 1996 with open pit mining starting in 1987. New Hampton Goldfields (New Hampton) acquired the Jubilee deposit in 1996. In May 2001, Harmony Gold Mining acquired New Hampton, and combined the operations of New Hampton's Jubilee operations and associated small open pits with the New Celebration project into the South Kalgoorlie Operations (SKO). In 2007, Dioro Exploration NL (Dioro) acquired the SKO from Harmony Gold (Australia) Pty Ltd (Harmony) via its wholly owned subsidiaries, South Kal Mines Pty Ltd, New Hampton Goldfields Ltd and Aurora Gold (WA) Pty Ltd. The tenement package at SKO was then purchased by Avoca Resources in April 2010, which was subsequently acquired by Alacer Gold Corp. Pty Ltd in early 2011. Westgold Resources Limited acquired the SKO tenement holdings in October 2013 via the acquisition of Alacer Gold's Australian assets. In April 2018, Northern Star Resources acquired the SKO tenement holdings with the purchase of HBJ Minerals Pty Ltd from Westgold.
Geology	Deposit type, geological setting, and style of mineralisation.	Stratigraphy for the Ora Banda and Kalgoorlie Domains is relatively well-known and comprises (from stratigraphically lowest) a lower basalt unit, komatiitic to high-magnesian basaltic rocks, an upper basalt unit and overlying felsic volcanic-sedimentary units. Conglomeratic and sandstone units unconformably overlie the upper felsic units adjacent to major shear zones. Layered mafic sills occur within various stratigraphic units and cross-cutting Proterozoic dykes also occur throughout the region. Metamorphic grade ranges from upper greenschist to upper amphibolite facies. The deformation history of the area is generally divided into four main phases, comprising north-directed thrusting with recumbent folding and stratigraphic repetition in D1. The second deformation (D2) resulted in north-northwest trending folds which are reflected in the dominant north-northwest trending fabric of the greenstone belts. Shortening continued during D3 with strike slip movement along northwest to north northwest trending shear zones and D4 brittle faulting. The HBJ orebodies form part of a gold mineralised system along the Boulder-Lefroy shear zone that is over 4 km long and includes the Celebration, Mutooroo, HBJ and Golden Hope open pit and underground mines. The HBJ orebodies are hosted within a steeply-dipping, north-northwest-striking package of mafic, ultramafic, and sedimentary rocks and schists that have been intruded by felsic to intermediate porphyries. The area is extensively deformed with numerous north-striking shear zones and dilation of the porphyry intrusions.
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	Drill table of selected holes forms part of this release.
	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 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.	Any reported assay results have been length weighted to provide an intersection width. A maximum of 2 m of barren material (considered < 2 g/t) between mineralized samples has been permitted in the calculation of these widths. Typically grades over 2 m @ 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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Where an intersection incorporates short lengths of high grade results these intersections will be reported in addition to the aggregate value.
	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').	Both the downhole width and true width have been clearly specified when used.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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).	Ongoing surface and underground exploration activities will be undertaken to support continuing mining activities at Northern Star Operations
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the 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.	The data used for the estimation was extracted from the Northern Star's AcQuire database management system stored on a secure SQL server. Data exports are done automatically to ensure reproducibility. The Company employs a database administrator to manage the database. Data entry is validated using extensive procedures built in to AcQuire. These procedures prevent numerical errors including, but not limited to, overlapping samples and azimuths greater than 360 degrees.
	Data validation procedures used.	Prior to data export from AcQuire the following validation procedures are carried out on new data (Post-Northern Star Ownership) ▪ Collar details import checks - start and end dates are supplied, collar has location co-ordinate information, actual end of hole depth versus planned end of hole depth is within tolerance, cost code and location code information are supplied. ▪ Survey details import checks – final survey record is within tolerance with respect to end of hole depth, a survey exists at 0 depth, grid transformations have been performed, no duplicate survey points with the same priority exist. ▪ Geology details import checks - final lithology depth is within tolerance with respect to end of hole depth, structural measurement transformations have been performed, alteration/vein/mineralisation logging does not have overlaps and/or gaps. ▪ Samples/Assay import checks – total sample meters match end of hole depth, no duplicate samples with the same priority exist, sample intervals are continuous, no assay values have negative values, dispatch return date is recorded, no 'not sampled' intervals with assay values, QAQC passed. ▪ Bulk Density/SG details checks – logged information depths are within tolerance with respect to end of hole depth.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		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. All recent drilling and channel data has been validated where possible and assigned Resource Flag "Yes" if high confidence exists. Due to the large volume of historical data (pre-NSR ownership) it was not possible to re-validate all holes and channels to the current Kal Ops standard (assigning Resource Flag and Data Class). Where historical data had failed previous validation measures a Resource Flag of "No" was applied. Where historical data had passed previous validation measures a Resource Flag of "absent" was therefore applied. All Resource Flag absent data has been assumed valid due to its' prior use in estimation, continuity in mineralisation and logging and quality of detail available. To ensure a level of relative confidence in the data is represented based on the above approach, Data Class has also been assigned to all Resource Flagged data, based on the below criteria (used across Kal Ops): ▪ 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. ▪ DC 2 = Recent data; minor issues with data 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 used in Resource estimate. ▪ DC 0 = Historic data; no original information or new drilling in proximity to verify. Not used in Resource estimate. ▪ DC absent = No Resource Flag applied yet, used in estimate but treated as DC = 2 The database used for estimation has been checked visually for errors in new and historic data. Each data point snapped to during the wireframing process was assessed for its location, sampling, and logging validity. Errors detected during visual validation were corrected where possible. All data that failed the visual validation was recorded and excluded from the estimation process prior to compositing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person has visited site regularly
	If no site visits have been undertaken indicate why this is the case.	The Competent Person has visited site regularly
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The mineralisation has been modelled on structural (shear zone) and lithological controls. Where possible, consideration is given to ensure the wireframed data represents a single grade population. Where multiple populations cannot be visually discriminated, high- or low-grade subdomains are separated using categorical indicator kriging. The interpretation has used RC and diamond drilling as well as underground face sampling, mapping, and sludge sampling. The large scale (1.9 km long and ~40 m wide) and agreement between data sources provides confidence in the geological and grade continuity within the deposit. The geological model is continuously updated as mining and drilling progress.
	Nature of the data used and of any assumptions made.	Geological interpretation of the deposit was carried out using a systematic approach to ensure that the resultant estimated Mineral Resource figure is both sufficiently constrained, and representative of the expected sub-surface conditions.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed.
	The use of geology in guiding and controlling Mineral Resource estimation.	In all aspects of resource estimation, the factual and interpreted geology was used to guide the development of the interpretation.
	The factors affecting continuity both of grade and geology.	Large scale continuity is affected by the orientation of the Boulder Lefroy Fault Zone and the resultant 'pinch-and -swell' of the mineralised lithologies and alteration.
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 HBJ resource extends over 3 km of strike and up to 1 km below surface with the individual lodes being up to 80 m wide, but often only several metres wide.
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.	Estimation of gold grade and density has been completed on 66 individual mineralised domains using Datamine RM software. Geostatistical analysis and variography were completed using Snowden's Supervisor software. Each mineralised domain was estimated separately with a hard boundary. Domain extents were defined by the wireframe extents. Each estimation domain dealt with extreme grade values by applying top cuts. Statistical analysis was completed for gold for each domain and subdomain. Maximum distance of extrapolation from data points was statistically determined through variography analysis and varies by domain. Ordinary Kriging has been used as the interpolation method in all lodes with single populations except for where geo-statistical analysis was not possible due to lack of data. In this instance, inverse distance squared was used as the interpolation method. Estimation was conducted on samples composited to 1 m. No compositing was done across domain boundaries. Many of the principal lodes exhibit bimodal grade populations. These internal populations are controlled by grade indicators derived from inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The block model used in the CIK estimation has blocks set at 1 x 1 x 1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x5x5m or 10X10X10 depending on data availability. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Hard boundaries are maintained across sub-domains.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The block model was depleted using surfaces / shapes generated by the HBJ Survey department. Validation of the models was completed by visual inspection, statistical comparisons with declustered sample composites, and comparison with previous estimates, with the final model achieving a satisfactory validation.
	The assumptions made regarding recovery of by-products.	No assumptions were made, and the only commodity estimated was gold.
	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.	A 1 m x 1 m x 1 m block dimension sub-celled to 1 m x 0.5 m x 0.5 m was used for categorical indicator kriging to ensure high resolution during the sub-domaining processes and to ensure the sub-domain volumes accurately reflects the wireframe volume. Block size for Au estimation was determined by available supporting data and the degree of geological confidence. A 5 m x 5 m x 5 m block dimension was applied for areas of containing close spaced face sample data and/or drilling data. 10 m x 10 m x 10 m blocks were used outside of these areas. The blocks have been sub-celled to 0.5 m x 1 m x 1 m to ensure the model volume accurately reflects the wireframe volume. All the varying block sizes are added together after being estimated individually. Search ellipse orientation was taken directly from the variogram orientation for each domain/sub-domain. The search ellipse sizes were based on a combination of drillhole spacing and variography analysis where the first search ellipse range was approximately two-thirds that of the variogram. Various minimum and maximum samples were used in the first search with a maximum of three samples per drill-hole allowed depending upon the domain. Three search passes were used each with increasing search ellipse sizes.
	Any assumptions behind modelling of selective mining units.	No selective mining units were 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.	A volume model was generated in Leapfrog Geo using topographic surfaces and mineralised wireframes as constraints.
	Discussion of basis for using or not using grade cutting or capping.	The influence of high-grade samples in the composited data has been reduced by top-cutting where required. Top-cut analysis was carried out on the composited gold values using histograms, log probability and mean-variance plots to ascertain where a break in the grade population occurred for each domain. Where the high grades were deemed to be significantly anomalous for that grade population, a traditional “hard” top-cut was applied. Where the break in sample population was small or appeared to be a result of population under-sampling, an influence limitation “soft” top-cut was applied using the process outlined below: A top-cut (AU) and non-top-cut (*_NC) variable was created, as well as a spatial variable (*_IL) which only has values where the top cut values appear. For example, the following variables were created and estimated: ▪ AU (top-cut gold) ▪ AU_NC (non- top-cut gold) ▪ AU_BC (spatial variable to determine where non-top cut estimate occurred) The top-cut and non-top cut values are estimated using search ranges based on the variogram, and the *_IL values estimated using very small ranges (e.g., 10m x 10m x 10m). Where the *_IL values produce estimated blocks within these restricted ranges, the *_NC estimated values replace the original top cut estimated values (AU). In many cases a hard top-cut was first applied followed by a soft top-cut This process allows blocks close to high grade samples to be estimated with the full uncut dataset but blocks outside this restricted range are estimated using the top cut dataset. This limits the spread of very high grades but retains the high local value in these blocks, which more closely reflects the style of mineralisation. Influence limitation top cutting was applied to 50 domains in total. Hard top cuts were also applied to 16 domains, 14 of which also had influence limitation top cutting as well. The decision to apply hard, soft or combination of the two is determined based on the number of composites, grade population, level of under sampling in the tail of the histogram, mineralisation type and confidence in the lode interpretation
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The flagging of drill holes and blocks is visually validated in section and plan view using Datamine Studio RM software. Drill holes are checked for correct flagging by comparing them to the base data wireframes and the blocks are checked against the input drill hole file as well as against the relevant wireframes for correct flagging and filling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		After compositing and top-cutting statistics are generated and analysed using Snowden Supervisor software for the raw, composited, and top-cut drill hole files to ensure the nature of the population has not been adversely affected by these processes. After grade estimation the grade block model is visually validated in section and plan view using Datamine Studio RM software by comparing block grades to the input drill hole file grade (declustered and top cut). For global validation, grade variable statistics are generated and analysed using Snowden Supervisor software by comparing the blocks statistics to the cell declustered input drill hole file statistics and other estimation types (ID^2 and NN) to ensure the estimation reasonably reflects the input data. For spatial validation trend plots of block grades by estimation methods along eastings, northings, and RL are completed for each domain and subdomain using Snowden Supervisor software. A visual validation of the new model vs the old model is undertaken to ensure no unjustifiable change has occurred. A comparison of tonnes and grade for each domain is made against previous models. Areas of significant variance from the previous model are further investigated.
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 1.36 g/t cut off within a 3.0 m minimum mining width (no dilution) MSOs using a $AU2,250/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 minimum 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 or recovery assumptions have been made during the mineral resource estimate. The current metallurgical recovery achieved from the processing of HBJ ores is used in the calculation of the cut-off Grade for Resource purposes.
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.	No environmental assumptions have been made during the mineral resource estimate.
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.	For every diamond drill hole, at least one representative sample (20-30 cm length) for each lithology present is selected for specific gravity measurements. A base rock model was created in Datamine Studio RM using lithology volumes generated in Leapfrog. The average calculated density for each lithology is coded to its respective blocks. The regolith model also generated in Leapfrog is combined with the lithology model where default density values for the oxide (1.9 t/m^3) and transitional (2.1 t/m^3) are superimposed.
	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.	Average bulk density of individual lithologies were taken from the previous estimate and compared against recent bulk density measurements made at HBJ to ensure their validity. Assumptions were also made based on regional averages, on the default densities applied to oxide (1.9 t/m^3) and transitional (2.1 t/m^3) material, due to a lack of data in these zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The resource classification has been applied to the mineral resource estimate based on the drilling data spacing, grade and geological continuity, data class (measure of data confidence and integrity), and kriging confidence (slope of regression).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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).	The classification considers the relative contributions of geological and data quality and confidence, as well as grade confidence and continuity.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The classification reflects the view of the Competent Person.
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.	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.	The mineral resource model is reconciled to production on an ongoing basis, which confirms that the global total of Measured, Indicated, and Inferred material is accurate. No reconciliation factors are applied to the resource estimates 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 MY2022 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.	Current Underground Reserves are based on Budget level analysis – with a completed 3D design and mine schedule. Modifying Factors were additionally applied to these designs, based upon historical experience and host rock characteristics.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Actual costs and physicals form the basis for Cut Off Grade calculations. Cut Off Grade are calculated at a $AUD1,750/oz Gold Price as per corporate guidelines. Mill recovery is calculated based on historical recoveries achieved. Various cut off grades are calculated including a fully costed cut-off grade (FCOG), 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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	Mining methodology is based on techniques currently in operation at SKO comprising of top-down long hole open stopes. Stope shape parameters have been based on historical data or expected stable hydraulic radius dimensions and are specific to the domain in which the stope is located.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Each mining area is assessed individually based on rock mass conditions, structures, and historical performance to generate a set of design assumptions for each zone. Level spacing ranges from 20-25m based on rock mass condition with stope strike lengths ranging from 10 – 25m. Pillars are maintained between stopes for stability purposes. Pillars are generally 5.0m in strike length, although in the wider COZ zone, pillar widths reach a maximum size of 9.0m.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Reserves Estimate applies to underground mining only. The latest 2022 Resource model was used to generate the Reserves: 2202_HBJ_RES_DEP_02.dm
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 50% Rock dilution in the stopes in the lower SOZ, South Jubilee and Jubilee, 50% Rock dilution in the stopes in the Eastern Ultramafic Units of the NOZ, SOZ, COZ and South Jubilee and 20% Rock dilution in the stopes in the Western Lodes of the MUT, NOZ and COZ zones additional to minimum mining width is applied.
	The mining recovery factors used.	Mining recovery factor of 90% in the NOZ, COZ and MUT Western Lodes and 80% in all other areas of the mine is applied based on historical data.
	Any minimum mining widths used.	Minimum mining widths have been applied in the various mining methods. The only production style relevant to this constraint is 'narrow stoping' – where the minimum width is set at 3.0m.
	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. Stope designs with less than 50% Inferred material are included within the Reserve and make up 1% of the declared ounces.
	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.	South Kalgoorlie Operations has an existing conventional CIL processing plant (Jubilee) in operation since 1987. The plant has a nameplate capacity of 1.2Mtpa. The HBJ host and mineralised domains have been processed through the existing plant for several years.
	Whether the metallurgical process is well-tested technology or novel in nature.	A variable recovery factor is applied to the COG and economic analysis, derived from grade, ranging from 86% - 95% recovery. This is based on the previous 3 years, with a well understood metallurgical performance.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Plus 20 years milling experience with HBJ ores.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements are considered, as a long history of processing has shown this to be not a material concern.
	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.	Over 20 years milling experience with HBJ ores.
	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.	SKO operates under and in compliance with a number of operating environmental plans, which cover its environmental impacts and outputs.
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.	Operating costs associated with the operation are based on schedule of rates from the current mining contractor on site.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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$ 1,750/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.	All gold is assumed sold directly to market at the nominated corporate gold price.
	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$1,500 to A$2,000 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., Measured Resource material is converted to Proved Reserves, while Indicated Resource material is converted 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.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	All currently reported Reserve calculations are considered representative on a local scale. Regular mine reconciliations occur to validate and test the accuracy of the estimates at SKO.

JORC Code, 2012 Edition – Table 1 Report

Karari-Dervish – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star at Karari-Dervish have included reverse circulation drill holes (RC), diamond drill holes (DD) and RC grade control drilling within the pit, and diamond drilling and face chip sampling underground. Historic sampling methods conducted since 1991 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drill holes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling and face chip sampling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1991- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	RC chips are cone or riffle split and sampled into 1m intervals, diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core and underground faces are chip sampled to geological boundaries (0.3-1.3m). All methods are used to produce representative sample of less than 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Some historic, in-pit, grade control RC chips were analysed in the Northern Star on site laboratory using a PAL (pulverise and leach) method. Visible gold is sometimes encountered in underground drill core and face samples. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay and unspecified methods.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Karari was initially sampled by 11 AC holes, 452 RAB holes, 496 RC holes (assumed standard 5 ¼ ''bit size) and 25 surface unknown diameter diamond core holes. Northern Star Resources Limited completed 17 surface RC pre-collars with HQ and NQ diamond tail drill holes (pre-collars averaging 287m, diamond tails averaging 168m), 76 RC holes from both surface and within the pit (recent drilling utilised a 143mm diameter bit with a face sampling hammer and an external auxiliary booster) and 3052 grade control RC holes within the pit. 1,477 NQ diamond holes have been drilled underground. 3,688 underground faces and walls have been chip sampled. Whirling Dervish was initially sampled by 35 AC holes, 159 RAB holes, 407 RC holes (assumed standard 5 ¼ ''bit size) and 53 surface diamond HQ core and unknown diameter holes. Northern Star Resources Limited completed 51 surface RC pre-collar with NQ diamond tail drill holes (pre-collars averaging 193m, diamond tails averaging 200m) 1 deep surface diamond hole with 3 wedges (1633m deep), 12 diamond geotechnical holes, 80 RC holes from both surface and within the pit, 4039 grade control RC holes within the pit, 850 NQ underground diamond drillholes and 2,277 underground face channel samples. Surface RC pre-collar and diamond tails were oriented using an Ezi-mark tool. Underground diamond drill holes are orientated using the Boart Longyear TruCore UPIX Tool. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. UG faces are sampled from left to right across the face at the same height from the floor. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling was sampled to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries due to the competent nature of the ground meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. All faces are photographed and mapped. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. Core is photographed in both dry and wet state.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Geological data that requires description is qualitative, and where measured, such as structural and geotechnical data is quantitative. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All diamond drillholes and exploration RC holes are logged in full. Every drill line is logged in grade control programs. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling has been half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration and GC RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using spear, grab, riffle, and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Historic sampling includes fire assay, aqua regia, B/ETA and unknown methods.
	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 have been utilised for reporting gold mineralisation at Karari-Dervish
	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 material, (standards and blanks) with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs several internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Karari-Dervish but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. All underground drillhole collars are picked up by company surveyors using a Leica TS15i (total station) with an expected accuracy of +/-2mm. Downhole surveys are carried out using the DeviFlex RAPID continuous in rod survey instrument taking readings every 5 seconds, In and Out runs and reported in 3m intervals, survey accuracy +-3:1000. A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (KarariDervish) is used. The two-point conversion to MGA_GDA94 zone 51 is

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		KDEast KDNorth RL MGAEast MGANorth RL Point 1 2986.31 7233.832 0 438346.166 6663021.817 0 Point 2 3010.884 9675.445 0 438370.5380 6665462.457 0 Historic data is converted to the Karari-Dervish local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for exploration drilling is 25m x 25m up to 80x80m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias is thought to occur due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star Resources geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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.	Karari: The Karari pit is located on M28/166 and M28/167 Mining Leases M28/166 and M28/167 are held 100% by Northern Star Resources Limited. Mining Leases M28/166 and M28/167 have a 21-year life (held until 2041) and are renewable for a further 21 years on a continuing basis. The tenements are the subject of two caveats (Caveat 51H/067 and 52H/067, respectively). The tenements are subject to two royalty agreements. All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements are subject to the Pinjin Pastoral Compensation Agreement. The tenements are affected by the Maduwongga (WC2017/001) and the Nyalpa Pirniku (WC2019/002) registered native title claims. There are no registered Aboriginal Heritage sites within Mining Leases M28/166 and M28/167. The Mining Rehabilitation Fund applies to the tenements. Dervish:

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The Whirling Dervish pit is located on M28/166 and M31/220, while near mine exploration has been carried out on M28/245. The tenements are held 100% by Northern Star Resources Limited. Mining Leases M28/166 and M31/220 have a 21-year life (held until 2041) and are renewable for a further 21 years on a continuing basis. Mining Lease M28/245 has a 21 year life (held until 2029) and is renewable for a further 21 years on a continuing basis. M28/166 and M31/220 are the subject of two caveats (51H/067 and 64H/067 respectively). The tenements are subject to two royalty agreements. All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements are subject to the Pinjin Pastoral Compensation Agreement. Mining Lease M31/220 is subject to the Gindalbie Pastoral Compensation Agreement. The tenements are affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) registered native title claims. There are no registered Aboriginal Heritage sites within Mining Lease M28/166. Four registered Aboriginal Heritage Sites are located on M31/220 (Place ID's 16706, 16707, 16805, and 16806). The Mining Rehabilitation Fund applies to the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Karari: The Carosue Dam project area in which the Karari deposit is located has been subjected to extensive gold exploration by numerous companies since 1991. Karari was highlighted as an area of interest following an aeromagnetic survey conducted by CRA Exploration. Auger sampling of the target defined a widespread gold anomaly with follow up RAB drilling intersecting significant gold mineralisation. RC and DD drilling further defined the mineralisation before Aberfoyle entered into a joint venture agreement with CRA. Further drilling by Aberfoyle defined mineralisation over a 600m strike length. Aberfoyle were subject to a hostile takeover by Western Metals with PacMin then purchasing the Carosue Dam project. An intensive resource definition program consisting of both RC and DD drilling was carried out before mining of Karari commenced in 2000. Whirling Dervish: The Carosue Dam project area in which the Whirling Dervish deposit is located has been subjected to extensive gold exploration by numerous companies since 1991. Airborne geophysics conducted by Aberfoyle Resources in 1997 highlighted numerous targets in the project area with subsequent RAB drilling intersecting the Whirling Dervish mineralisation and an extensive RC campaign confirming it. Oriole Resources obtained the project in 1998 and, through wholly owned subsidiary company PacMin, completed closely spaced RC drilling to develop the resource through to reserve status. Sons of Gwalia carried out minor drilling before their collapse and takeover of the project by St Barbara.
Geology	Deposit type, geological setting and style of mineralisation.	The Karari-Dervish deposit sits along the regional NNW-trending Keith-Kilkenny fault zone within the eastern edge of the Norseman-Wiluna greenstone belt. The Whirling Dervish deposit is off set approximately 500m to the North of Karari by the Osman fault. The deposits are lithologically and structurally controlled and have been offset along a series of major faults running NE-SW and NW-SE, as well as intruded by large lamprophyre units post mineralisation. The lithology comprises primarily of intermediate felsic volcaniclastic sandstones, intermediate tuffs and intermediate porphyry units intruded by granites of varying composition, with stratigraphy dipping generally to the east at approx. 60 degrees. Mineralisation is dominated by pyrite and hosted in broad hematite altered sandstone units with a central high grade siliceous core light-moderately dipping to the North.
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	All material data is periodically released on the ASX: 03/05/2021, 18/02/2020, 11/11/2019, 30/07/2019, 30/04/2019, 18/02/2019, 27/11/2018, 31/07/2018, 01/05/2018, 15/02/2018, 27/11/2017, 15/10/2015, 14/10/2013, 23/07/2013, 03/12/2012, 10/10/2012, 31/07/2012, 27/04/2012, 06/03/2012, 27/01/2012, 06/01/2012, 26/10/2011, 01/08/2011, 28/07/2011, 03/06/2011, 21/04/2011, 09/02/2011

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results are being released
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 significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 0.5m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths.
	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').	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No exploration results are being released
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from previous campaigns have been reported, irrespective of success or not.
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 substantive data acquisition has been completed in recent times.
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).	Karari-Whirling Dervish is currently in production and extensional exploration at this time is under review.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Karari-Whirling Dervish is currently in production and extensional exploration at this time is under review.

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.	The database used for the estimate is an extract from an Acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person regularly visits site to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The resource categories assigned to the model directly reflect the confidence in the geological interpretation. The interpretation is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics. Confidence in the interpretation improved with increased data density from underground grade control drilling at 20m x 20m, face sampling of development rounds, and in pit and underground mapping.
	Nature of the data used and of any assumptions made.	The geological interpretation of Karari-Whirling Dervish has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core, RC Chips, and underground development exposures were all used to help define the mineralised domains and regolith boundaries. Interpreted shears and faults obtained from pit and underground drive mapping further constrained the domaining. The current Karari resource has been interpreted from 1,477 diamond holes, 23 RCD holes, 3052 RC grade control holes, and 3,688 simulated drill holes representing underground face sampling. The current Dervish resource has been interpreted from 850 diamond holes, 51 RCD holes, 4,039 RC holes, and 2,277 simulated drill holes representing underground face sampling.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are robust. Alternative interpretations were historically in place that reflected the bulk extraction method of open pit mining however they do not affect the current Mineral Resource Estimation which is focused on underground extraction.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological domains interpreted from all available geological data are used as estimation domains. They are further sub-domained where internal multi-modal grade populations and sufficient sample data is available to improve grade homogeneity and reduce variance.
	The factors affecting continuity both of grade and geology.	Cross cutting structures (NE - SW trending) grouped with flatter westerly dipping structures and intrusive rock types affect mineralisation continuity both along strike and down dip. Grade continuity is related to interaction between mylonitic shears and monzonitic intrusives and is controlled by intense hematite, biotite, carbonate, silica and albite alteration
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 at Karari-Dervish has continuity over 1000m along strike, 1100m down dip and 250m across strike. High grade mineralisation is controlled by 60° East dipping shear zones. Mineralisation is hosted within extensive quartz vein breccia zones adjacent to the shears. The high-grade mineralisation is associated with intense hematite, silica and sericite alteration that occurs predominantly where flatter cross-linking structures intersect with the steeper dipping shears.
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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond, RC and face samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and are top cut proximal to population disintegration. Extreme grades are not common in the data set and all domains are analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Many of the principal lodes exhibit bi/multi-model grade populations. These internal populations are controlled by grade indicators based on inflexion points derived from domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1x2x1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. The maximum distance of extrapolation from last known data points for the inferred material is dependent on the geological continuity and confidence across the lode, but less than 40m for the deposit.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations and reconciled production numbers on a monthly and yearly basis.
	The assumptions made regarding recovery of by-products.	No assumptions are made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 2m x1m to ensure high resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but typically equate to 1-1.5 times the current 40x40m resource definition spacing. A three pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 1.5-2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to stratigraphic position, structural orientation, recorded lithology and specific alteration assemblage. The geological interpretation is initially created from drill data and later calibrated with mapping from open pit and underground exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity, respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean and positively skew the grade population within each domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic are used to determine top-cuts. Top-cuts are typically set proximal to population disintegration.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. A visual inspection of input composites is compared to the estimated block model in section for each domain. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate. Global change of support plots are created and reviewed for principal domains. End of month production and individual stope reconciliations in addition to ongoing field observations are used as a feedback loop to continuously calibrate and improve the interpretation and estimation.
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 adopted cut-off grades for Mineral Resource Estimation reporting are determined by the current mining cut-off grades.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The mineral resource is reported as open pit and underground components at different cut-offs reflective of current break even grade requirements for the mining method assumed. To best capture "reasonable prospects for eventual economic of extraction," the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources, and for the underground resource, within MSO underground shells generated at 1.3 g/t cut-off for Karari and 1.07g/t for Dervish. No assumptions have been made for mining dilution.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The prediction of the metallurgical performance of the Karari deposit is based on the geological foundation consisting of a free milling ore body contained within metamorphosed volcaniclastic sediments. Metallurgical test work conducted by independent consultancies has indicated that there is moderate to high gravity recovery, with total cyanide soluble recoveries reporting 89-93%. Historical performance at the Carosue Dam processing plant has evaluated the gold contained within the ore body to be approximately 92% recoverable.
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.	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material which is mitigated by the waste dump construction plan. Tailings from the deposit are stored in an appropriate licensed tailings facility with a closure plan in place.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for Karari-Dervish were determined via testing of representative intervals from diamond drillholes, regular sampling via grab samples from the pit and underground development. The sample size is between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly assigned to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Karari-Dervish resource is classified as Measured, Indicated Mine Defined, Indicated or Inferred assigned via boundary string by domain based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, search pass, kriging efficiency / slope / variance, grade and geological continuity. Mineralisation has been categorised as Measured if it has been exposed by mining (open pit or development), have drill spacing at <=20x20m's, estimated in the first search pass, have established grade and geological continuity, and >50% kriging efficiency and >80% slope. Material in this category is available for stoping. Indicated Mine defined is assigned where drill spacing <=20x20m, search pass 1, established grade and geological continuity, positive kriging efficiency and >50% slope. This material is available for lateral development. Indicated material is assigned if drill spacing is between 20x20m and 35x35m, search pass either 1 or 2, established grade and geological continuity, positive kriging efficiency and >50% slope. Inferred material is drill spacing between 35x35m and 80x80m's with established geological continuity. All other mineralisation is assigned a Potential resource category.
	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 considered and are validated through thorough QAQC of the drill hole database and geological knowledge and interpretation of the Karari_Dervish deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Northern Star undertake an extensive review of the model that covers; ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, and volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams. When required the resource estimation and process is externally reviewed to ensure estimation methodology is robust and aligned to current industry best practice. Recommendations are always reviewed and implemented as appropriate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous Mineral Resource estimates have had a steady and robust reconciliation against mill figures.

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
	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	The Mineral Resource estimate for the Karari - Dervish gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Northern Star.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves		The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging (ok) with categorical indicator kriging (CIK) sub domains. The model was depleted with the final pit and underground survey completed in February 2022.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Open Pit Reserve Competent Person along with geotechnical consultant has conducted several site visits to the Karari open pit since the inclusion in Carosue Dam operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition. Underground Reserve The competent person is conducting frequent ongoing site visits to the Carosue Dam Operations (CDO) mine site, where the Karari - Dervish deposit is located. Northern Star and consultant geotechnical engineers regularly visit Karari - Dervish to inspect the mine and gather data used in the preparation of geotechnical reports to define parameters for underground mining. Hydrogeology consultants have visited Carosue Dam to gather data and inspect the inflow of groundwater into the open pit, used in the preparation of reports used to determine water management strategies.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Open Pit Reserve Competent Person along with geotechnical consultant has conducted several site visits to the Karari open pit since the inclusion in Carosue Dam operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition. Underground Reserve The Karari deposit has been mined by Sons of Gwalia and Saracen as an open pit. Saracen commenced the Karari underground operation in November 2014, and Dervish underground operation in May 2018. Ore from Karari - Dervish continues to be treated at the Carosue Dam processing facility. Karari - Dervish is an active underground operation with a detailed mine design and an economic analysis, to define the ore reserve. From October 2017 until March 2018, external consultants (Outotec & Entech) were used to investigate the application of Paste backfill at Karari. Construction of CDO's wet paste plant was completed in April 2019, with successful commissioning and first paste pours occurring at Karari in May 2019. Paste filling at Dervish is achieved by an overland pipework where paste is transported using a paste pump located at the Karari plant. Paste filling at Dervish has commenced as of H1 2022.
	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.	Open Pit Reserve Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate. Underground Reserve Karari - Dervish is an active underground mine. Modifying factors have been applied to the mine design, as well as a financial analysis completed, both have been the subject to peer review. As mentioned above, paste fill feasibility studies have been carried out and it determined a mine plan that is both technically achievable and economically viable. Ongoing QAQC testing on recent paste pours, confirms high quality paste at various binder ranges have been achieved at Karari and Dervish.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Open Pit Reserve For Ore Reserve Estimation, a marginal cut-off of 0.50g/t was applied based upon an assumed gold price of AUD$1,750/oz. and operating cost of processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate. Underground Reserve

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		For Ore Reserve Estimate's, a variable cut-off grade of 1.62g/t (Karari) and variable cut-off grade of 1.35g/t (Dervish) was calculated based upon an assumed gold price of AUD$1,750/Oz and applicable mining production costs, processing, haulage and administration costs. This variable cut-off grade was then used as the basis of mine design. Spatial economic assessments were then completed to ensure each mining block covered the relevant capital and operating costs to extract that block.
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).	<u>Open Pit Reserve</u> The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Karari Reserve. <u>Underground Reserve</u> The Karari - Dervish underground ore reserve has been estimated using detailed mine development and stope designs. Paste backfill has been incorporated throughout the mine design. This mine design is supported by recent underground paste pours. Suitable modifying factors for dilution and recovery have been applied to the economic analysis of the design to generate the ore reserve.
	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.	<u>Open Pit Reserve</u> Mining method to be employed at Karari will be conventional open pit with hydraulic excavator, dump truck fleet, and drill and blast activity The class of excavator employed is similar to other open pit operation, providing a good operating dataset for production and productivity rate measurement and financial modelling. The Reserve pit is designed as a cutback to existing mined pit in an appropriate manner to meet operation efficiency, safety aspect and production rate. <u>Underground Reserve</u> Underground mechanised mining for development, ground support, and open stoping is utilised at Karari - Dervish. Mining and geotechnical studies have determined open stoping (both transverse and longitudinal) with paste fill is appropriate for the deposit. Some stoping locations will utilise remnant rib and sill pillars for either geotechnical reasons and/or availability of paste fill. This mining method of open stoping and backfilling with paste fill is widely used throughout the Western Australian Goldfields and Australia.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	<u>Open Pit Reserve</u> Geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to oversee geotechnical aspect of technical study and ongoing support. It is expected that once the pits are in operation there may be some need for additional geotechnical input and reflect any changes to into life of mine pit design. The Grade control method to be employed at Karari will use RC drilling and sampling method. The method and practice have been utilised successfully at all current and past mining operations at Northern Star. <u>Underground Reserve</u> Assumptions are based upon actual mining conditions. A review of the previous analysis and assessment of the designed stopes were performed by Northern Star's geotechnical team. Several external consultants have also reviewed the deposit and results / analysis found assumptions were acceptable. Karari; The current mine design allows for extensive use of paste fill with only a minor amount of upper mine production stopes utilising remnant rib and sill pillars. Some mining of remnant pillars has been included in the mine design. Dervish: The current mine design allows for leaving in-situ pillars and paste fill. For area's leaving insitu pillars: Mine design allows for 20% to 30% of the available mineral resource to remain in-situ, as either rib or sill pillars. The overall extraction ratio of this portion of the mineral resources is approximately 75%. For area's using paste fill appropriate recoveries were applied. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been included in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised. <u>Open Pit Reserve</u> The resource model used for the ore reserve calculations was KA2202_RR_MINE.dm <u>Underground Reserve</u> Two resource models used for the ore reserve calculations was KA2202_RR_MINE.dm (Karari) and WD220207_RR_MINE.dm (Dervish).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The mining dilution factors used.	Open Pit Reserve A mining dilution factor of 14% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment. Underground Reserve An allowance for mining dilution has been incorporated into the mine designs. The dilution factors used have been based on geotechnical advice in different areas of the deposits, these range from 15-40% at 0.5g/t has been applied for stoping.
	The mining recovery factors used.	Open Pit Reserve A mining ore loss factor of 4% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment. Underground Reserve A mining recovery factor of 95% has been assumed for all stopes. Some stopes have been allocated lower recovery factors due to proximity to structures and faults that may impact mining performance.
	Any minimum mining widths used.	Open Pit Reserve A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across Northern Star's operations and reflects the suitability and efficiency of the mining performance. Underground Reserve A minimum stope width of 3m was applied in the design process.
	The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Open Pit Reserve Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources. Underground Reserve A minor amount (<1% of tonnes) of inferred resources are contained within underground mine design, in stopes and development at the periphery of the indicated resource category material. This material contributes a minor amount of metal (<1% of ounces) within the design. Therefore, the reserve has a minor sensitivity to the inclusion of inferred resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the deposit is within the main Carosue Dam operation, which consists of underground mines, 4.0mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world. An average plant processing recovery of 93.5% has been assumed in the Ore Reserve Estimate which is consistent with current and historical plant recoveries for Karari - Dervish ore.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Karari - Dervish deposit is estimated at 93.5%. The recovery estimation is based on met test work and current and past actual average recovery data collected at the Carosue Plant. The Karari - Dervish mine is currently in operation and all material has processed through Carosue Dam plant have resulted in a solid understanding of the metallurgical parameters of the ore.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Karari - Dervish ores since 2010.
	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.	Ore from the Karari open pit and Karari – Dervish undergrounds has been treated at the CDO Processing Plant since 2010. Current underground ore is considered representative of the ongoing ore expected from both the underground and open pit operations.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	Karari - Dervish is currently compliant with all legal and regulatory requirements. All approvals (clearing permit, works approval and Mining Proposals) have been granted for ongoing mining and processing at Carosue Dam. The site currently holds and Environmental Protection Act licence 7465/1999/9 including prescribed premises categories for processing and beneficiation of metallic or non-metallic ore, mine dewatering, Electric power generation, sewage facility, Class I inert landfill, Class II Putrescible landfill and bulk storage of chemicals. The existing Carosue Dam mine, including the area of Karari - Dervish underground mine, and the accommodation village all lay on granted mining leases. The following studies have been completed and provided to support for the required statutory approvals: Flora surveys of areas to be cleared, waste rock characterisation studies, surface water studies and tailings storage facility documentation. Waste rock characteristic study has been carried out and it is expected to be representative of waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future pit expansion plan.
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.	Carosue Dam Operations are well established, with mining activities being conducted by Saracen/Northern Star since 2009. The CDO operation comprises at 4.0mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. Karari - Dervish underground mine is located within 500m of the CDO plant. A modern accommodation camp is sited within a few kilometres of the administration offices and processing facility. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained. The mine site is ~120km from the sealed section or Yarri Road leading to Kalgoorlie.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Open Pit Reserve Capital costs relating to the start-up and pre striping of the operation is included in the financial modelling. Underground Reserve Capital costs relate to establishment of capital infra-structure and continuing expansion of capital works for Karari - Dervish underground. The cost estimates are based on historical costs for similar work undertaken at Carosue Dam for the establishment and operation of the Karari - Dervish, and Deep South underground mines. Actual mine operating and capital costs have been used in the reserve calculations.
	The methodology used to estimate operating costs.	Open Pit Reserve Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations. Underground Reserve Operating costs for underground mining have been derived from a combination of actual costs from Karari - Dervish and tendered contract costs supplied by independent mining contractors. Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements.	Current operational experience at Karari - Dervish did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz. has been adopted for financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5%, a third party royalty of 1.5% and a 4% profit third party royalty is payable.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz. has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
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.	Open Pit Reserve The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis. Underground Reserve All costs assumptions are made based on a combination of historical performance at Carosue Dam and Karari - Dervish mine. The economic analysis is viewed as representative of the current market conditions.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Open Pit Reserve A full financial model was developed with sensitivities applied to all key inputs and assumptions. Underground Reserve Sensitivities were assessed on a variety of gold prices to test the impact of inventory from external factors.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is currently operating and has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all the proposed mining and processing assets and there are no Native title claims pending.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and was addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment. The sufficient long term bund wall is constructed across the mine footprint and currently still in place.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	Open Pit Reserve A new Mining Proposal will be resubmitted for the open pit reserve in timely manner such that it will be granted before the actual commencement. All other Statutory Government Approvals namely clearing permit, works approvals, dewatering and discharge licence have been granted. Underground Reserve

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Carosue Dam Operations is in production with all required government statutory permits and approvals in place for the operating mines and processing plant. The required statutory approvals for Karari - Dervish have been granted.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Open Pit Reserve The Ore Reserve Estimate classification for Karari has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as Probable has been derived from Mineral Resource classified as Indicated and Measured only. Underground Reserve The Ore Reserve Estimate classification for Karari - Dervish underground has been in accordance with the JORC code 2012. The estimated Ore Reserve is classed as Proved and Probable (54% of ounces classed as proved) with this percentage of inventory being classed as measured. A minor amount (<1% of tonnes) of inferred resources are contained within underground mine design, in stopes and development at the periphery of the indicated resource category material. This material contributes a minor amount of metal (<1% of ounces) within the design. Therefore, the reserve has a minor sensitivity to the inclusion of inferred resources..
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Open Pit Reserve Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Northern Star's Carosue Dam and Thunderbox operations and supplied from contract mining companies and independent consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Karari deposit. Underground Reserve Cost assumptions and inputs factors applied to the underground project were derived from a combination of historical site data, current operational data relating to Carosue Dam Operations, actual mining costs, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Karari - Dervish deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Open Pit Reserve 100% of Probable ore from Ore Reserve estimate has been derived from Indicated Mineral Resource category. Underground Reserve 100% of Probable ore from Ore Reserve estimate has been derived from Indicated Mineral Resource category.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star's Ore Reserve Policy and undergone internal review. 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.	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Proved/Probable Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, The range of the modifying factors is reasonable and confidence in the resulting reserve estimate is reasonable. Estimates are global but will be reasonably accurate on a local scale. The complete mine design with all the modifying factors assumed and adopted, and financial analysis used in the estimated Ore Reserve have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the current Karari - Dervish reserve. Reconciliation results from past and current mining at Karari - Dervish have been considered and factored into the reserve assumptions where appropriate.
	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.	As above
	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.	As above

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	As above

JORC Code, 2012 Edition – Table 1 Report

Deep South – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star at Deep South have included reverse circulation drillholes (RC), aircore drilling (AC), surface and underground diamond drillholes (DD), underground face chip sampling and RC grade control drilling within the pit. Historic sampling methods conducted since 1983 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond, face chip and RC drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC and UG face chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1983- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	RC chips are cone or riffle split and sampled into 1m intervals with total sample weights under 3kg. Diamond core is NQ sized, sampled to 1m intervals or geological boundaries where necessary. Deep South Diamond drill core has been sampled as whole core since 2020. Previously, samples were cut into half core nominally cut to 1.0m or to geological boundaries where required (ranging 0.3-1.3m) aiming to give sample weights under 3 kg. UG faces are chip sampled to geological intervals (0.3 to 1.3m). Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Some historic open pit, grade control RC chips were analysed in the Northern Star on site laboratory using a PAL (pulverise and leach) method. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit was initially sampled by 114 RAB holes, 211 RC holes (assumed standard 5 ¼ ''bit size) and 29 surface HQ and unknown diameter diamond core holes. Northern Star completed 17 surface RC precollars with NQ diamond tail drill holes (precollars averaging 185m, diamond tails averaging 360m), 3 geotechnical surface diamond NQ drillholes, 57 RC holes from surface and 107 grade control RC holes within the pit. Underground drill types used include NQ2 diameter diamond drillholes and Faces channel samples collected with a geology pick. Exploration of the broader Deep South area has included 312AC holes. Diamond tails were oriented using the Boart-Longyear Trucore tool. A limited amount of historic surface diamond drill core appears to have been oriented by unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; limited historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >98%. Limited historic diamond recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During AC and RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. UG faces are sampled left to right across the face allowing a representative sample to be taken due to the vertical nature of the orebody. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Historical RAB, RC and diamond drilling was sampled to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC or AC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC and AC chips and diamond drill core records lithology, mineralogy, texture, colour, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. All faces are photographed and mapped. Core is photographed in both dry and wet state.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Geological data that requires description is qualitative, and where measured, such as structural and geotechnical data is quantitative. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All AC, RC and diamond drillholes and grade control holes are logged in full. Historical logging is complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Diamond drill core has been whole core sampled from 2020-present. Drill core prior to this time was cut in half onsite using an automatic core saw. Samples are always collected from the same side preserving the logging comments and orientation line. Some historic drill core was half core sampled or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration and grade control RC samples are cone or riffle split. AC drillholes are spear sampled. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. UG faces are chip sampled using a hammer. Historic RAB and RC drilling was sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core, UG face chips and RC chips adhere to industry best practice. It is conducted by a commercial laboratory or onsite laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory or onsite laboratory and are satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material 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.	RC and UG chip samples and diamond core are analysed by external laboratories using a 40g or 50 g fire assay with AAS finish. AC samples are analysed using a 25g aqua regia digest. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. GC samples were analysed in the Northern Star onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
	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 have been utilised for reporting gold mineralisation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Certified reference material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration AC, RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs several internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Deep South but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. All underground drillhole collars are picked up by company surveyors using a Leica TS15i (total station) with an expected accuracy of +/-2mm. Underground faces are located using a Leica D5 disto with and accuracy of +/- 1mm from a known survey point. Downhole surveys are carried out using the DeviFlex RAPID continuous in rod survey instrument taking readings every 5 seconds, In and Out runs and reported in 3m intervals, survey accuracy +-3:1000. A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Safari Bore) is used at Deep South. The two-point conversion to MGA_GDA94 zone 51 is: SBEast SBNorth RL MGAEast MGANorth RL Point 1 51000 34000 2000.0 451137.753 6734157.921 0.0 Point 2 51000 30000 2000.0 451137.896 6730157.896 0.0 Historic data is converted to the Safari Bore local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for drilling is 20m x 40m and 40m x 40m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	AC drilling is sampled in 4m composites, no other sample compositing has been utilised Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias has been recognised due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Deep South pit is located on M39/740. The tenement is held 100% by Northern Star Ltd. Mining Lease M39/740 has a 21 year life (held until 2024) and is renewable for a further 21 years on a continuing basis. Mining Lease M39/740 is subject to one royalty agreement, one caveat (151H/067) and a bank mortgage (499142). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M39/740 is subject to the Edjudina Pastoral Compensation Agreement. The tenement is affected by the Nyalpa Pirniku (WC2019/002) registered claim. There are no registered Aboriginal Heritage sites within Mining Lease M39/740. The Mining Rehabilitation Fund applies to the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and the licence to operate already exists
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Exploration in the vicinity of Deep South commenced in the 1980's with drilling around the historic Deep Well workings 500m north of Deep South, as well as regional RC drilling carried out by Western Mining Corporation. Initial auger sampling carried out over Deep South by Pancontinental Mining in 1994 failed to detect mineralisation due to the transported material overlying the deposit. Wide spaced east angled RAB drilling carried out by Goldfields in 1999 intersected mineralisation, but results were not repeated in further drilling and the project area was sold to Sons of Gwalia. Sons of Gwalia completed extensive RC and diamond drilling to define the Deep South resource, with mining operations undertaken in 2004 before their collapse and takeover by St Barbara.
Geology	Deposit type, geological setting and style of mineralisation.	Deep South lies on the eastern margin of the Norseman – Wiluna greenstone belt. This belt is differentiated into numerous structural-stratigraphic domains separated by major regional structures, with Deep South located within the narrow NNW trending Linden Domain. The lithology comprises metasedimentary and felsic volcaniclastic rocks with an ultramafic and high magnesium basalt layer. Mineralisation occurs in two loads concordant to geology, the Butler and Scarlett lodes, and is confined between layered metasedimentary and felsic volcaniclastic units on both the hanging wall and footwall. The two lodes are separated by a high magnesium basalt and an ultramafic unit. The Butler lode is located in the hanging wall and is strongly silica and pyrrhotite-pyrite altered, and well laminated (appearing like a BIF within the oxidise portion). The contrasting physical properties of this unit to the surrounding unit have created fluid pathways and traps, as well as the high iron content of the unit providing a chemical trap, for gold deposition The Scarlett lode is strongly weathered in the upper oxide portion to a gossanous material comprising hematite, goethite and quartz fragments. Weathering at Deep South has been preferential along Scarlett lode due to its high carbonate content. Where fresh, the lode is a fine-grained banded carbonate unit with variable pyrrhotite, pyrite and magnetite. It is weakly foliated in line with the regional foliation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	All material data is periodically released on the ASX: 03/05/2021, 30/07/2019, 18/02/2019, 27/11/2018, 15/02/2018, 27/11/2017, 26/09/2017, 01/05/2017, 21/02/2017, 17/12/2016, 07/09/2016, 11/05/2016, 23/02/2016, 23/07/2013, 10/10/2012, 31/07/2012, 03/06/2011, 29/07/2010, Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
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 significant intercepts have been length weighted with a minimum Au grade of 1ppm, or 20ppb for AC drilling No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Previous announcement included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being released
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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.	A small geochemical program was undertaken in 2013 to determine the key features associated with mineralisation. The program gave some insight into the local characteristics of the Scarlett and Butler lodes. More work is needed to fully appreciate the geochemical signature associated with the mineralisation. A detailed gravity survey was recently completed at Deep South on a 400m x 100m grid to assist in the interpretation of the basement geology. The data is currently being processed and interpreted. Northern Star completed a biogeochemical sampling program at Deep South involving the sampling of new leaf growth on established Acacia trees on a 100m x 800m spacing. Samples were collected from trees of a consistent species and height. The biogeochemical program was an orientation survey only and results will not be used in any calculation of mineralisation. The leaves were washed, dried and pulverised followed by an aqua regia digest for multi-element determination.
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).	The initial results from the biogeochemical sampling were encouraging and further expansion of the survey area being planned.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	The exploration effort continues at Deep South with efforts focused on defining mineralisation to the North of the current mining area. The focus remains in the near mine scale areas to extend and build the resource base.

APPENDIX C: 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.	Northern Star utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors during data entry and import processes. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person has visited the site during drilling and mining operations. Robust systems and procedures have been established to track and monitor progress.
	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 has been based on historical data captured by previous owners and refined by new information generated by Northern Star following project acquisition. This knowledge is built on extensive geological logging of drill core, RC chips, underground development face chips, detailed open pit and underground mapping and assay data. The gross architecture of the deposit is relatively simple and the interpretation robust.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Open pit mapping has been included in the interpretation however only affects the location of the domain boundaries inside the previously mined open pit. Cross sectional interpretations of the mineralisation have been created and form the basic framework through which the 3D wireframe solids are built. Underground mapping is used to refine boundaries in the local scale.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplistic nature of the mineralisation no alternative interpretations have been considered. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic geological constraints. The mineralisation is typically discrete and bound to specific lithological units.
	The use of geology in guiding and controlling Mineral Resource estimation.	The geology has heavily influenced the domains controlling the mineral resource estimation. The main mineralised Scarlett Lode has been confined to the geologically logged carbonate unit. Similarly, the Butler lode has been defined by a highly siliceous BIF horizon. To deal with multiple populations within the carbonate unit in the grade control areas (areas drilled to a spacing 25m x 20m) sub-domaining was done using the Categorical Indicator technique which uses grade thresholds to segregate the different populations within the unit. Three subdomains include the low grade (<1 g/t Au), medium grade (>1to <9 g/t Au) and the high grade > 9 g/t Au
	The factors affecting continuity both of grade and geology.	Mineralisation and lithology are both highly continuous. The stratigraphic horizons that host the mineralisation extend over a length of 15km. Grade is affected by the presence of sulphides and quartz carbonate veining. A northerly plunge in both lodes is thought to be controlled by subtle changes in strike or continuity of mineralisation at boudin neck margins. A conjugate mineralised shoot plunging to the south appears to be evident in the Scarlett lode and has been interpreted as the intersection of deposit scale shearing and lithology contacts.
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.	Both mineralised lodes at Deep South have continuity over 500m along strike and 400m down dip. The Scarlett lode averages 5m in width and the Butler lode averages 2m in width. Both lodes strike North north-west and dip steeply at 75 degrees to the west. The higher grade plunge direction is to the north, pitching 70 degrees in the Scarlett but more steeply at 80 degrees in the Butler. The south plunging shoot in the Scarlett pitches at approximately 65 degrees.
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.	Block estimation has been completed in Datamine software using ordinary kriging methodology. All mineralised interval has been flagged using the interval selection tool in Leapfrog software, which were subsequently used to generate 3D mineralisation wireframes. The estimation uses these wireframes as hard boundaries except for the high grade sub-domain defined in the carbonate unit which is estimated using a soft boundary. Estimation of parent blocks are interpolated and assigned to sub-cells. The maximum distance of extrapolation is less than 50m. Univariate statistical analysis of length weighted (1m), domain coded downhole composites have been completed for all domains and top cuts applied where applicable. Extreme grades are not common in the data set and all domains have been analysed individually to determine specific top-cut values. Variogram modelling was completed using Snowden's Supervisor software defining the spatial continuity within the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Underground production has provided mill reconciled data to assess the predictive capacity of the current model with good comparative metrics recorded over the long term period Northern Star has been mining at Deep South.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Northern Star is unaware if any elements other than gold have been historically assayed on a routine basis. There are no future plans to assay for non-grade variables.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Two block sizes have been used in the resource model; a grade control (GC) block size at 5m(X) by 10m(Y) by 5m(Z) and resource block size at 10m(X) by 20m(Y) by 5m(Z). The Grade Control block size has been utilised in areas of drill density less than 20m by 20m and typically proximal to the open pit and/or underground development. The Resource block size has been used for all other areas. In both cases kriging neighbourhood analysis (KNA) has been conducted to ensure the appropriate block size has been used relative to available data spacing. Parent blocks have been sub-celled to X (1m) by Y (1m) by Z (1m) to ensure that wireframe boundaries are honoured and preserve the location and geometry of the mineralisation. Search ranges have been informed by variogram modelling, influenced by drill spacing, geological observations and high grade shoot geometry. Three search passes are used in the estimation to ensure that all the blocks are suitably estimated.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation strongly correlates with the mineralised domains. In all wireframes, including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlights that there are very few grades in the domain populations that require top-cutting. Top-cuts have been employed to eliminate the risk of overestimating in the local areas where a few high grade samples exist. A sensitivity analysis was carried out on the data, by relaxing the top-cut values. This demonstrated that the grade would appreciate by 1.0g/t on average with higher top-cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to support the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to correlate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means verses the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas or where data density is lower. The estimate was checked against reconciled production with all comparative metrics within desired thresholds limits.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 1.0g/t has been chosen.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Deep South deposit is amenable to mining by both open pit and underground methods. The deposit was successfully mined by open pit during 2012/2013. Underground mining extracting the mineralised positions via long hole open stoping commenced in December 2015. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources, and for the underground resource within MSO underground shells generated at 1.2 g/t cut-off.
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.	Deep South is currently being treated through the Carosue Dam treatment plant. Fresh material hauled from the active underground has a recovery of approximately 92%. The ore is relatively soft and most of the gold is free milling. The ore also has a predictable grind dependency / leach recovery relationship. Completed test work highlights that the ore is not chemically refractory and contains no preg robbing properties.

APPENDIX C: 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.	Waste rock characterisation has been conducted on the deposit with no environmental issues identified. Ore from the Deep South project is hauled to Carosue Dam for Processing and waste tailings storage in the appropriately licensed Carosue Dam tailings storage facility, with approved closure plan in place.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk densities for Deep South were determined via testing of representative intervals from diamond drill holes and regular grab samples from the pit and underground development. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Bulk density values from point samples have been calibrated against haulage figures and mill weightometer data and are appropriate for the material being mined.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, grade continuity and estimation quality. The combination of these factors together guides the digitising of a “cookie cutter” string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a robust resource estimate can be achieved.
	Whether the result appropriately reflects the Competent Person’s view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	At the completion of a resource estimation Northern Star undertake an extensive review of the model that covers model inventory and comparisons to previous models, geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and kriging neighbourhood analysis (KNA) and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams. Recommendations from previous resource reviews have been discussed and implemented where appropriate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	The Mineral Resource has been reported in accordance with the guidelines of the JORC 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star Ltd. uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The resource estimation is checked against reconciled production data monthly. Comparative metrics continue to be within acceptable threshold limits. The Mine Call Factor at Deep South on tonnes has been 99% and 100% on grade since underground mining commenced in 2015.

APPENDIX C: TABLE 1

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.	The Mineral Resource estimate for the Deep South gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Northern Star. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging (ok) with categorical indicator kriging (CIK) sub domains. The model was depleted with the final pit and underground survey completed in March 2022.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person undertakes frequent site visits to the Carosue Dam Operations (CDO) including regular trips to the Deep South mine. Northern Star and consultant geotechnical engineers regularly visit Deep South to inspect the mine and gather data used in the preparation of geotechnical reports to define parameters for underground mining. Hydrogeology consultants have visited Carosue Dam to gather data and inspect the inflow of groundwater into the open pit, used in the preparation of reports used to determine water management strategies.
	If no site visits have been undertaken indicate why this is the case.	
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Northern Star (previously Saracen) commenced underground operations at Deep South in October 2015. Deep South is an active underground operation with a detailed mine design and an economic analysis, to define the ore reserve. The Deep South deposit was originally mined by Sons of Gwalia commencing in 2004. Northern Star (previously Saracen) completed a pit cutback during 2012/2013. The Stage 2 open pit was completed in April 2013. Ore from Deep South open pit was treated at the CDO Processing Plant. Underground mining commenced at Deep South from 2015-present.
	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.	Modifying factors have been applied to the project to ensure the rigor of the financial analysis. All the parameters assumed and adopted, as well as the financial analysis completed, are based upon current active mine inputs and have been the subject to peer review.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	For Ore Reserve Estimate a variable cut-off grade of 1.67g/t was calculated based upon an assumed gold price of AUD$1,750/Oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate. Spatial economic assessments were then completed to ensure each mining block covered the relevant capital and operating costs to extract that block.
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).	The Deep South underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for dilution and recovery have been applied to the economic analysis of the design to generate the ore reserve.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The Deep South underground Ore Reserve has been estimated using detailed mine development and stope designs. Underground mechanised mining for development, ground support, and production stoping is used at Deep South. Open Stoping with remnant pillars has been selected as the mining method which has been successfully applied at Deep South previously. Standard underground infrastructure is currently in place at Deep South; this includes a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Assumptions are based upon actual mining conditions. A review of the previous analysis and assessment of the designed stopes were performed by Northern Star's Geotechnical team. Several external consultants have also reviewed the deposit and previous production results. Recommendations regarding mine design and production mining methods have been incorporated within the mine design. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been included in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The resource model used for the ore reserve calculations was 220225_DSRR_MINE.dm.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The mining dilution factors used.	An allowance for mining dilution was incorporated into the mine design. An additional unplanned dilution factor of 15% has been assumed for all stopes.
	The mining recovery factors used.	A mining recovery factor of 95% has been assumed for all stopes.
	Any minimum mining widths used.	A minimum stope width of 3.0m was adopted in the design process.
	The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No inferred resource metal has been reported. All inferred and unclassified material has been excluded from the stope optimisation process and subsequent block model interrogation. As such, all dilution material beyond the orebody boundary carries zero grade. The dilution material is mineralised, but grade was zeroed to avoid reporting inferred material in the Ore Reserves inventory.
	The infrastructure requirements of the selected mining methods.	Standard underground infrastructure has been developed and will be provided, including a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate these methods of mining.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 93.5% has been assumed in the Ore Reserve Estimate which is consistent with current and historical plant recoveries for Deep South ore.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	In September 2014, a review of the Deep South open pit ore processing performance was conducted and metallurgical test work was carried out determine the continuity of processing performance from underground ore. No evidence was found to indicate any changes in the processing performance from underground ore to the historical performance from open pit ore.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Deep South ores.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody.	Ore from the Deep South open pit and underground has been treated at the CDO Processing Plant since 2004. Current underground ore is considered representative of the ongoing ore expected from underground.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	
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.	Deep South is currently compliant with all legal and regulatory requirements. All approvals (clearing permit, works approval and Mining Proposals) have been granted for ongoing mining at Deep South and the processing of ore at Carosue Dam. The site currently holds and Environmental Protection Act licence L8666/2012/2 for prescribed premises categories of mine dewatering and Putrescible landfill. The existing Carosue Dam mine, including the area of Deep South underground mine, and the accommodation village all lay on granted mining leases. The following studies have been completed and provided to support for the required statutory approvals: Flora surveys of areas to be cleared, waste rock characterisation studies, surface water studies and tailings storage facility documentation.
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.	Carosue Dam Operations are well established, with mining activities being conducted by Saracen/Northern Star since 2009. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation comprises at 4.0mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. The Deep South accommodation camp is a modern facility situated ~5kms to the west of the Deep South mine site. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained. The Deep South mine site is ~70km of the CDO Processing Plant and ~200km northeast of Kalgoorlie, ~1km off Yarri Road.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relate to establishment of capital infra-structure and continuing expansion of capital works for Deep South underground. The cost estimates are based on historical costs for similar work undertaken at Carosue Dam for the establishment and operation of the Deep South, Karari and Whirling Dervish underground mines.
	The methodology used to estimate operating costs.	Operating costs for underground mining have been derived from a combination of actual costs from Carosue Dam Operations and tendered contract costs supplied by independent mining contractors.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements.	Previous operational experience on the Deep South deposit at Carosue Dam did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz. has been adopted for financial modelling.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam Operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam Operations.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
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.	
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	An assumed gold price of AUD$1,750/oz. has been adopted for financial modelling.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	
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.	Cost assumptions have been made using a combination of historical performance at Carosue Dam and contract mining costs from an experienced mining contractor. The economic analysis is viewed as representative of the current market conditions.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were assessed on a variety of gold prices to test the impact of inventory from external factors.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is currently operating and has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all the proposed mining and processing assets and there are no Native title claims pending.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is the only naturally occurring risk identified. Inrush from regional surface water flows has been addressed by the construction of appropriate water diversion bunds as part of previous open pit mining operations. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations. A mining contract will be tendered for Deep South underground prior to the commencement of mining.
	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	Carosue Dam Operations is in production with all required government statutory permits and approvals in place for the operating mines and processing plant. The required statutory approvals for Deep South have been submitted and approved (August 2015) by DMIRS.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification for Deep South underground has been in accordance with the JORC code 2012. The estimated Ore Reserve is classified as Probable (100%) with most of the reserve being derived from that portion of the Mineral Resource classified as indicated.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the underground project were derived from a combination of historical site data, current operational data relating to Carosue Dam Operations, mining costs supplied by independent mining contractors, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Deep South deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	There were 40% (by tonnes) Measured Mineral Resources within the underground mine design that formed the physical extent of the estimated Ore Reserve.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	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.	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Probable Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, The range of the modifying factors is reasonable and confidence in the resulting reserve estimate is reasonable. Estimates are global but will be reasonably accurate on a local scale. The complete mine design with all the modifying factors assumed and adopted, and financial analysis used in the estimated Ore Reserve have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the current Deep South reserve. Reconciliation results from past mining at Deep South and suitable factors from currently active underground operations at CDO have been considered and factored into the reserve assumptions where appropriate.
	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.	As above
	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.	As above
	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.	As above

JORC Code, 2012 Edition – Table 1 Report

Million Dollar – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes,	Northern Star has undertaken reverse circulation drilling (RC) and diamond drilling (DD) at Million Dollar. Historic sampling methods conducted since 1979 have included rotary air blast (RAB), reverse circulation and diamond drillholes (DD).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for RC and DD drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and DD core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1979- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	RC chips are cone split and sampled into 1m intervals with total sample weights less than 3kg. Diamond core is HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core. Samples are selected to weigh less than 3kg to ensure total sample inclusion at the pulverisation stage. Northern Star chip and core samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, screen fire assay, aqua regia and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit is sampled by 621 RAB holes, 1,015 surface RC holes (utilising a 143mm diameter bit with a face sampling hammer and an external auxiliary booster), 3,879 In-pit grade control RC holes (using a 5 ¼ inch hammer) and 60 diamond core holes utilising NQ diameter drill bits. Diamond holes were oriented using the Reflect ACT III tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. No historic diamond core recovery data has been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. Historical RAB, RC and diamond drilling sampling is representative of the industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries due to the competent nature of the ground meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and diamond core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC drillholes are stored in chip trays for future reference. RC grade control samples are photographed using the Imago photo software for high resolution geological logging and modelling. Core is photographed in both dry and wet state.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Most geological data that requires description is qualitative, and where measured, such as structural and geotechnical data is quantitative. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All RC and DD drillholes holes are logged in full. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling has been sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All chip samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle, grab, spear and unknown methods.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips and DD core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material 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.	RC chip samples and diamond core samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay, screen fire assay, aqua regia and unspecified methods.
	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 have been utilised for reporting gold mineralisation.
	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 material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and diamond drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No planned twinned holes have been drilled at Million Dollar. Many holes have had their position effectively twinning where historical data was of a dubious nature.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	Million Dollar uses the GDA94 zone 51 grid system with +2000m added to the RL field.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre-mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for drilling is 20m x 20m to 80m x 80m. Grade control drilling is 10m x 10m.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB sampling was composited into 4m samples.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias has been recognised due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Million Dollar pit is located on M31/3 with the southern extension extending on to M31/76. The tenements are held 100% by Northern Star Resources Ltd. Mining Leases M31/3 and M31/76 have a 21 year life and are held until 2025 and 2030 respectively. Both tenements are renewable for a further 21 years on a continuing basis. Mining Lease M31/3 is subject to one royalty agreement and one caveat (59H/067). Mining Lease M31/76 is subject to three royalty agreements, one caveat (59H/067), and a pre-emptive right. Mining Lease M31/76 is subject to a bank mortgage (499142). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M31/3 and M31/76 are subject to the Edjudina Pastoral Compensation Agreement. Mining Leases M31/3 and M31/76 are affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) native title claims. There are no registered Aboriginal Heritage Sites on M31/3 and M31/76 that affect the Million Dollar deposit. The Mining Rehabilitation Fund applies to the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Exploration began in the area in the 1930s, with the Porphyry orebody discovered to the north of Million Dollar with mining operations continuing into the 1940s. Pennzoil carried out exploration in the late 1970s, focussing on the Porphyry area and discovering the Million Dollar mineralisation. Concurrent exploration by Seltrust delineated the Million Dollar South mineralisation. Edjudina Gold Mines, a joint venture between Pennzoil, Picon and Pioneer Concrete, reopened the Porphyry mine, carried out extensive drilling and developed the Million Dollar pit. Poor recovery and excessive dilution led to the closure of the operation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		In the late 1980's Audax carried out RAB, RC and diamond drilling at Million Dollar south, delineating the resource. Enterprise Gold entered into a JV with Audax and completed further drilling. Consolidated Resources acquired the Million Dollar project area and carried out further RC drilling at Million Dollar South and a feasibility study before being taken over by Mount Edon Gold Mines who suspended further work. Following an aeromagnetic survey of the Porphyry - Million Dollar area, Mount Edon carried out a RAB and RC program. PacMin acquired the tenements following the takeover of Mount Edon, who then merged with Sons of Gwalia. A wide spaced infill drilling program was commenced to test for extensions and deeper repetitions of the mineralisation before their collapse and takeover of the project by St Barbara.
Geology	Deposit type, geological setting and style of mineralisation.	The Million Dollar deposits lie in a greenstone-granite belt within the Eastern Goldfields Province of the Archaean Yilgarn Block. The deposits are hosted predominately within porphyritic quartz monzonite intruded into andesitic volcanic rocks. Gold mineralisation is associated with albite-silica-hematite-sericite-pyrite alteration and quartz pyrite veining. Structural controls on the mineralisation are shallow easterly dipping north striking brittle shear zones related to the NNW trending regional faults. The thickness of the shear zones varies between 1m and 10m wide.
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	All material data was periodically released on the ASX: nominally the report dated: 03/05/2021, 30/07/2019, 29/07/2010 Future drillhole data will be periodically released or when results materially change the economic value of the project.
	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.	N/A
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 significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling.
	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').	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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 substantive data acquisition has been completed in recent times.
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).	Million Dollar is currently an operating open pit mine. The mining occurs in two separate pits colloquially referred to as MD2 (main pit) and MD3 (satellite pit). Extensional drilling occurred during FY22 which focused on defining mineralisation a depth within the project area. No further exploration programs have been planned.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation.

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.	The database used for the estimate is an extract from an AcQuire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of .csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in .csv format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person regularly visited the site during exploration phases to assess geological competency and ensure integrity across all geological disciplines. The competent person has built a sound understanding of the deposit geology thus far.
	If no site visits have been undertaken indicate why this is the case.	NA
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics.
	Nature of the data used and of any assumptions made.	The geological interpretation of Million Dollar has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core, RC Chips and pit mapping were all used to help define the mineralised domains and regolith boundaries. Interpreted shears and faults obtained from in pit mapping further constrained the domaining. The current resource has been interpreted from 60 diamond holes, and 4,894 RC holes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the discrete mineralised zones are considered to be robust. Alternative interpretations bulking mineralisation together has been considered but deemed unsuitable to appropriately constraining metal distribution.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological domains interpreted from all available geological data are used as estimation domains. They are further sub-domained where internal multi-modal grade populations and sufficient sample data is available, to improve grade homogeneity and reduce variance.
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Million Dollar is primarily hosted within a syeno-monzonite granitoid unit as stacked en-echelon quartz veins within a braided shear system. Secondary mineralisation does exist at the margins of the granitoid units in interpreted strain shadows and as minor cross-linking structures between the main lodes. Higher grades are largely associated with albite-silica-hematite alteration and pyrite mineral assemblages in concert with shear parallel quartz-pyrite veining.
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.	Million Dollar mineralisation extends from 6,704050mN to 6,702,450mN, 430,800mE to 431,400mE and 260 metres 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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond and RC samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Extreme grades are not common in the data set and all domains are analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Many of the principal lodes exhibit bimodal grade populations. These internal populations are controlled by grade indicators derived from inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1 x 2 x 1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Hard boundaries are maintained across sub-domains. The maximum distance of extrapolation from last known data points for the inferred material is dependent on the geological continuity and confidence across the lode, but less than 40m for the deposit.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been cross checked against several previous estimates. The mine reconciles well against the model and mill with no issues identified.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) and optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 2m x1m to ensure high volume resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but typically equate to 1-1.5 times the current 40 x 40m resource definition spacing. A three pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to structural orientation and specific alteration assemblage. The geological interpretation is initially created from drill data but calibrated with mapping of open pit exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. Domain composites are visually compared to the estimated block model in cross and long section to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Carosue Dam, and the natural grade distinction above background, a cut-off grade of 0.5g/t has been implemented.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The deposit has historically been mined as a trial open pit. Open Pit mining activities have recommenced at Million Dollar and consist of conventional open pit load and haul operations. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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 testing of transitional ores identified leach recoveries from 92% to 94% with a gravity gold component of 30% - 42%.

APPENDIX C: 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.	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for Million Dollar were determined via testing of representative intervals from diamond drill holes. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the Acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Million Dollar resource is classified as Measured, Indicated or Inferred assigned via boundary string by domain based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, search pass, kriging efficiency / slope / variance, grade and geological continuity. Mineralisation has been categorised as Measured if it has been exposed by mining (open pit or development), have drill spacing at <=10x10m's, estimated in the first search pass, have established grade and geological continuity, and >50% kriging efficiency and >80% slope. Indicated material is assigned if drill spacing is between 10x10m and 35x35m, search pass either 1 or 2, established grade and geological continuity, predominantly positive kriging efficiency and >50% slope. Inferred material is drill spacing between 35x35m and 80x80m's with established geological continuity. All other mineralisation is assigned a Potential resource category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Northern Star undertake an extensive review of the model that covers: ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, and composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical production data is not available, so no comparison of the model has been made.

APPENDIX C: TABLE 1

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.	The Mineral Resource Model for the Million Dollar gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Saracen using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of March 2022 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	A Competent Person along with a geotechnical consultant has conducted several site visits to the Million Dollar open pit since the inclusion in the Carosue Dam operations' life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Million Dollar pit is in operation, and all required Statutory Approvals has been granted. Saracen has completed all required feasibility study and it has positively passed through all economic and social risk management criteria for recommencement. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Saracen has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.60g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and input parameters derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Million Dollar Reserve.
	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.	Mining method employed at Million Dollar is conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operation. That way it provides good operating dataset for production and productivity rate measurement and financial modelling. Million Dollar Reserve pit designed to include couple of successive cutbacks to achieve life of mine Reserve such that it meets the operation efficiency, safety and production rate. Appropriate mine schedule and lead time have been applied to maintain efficient mining operations between the stages.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Life of Mine geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to assist geotechnical aspect of technical studies. The pit is in operation and site geotechnical team is assessing and monitoring continuously the pit wall and stability performance. The Grade control method employed at Million Dollar uses RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Saracen.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	To determine dilution the MSO method was implement. The model was then created using the mineable MSO shapes with the element of minimum mining width and mineralisation width to determine planned and unplanned dilution. The final estimated mining dilution is approximately ~12%.
	The mining recovery factors used.	A mining ore loss factor of 7.5% is estimated using the MSO method. The resultant estimation reflects the mining performance based in ore body characteristic, mining method and equipment utilised.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any minimum mining widths used.	A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Saracen operations and reflects the suitability and efficiency of the mining performance
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	. The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of underground mines, 3.7mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Million Dollar deposit is estimated at 94.0%. The recovery estimation is based on met test work and ongoing actual average recovery data collected at the Carosue Plant. The ore from Million Dollar has started processing at Carosue plant and associated ongoing met test work is being carried out for improvement and reconciliation process.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Million Dollar ore that can impact on ore recoveries at Carosue Plant.
	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.	Number of samples of each expected rock type and grade bins have been sampled through the Carosue Dam processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Million Dollar ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	The Million Dollar open pit is now full operation. All required Environmental studies have been completed and Statutory Government Approvals including clearing permits, works approvals, dewatering and discharge licence have been granted. A Mining Proposal and management plan has been approved for the reserve pit. The existing Carosue Dam processing facility at which the Million Dollar ore will be processed and the accommodation village, all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases. A waste rock characterisation study has been carried out and it is expected to be representative of waste rock. An appropriate landform design criterion has been applied based on rock characteristics to accommodate the current and any future pit expansion plan.
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.	The required infrastructure for Million Dollar pit commencement has been set out including offices, workshop, fuel and water storage, drainage and camp facilities. The Million Dollar mine site is ~50km from the CDO Processing Plant and ~120km northeast of Kalgoorlie, adjacent to Yarri Road. Carosue Dam Operations are well established, with mining activities being conducted by Saracen since 2009. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation comprises at 3.7mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A modern accommodation camp is located within a few kilometres of the Porphyry mining area. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both Northern Star and Shire of Kalgoorlie gravel roads are well maintained. The Porphyry mine site is ~50km from the CDO Processing Plant and ~120km northeast of Kalgoorlie, adjacent to Yarri Road.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Majority of capital work relating to infrastructure setup and geology drill program has been completed. Further allowance has been made in financial modelling for the pre striping of the pit.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies, and consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations.
	Allowances made for the content of deleterious elements.	There is no evidence of any deleterious elements within the ore or waste that required any additional cost allowances.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5%, and a third party royalty of 1.5% is payable.
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.	For the purposes of Ore Reserve estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Northern Star has good relations with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners, with those relationships maintained and strengthened over time. The mine is located on leasehold pastoral land and all appropriate compensation agreements are in place. Aboriginal heritage surveys have been conducted and maintain no negative impact within the area. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed appropriately. Adequate water diversion bunds have constructed during the project commencement of the operation to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	A Mining Proposal has been granted for reserve pit, as well as other Statutory Government permits including vegetation clearing, dewatering and discharge licences.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as being Probable has been derived from Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Carosue Dam and Thunderbox operations and supplied from contract mining companies and consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Million Dollar deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Proven ore from Ore Reserve estimate has been derived from Measured category and 100% of Probable ore has been derived from Measured and Indicated category of Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ - Resource estimate ▪ - significant operating history, ▪ - application of current industry practices, ▪ - appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. The Million Dollar operation uses the same grade control methods that are widely utilised at other Norther star open pit operations.
	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.	As above
	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.	As above
	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.	As above

JORC Code, 2012 Edition – Table 1 Report

Porphyry – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken in the Porphyry project area by Northern Star have included reverse circulation (RC), diamond drillholes (DD) and RC grade control drilling within the pits. Historic methods conducted since 1945 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling is carried out as specified within Northern Star's sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1945- 2003).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond core is HQ or NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are riffle or cone split and sampled into 1m intervals with total sample weights under 3kg Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling were carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit is sampled by 887 RAB holes, 28, aircore holes 6,156 RC holes (assumed standard 5 ¼ "bit size) 106 surface RC precollars with NQ2 diamond tail drill holes, and 332 surface diamond core (NQ and HQ drill diameter) drill holes. Diamond tails prior to 2013 were oriented using an Ezy-mark tool. Diamond tails (2020-Current) are orientated using the Reflex Act III. Limited historic surface diamond drill core was oriented via unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >98%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. The sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling is sampled to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Diamond drilling has high recoveries given the competent nature of the ore body which corresponds to minimal loss of material. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
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.	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are catalogued and stored in chip trays for future reference. Core is photographed is saved using Imago software in a wet state. All data is captured in a systematic manner to ensure data integrity and appropriateness for resource estimation.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Most geological data that requires description is qualitative, and where measured, such as structural and geotechnical data is quantitative. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All diamond drillholes and exploration RC holes are logged in full. Historically, every second drill line of logged in grade control programs with infill logging carried out as necessary. Historical resource definition and exploration holes were logged completely. Currently every hole is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut onsite using an automatic core saw. Metallurgical drillholes were full core sampled and all exploration drillholes were half core sampled. Samples are always collected from the same side. Historic diamond drilling has been sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration and GC RC samples are cone or riffle split. Rarely wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using spear, riffle and unknown methods.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:25 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 have been utilised for reporting gold mineralisation at Porphyry.
	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 material (standards and blanks) with a wide range of values is inserted into every drillhole at a rate of 1:25 for exploration and resource definition RC and DD, and 1:20 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs several internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Porphyry, but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Historically, downhole surveys were carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Currently GC drilling Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	Porphyry uses the MGA51 grid system (GDA94) with a +2,000m elevation on the RL plane.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Historic data has been converted and is used in the MGA grid space.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for exploration drilling ranges from 20m x20m to 60mx60m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic reconnaissance RAB and RC sampling was composited into 2, 3 or 4m samples.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias is thought to occur due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star's geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Porphyry pit is located on M31/3, with related deposits Pioneer Paddock and Maingays situated on M31/3 and M31/5. Near mine exploration extends onto M31/4 and M31/6. The tenements are held 100% by Northern Star Resources Ltd. Mining Leases M31/3, M31/4, M31/5 and M31/6 have a 21 year life and are held until 2025. All are renewable for a further 21 years on a continuing basis. Mining Leases M31/3, M31/4, M31/5 and M31/6 are each subject to one royalty agreement and one caveat (54H/067, 55H/067, 56H/067 and 57H/067, respectively). M31/3, M31/4 and M31/5 are each subject to a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M31/3, M31/4, M31/5 and M31/6 are subject to the Edjudina Pastoral Compensation Agreement. The tenements are affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) native title claims. There are no registered Aboriginal Heritage sites within M31/3, M31/5 and M31/6. A single Aboriginal artefact scatter (ID2323) lies within the northern portion of M31/4 but is not impacted by current mining and exploration activities. The Mining Rehabilitation Fund applies to the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Porphyry deposit was discovered in the 1930s with mining operations carried out from 1936 to 1943 and minor works occurring up until 1972. Near mine exploration programs were carried out during this time. Pennzoil acquired the project in the late 1970s and embarked on an extensive RAB and DD program. The creation of Edjudina Gold

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Mines led to the reopening of the mine in 1984, with operations at Porphyry and Million Dollar continuing until 1988. Extensive RC and DD drilling was carried out also during this period, outlining the Maingays mineralisation. In 1989 Westralian acquired the lease and completed further resource and exploration drilling, finding mineralisation at Pioneer Paddock. Mining did not recommence due to production rate concerns. Mount Edon acquired the project and carried out limited RAB and RC drilling before being taken over by PacMin who suspended work at the project. Sons of Gwalia carried out minor drilling before their collapse and takeover of the project by St Barbara.
Geology	Deposit type, geological setting and style of mineralisation.	The Porphyry deposit lies in a belt of greenstone-granite within the Edjudina-Kanowna region of the Archaean Yilgarn Block. The region of alternating mafic-ultramafic and felsic clastic sequences is currently considered overlapping contemporaneous volcanic episodes. The deposit is contained within a quartz monzonite, which intrudes the greenschist facies greenstone within the Murrin-Margaret sector. Mineralisation, especially high gold values is associated with intense shearing and confined to thin, intensely sheared bands approximately 10cm thick. The edge of the mineralisation feathers out into multiple, thin low grade bands. Generally, a halo of weak sheared and carbonatisation envelope the strongly sheared and mineralised zone of quartz-pyrite veining and hematite alteration. The most obvious guides to gold mineralisation are shearing, quartz-pyrite veining and strong hematite alteration. Mineralisation is structurally controlled. The deposit is segregated into a series of lenses, with the largest measuring 400m by 150m. The ore lenses maybe separated by faults but are generally stacked en echelon. Within each lens, the distribution of gold mineralisation is a complex series of en echelon sub-lens of 20m to 40m in width, segregated by waste bands. The lenses contain ore pods that strike perpendicular to the orebody and may dip approximately 40° south. (Smith, 2004). Ore lenses also step to the right in longitudinal section suggesting sinistral movement on the north-south portion of the mineralised structure.
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	All material data is periodically released on the ASX: 27/04/2012, 28/07/2011, 03/06/2011, 30/01/2009 Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results are being released
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 significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results are being released
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	All results are reported as downhole lengths. This remains consistent with other announcements.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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	No substantive data acquisition has been completed in recent times.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	
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).	Porphyry is a developed project with extensive resource definition drilling occurring during FY22. Drilling activities focused on infilling internal optimisations while also testing the lateral and depth extents of the deposit. Porphyry is anticipated to commence underground development in FY23. At present the Maingays' open pit (located immediately south of the former Porphyry open pit) is being mined to provide a portal location for the Porphyry underground.
	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 and maps of future extensions and work are available in the appropriate ASX announcements.

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.	Northern Star utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors during data entry and import processes. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person regularly visited the site during exploration and mining phases to assess geological competency and ensure integrity across all geological disciplines. The competent person has built a sound understanding of the deposit geology thus far.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The confidence in the geological interpretation of the Porphyry deposit is considered robust. The interpretation has been based on the detailed geological work completed by Northern Star and previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The Porphyry deposit lies in a belt of greenstone-granite within the Edjudina-Kanowna region of the Archaean Yilgarn Block. The region of alternating mafic-ultramafic and felsic clastic sequences is currently considered overlapping contemporaneous volcanic episodes. The deposit is contained within a quartz monzonite, which intrudes the greenschist facies greenstone within the Murrin-Margaret sector. Mineralisation, especially high gold values is associated with intense shearing and confined to thin, intensely sheared bands approximately 10cm thick. The edge of the mineralisation feathers out into multiple, thin low-grade bands. Commonly, a halo of weakly sheared and carbonate altered rocks envelope the strongly sheared and mineralised zone of quartz-pyrite veining and hematite alteration. The most obvious indicators of gold mineralisation are shearing, quartz-pyrite veining and strong hematite alteration.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, structure and alteration. Interpreted cross cutting regional faults have been observed and have been used to guide disruptions in the position of the key mineralised domains. The current resource has been interpreted from 332 surface diamond holes, 106 surface RC with NQ2 diamond tail drill holes and 6,156 RC holes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The Porphyry deposit is generally shallow dipping in geometry, with clear well-defined geological zones that are coincidental with the tenor of the mineralisation. Northern Star considers the current interpretation to be robust based on all the examined geological data.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. Structural controls on mineralisation are shallow dipping brittle shear zones, related to the NNW trending regional faults. Mineralisation is confined within two sub-parallel shear zones, the northern Porphyry shear zone and the southern Million Dollar shear zone. The two shear zones strike North and dip 20°- 25° east, lying close to the monzonite/greenstone contact along much of its length. Mineralisation thickens in the middle of the Porphyry structure and plunges to the SE.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Porphyry is primarily hosted within a quartz monzonite and mineralisation is structurally controlled. The deposit is segregated into a series of lenses, with the largest measuring 900m by 600m. The ore lenses maybe separated by faults but are generally stacked en echelon. Within each lens, the distribution of gold mineralisation is a complex series of en echelon sub-lens of 20m to 40m in width, segregated by waste bands. The lenses contain ore pods that strike perpendicular to the orebody and may dip approximately 40° south. (Smith, 2004). Ore lenses also step to the right in longitudinal section suggesting sinistral movement on the north-south portion of the mineralised structure.
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 gold mineralisation at Porphyry strikes about 1.6 km in length spanning over an area with 900m in width. The mineralisation extends to below 300m 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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are defined from a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond and RC samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Extreme grades are not common in the data set and all domains are analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Many of the principal lodes exhibit bimodal grade populations. These internal populations are controlled by grade indicators derived from inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1x2x1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Hard boundaries are maintained across sub-domains. The maximum distance of extrapolation from last known data points for the inferred material is dependent on the geological continuity and confidence across the lode, but less than 40m for the deposit.
	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 resource models are compared to the immediate previous and budget model to determine changes from new input data. Porphyry open pit has previously been mined and milled and this material is considered well understood.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements or other non-grade variables of economic significance.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Porphyry was constructed using a 5 mE by 10 mN by 5 mRL parent block size with sub-celling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell size scale. Search ellipses and passes and minimum and maximum search number parameters are detailed below. The search strategy was set up such that the first search pass would fill blocks informed by the typical drill spacing. The second search used search ellipse multiplied by a factor of 2.5, while the third search increased the dimensions by a factor of 5 to ensure filling of all blocks. With the very limited across structure variogram range, a limit of 4 composites per drill hole was set for the main lode HG domain. The first search pass used a maximum of 26 and a minimum of 6 samples. The second search pass used a maximum of 26 with a minimum of 4 samples while the third search pass used a maximum of 26 with a minimum of 2 sample.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to structural orientation and specific alteration assemblage. The geological interpretation is initially created from drill data but calibrated with mapping of open pit exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. Domain composites are visually compared to the estimated block model in cross and long section to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Carosue Dam, and the natural grade distinction above background, a cut-off grade of 0.5g/t has been implemented.
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.	Mining of the Porphyry at this stage deposit will be by Open pit mining methods or Underground methods involving mechanised mining techniques. Open pit mining consists of a cut-back on the existing Maingays' Pit. Some of the factors used in consideration of the mining method include proximity of the mineralisation to surface, geotechnical and hydrogeological factors, prevailing gold price, planned mining dilution and mining recoveries and the average plant processing recoveries. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources, and for the underground resource within MSO underground shells generated at 1.29 g/t cut-off.
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 testing (and processing operations at CDO) identified Porphyry ores as being free milling at coarse grind sizes with leach recoveries more than 90%. Metallurgical testing identified Porphyry U/G ore as being free milling at 140-micron grind sizes with leach recovery around 89%.
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.	No processing or beneficiation of ore expected on these tenements, as ore is hauled to Carosue Dam
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for Porphyry were determined via testing of representative intervals from diamond drill holes. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the Acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit-by-deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Porphyry resource is classified as Measured, Indicated or Inferred assigned via boundary string by domain based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, search pass, kriging efficiency / slope / variance, grade and geological continuity. Mineralisation has been categorised as Measured if it has been exposed by mining (open pit or development), have drill spacing at <=10x10m's, estimated in the first search pass, have established grade and geological continuity, and >50% kriging efficiency and >80% slope. Indicated material is assigned if drill spacing is between 10x10m and 35x35m, search pass either 1 or 2, established grade and geological continuity, predominantly positive kriging efficiency and >50% slope. Inferred material is drill spacing between 35x35m and 80x80m's with established geological continuity. All other mineralisation is assigned a Potential resource category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Northern Star undertake an extensive review of the model that covers:

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		▪ Model inventory and comparisons to previous and budget models if in existence. ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, and composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical production data is not available, so no comparison of the model has been made.

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.	The Mineral Resource Model for the Porphyry gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of January 2022 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person is conducting frequent ongoing site visits to the Carosue Dam Operations (CDO) mine site. Porphyry is located 50kms northwest of the CDO Processing Plant and regularly visits the mine. Northern Star and consultant geotechnical engineers regularly visit Porphyry to inspect the mine and gather data used in the preparation of geotechnical reports to define parameters for underground mining. Hydrogeology consultants have visited Porphyry to gather data and inspect the inflow of groundwater into the open pit, used in the preparation of reports used to determine water management strategies.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Porphyry deposit was mined as an open pit mine for a period of 24 months between 2010-2012 under Saracen ownership. Since then, a revised feasibility level study was undertaken with a view to recommence open pit operations and it has been included in the Carosue Dam life of mine plan. Open Pit The 2022 Ore Reserve has included all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs. Underground The 2022 Ore Reserve is an updated design of the prefeasibility level underground mining study completed in 2019. It includes a detailed mine design, various capital and operating inputs, costs of mining, surface haulage, processing, general administration and environment management related costs.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has conducted an open pit feasibility level study with all appropriate supporting mining studies required for ore reserve estimation.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Open Pit The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate. Underground For Ore Reserve Estimate a planning cut-off grade of 1.63g/t was calculated based upon an assumed gold price of AUD$1,750/Oz and applicable processing, haulage and administration costs. A spatial economic assessment of each mining block was also completed to ensure all costs required to extract that mining block a covered by the revenue generated. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
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).	Open Pit The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Porphyry Reserve. Underground The Porphyry underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for Ore loss due to mining recovery and unplanned dilution have been applied to the economic analysis of the design to generate the ore reserve.
	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.	Open Pit The mining method to be employed at Porphyry will be conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operations, providing a good operating dataset for production and productivity rate measurement and financial modelling. The Reserve pit is designed as a cutback to the existing mined pit in an appropriate manner to meet operation efficiency, safety and productivity. Appropriate mine schedule and lead time have been applied to maintain effective operational delays and productivity rate. Underground Underground mechanised mining for development, ground support, and production stoping is planned to be used at Porphyry. Mining and geotechnical studies determined the preferred mining method be long hole open stoping with remnant in-situ pillars to be appropriate for the deposit. This method has been used at other operations in Western Australia with a similar geometry to Porphyry.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Open Pit Geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to oversee geotechnical aspect of technical study and ongoing support. It is expected that once the pits are in operation there may be some need for additional geotechnical input and reflect any changes to into life of mine pit design. The Grade control method to be employed at Porphyry will use RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Northern Star. Underground Several external consultants have reviewed the deposit and previous production results. Recommendations regarding mine design and production mining methods have been incorporated within the mine design. In-situ pillars has been incorporated into the mine design to control hangingwall stability and prevent unplanned dilution. A grade control program with associated grade control drilling designs, and sampling costs have been included in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised. The resource model used for the ore reserve calculations was PO220131_RES_MINE.dm.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The mining dilution factors used.	Open Pit To determine dilution the MSO method was implemented. The model was then created using the mineable MSO shapes with the element of minimum mining width and mineralisation width to determine planned and unplanned dilution. The final estimated mining dilution is approximately ~16%. Underground An allowance for mining dilution was incorporated into the mine design. An additional unplanned dilution factor of 15% has been assumed for all stopes as all planned dilution has been accounted for in the stope design shape.
	The mining recovery factors used.	Open Pit A mining ore loss factor of 6% is estimated using the MSO method. The resultant estimation reflects the mining performance based in ore body characteristic, mining method and equipment utilised. Underground A mining recovery factor of 88% has been assumed for all stopes, while a mining recovery factor of 100% has been assumed for all development activities.
	Any minimum mining widths used.	Open Pit A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Northern Star operations and reflects the suitability and efficiency of the mining performance. Underground A minimum stope width of 4.0m was adopted in the design process.
	The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Open Pit Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources. Underground A minor amount (<1% of tonnes) of inferred resources are contained within underground mine design, in stopes and development at the periphery of the indicated resource category material. This material contributes a minor amount of metal (<1% of ounces) within the design. Therefore, the reserve has a minor sensitivity to the inclusion of inferred resources.
	The infrastructure requirements of the selected mining methods.	Open Pit The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of underground mines, 3.7mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan. Underground Standard underground infrastructure has been included and will be developed as part of the mine design, including a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate these methods of mining.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 92 to 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Porphyry deposit is estimated at 92%. The recovery estimation is based on met test work and past actual average recovery data collected at the Carosue Plant. Approximately three years of processing the Porphyry ore through this plant have resulted in a solid understanding of the metallurgical parameters of the ore. An average gold recovery for Porphyry U/G is estimated at 88.9%. The recovery estimation is based on met test work.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Porphyry ores.
	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.	Ore from the Porphyry open pit has been treated at the CDO Processing Plant since 2010. When in operation the Porphyry ore were processed through to Carosue Dam that representing a sizeable bulk sample/pilot test. Number of Porphyry U/G samples of each expected rock type and grade bins have been sampled for trial test work. These samples are considered as sufficient to represent the Porphyry U/G ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	Porphyry open pit is currently on 'care and maintenance'. All required Environment studies have been completed and Statutory Government Approvals have been granted. A Mining Proposal and management plan for the Open Pit has been approved for the reserve pit. The Mining Proposal will be revised and amended at later stage for underground reserve inclusion. The existing Carosue Dam processing facility at which the Porphyry ore will be processed, and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases. Waste rock characteristic study has been carried out and it is expected to be representative of waste rock. It is proposed that all underground waste rock will remain within the existing open pit. An appropriate landform design criterion has been applied based on rock characteristic to mitigate current and any future pit expansion plan.
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.	The Porphyry deposit will require minimum infrastructure hence provide ability to recommence operation in short timeframe. The Porphyry pit is ~50km from the CDO Processing Plant and ~120km northeast of Kalgoorlie, adjacent to Yarri Road. Carosue Dam Operations are well established, with mining activities being conducted by Saracen/Northern Star since 2009. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation comprises at 3.7mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A modern accommodation camp is located within a few kilometres of the Porphyry mining area. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both Northern Star and Shire of Kalgoorlie gravel roads are well maintained.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	<u>Open Pit</u> Majority of capital work relating to infrastructure setup has been completed. Further allowance has been made in financial modelling for the pre striping of the pit. <u>Underground</u> Capital costs relate to establishment of capital infra-structure and continuing expansion of capital works for Porphyry underground. The cost estimates are based on historical costs for similar work undertaken at Carosue Dam for the establishment and operation of the Deep South, Karari and Whirling Dervish underground mines.
	The methodology used to estimate operating costs.	Open Pit Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies and independent consultants. Underground Operating costs for underground mining have been derived from a combination of actual costs from Carosue Dam Operations and submitted indicative pricing supplied by independent mining contractors. Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements.	Previous operational experience on the Porphyry deposit at Carosue Dam did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz. has been adopted for financial modelling.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam Operations.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam Operations.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	An assumed gold price of AUD$1,750/oz. has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is fully operational and Northern Star has good relations with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Aboriginal heritage surveys have been conducted and maintain no negative impact within the area. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and was addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations. A mining contract will be tendered for Porphyry underground prior to the commencement of mining.
	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.	A Mining Proposal and management plan for the Open Pit has been approved for the reserve pit. The Mining Proposal will be revised and amended at later stage for underground reserve inclusion. All required Environment studies have been completed and other Statutory Government Approvals have been granted.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification for Porphyry has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as being Proved and Probable has been derived from Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the open pit and underground project were derived from a combination of historical site data, current operational data relating to Carosue Dam Operations, mining costs supplied by independent mining contractors, and recommendations from industry consultants.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Results of the detailed design and analysis reflect the views of Competent Person regarding the Porphyry deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Indicated Mineral Resource category.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ Resource estimate ▪ significant operating history, ▪ application of current industry practices, ▪ appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. Reconciliation results from past mining at Porphyry, independent consultant recommendations, and suitable factors from currently active underground operations at CDO have been considered and factored into the reserve assumptions where appropriate. The Porphyry operation will utilise the same grade control methods that widely utilised at current Carosue Dam operations.
	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.	As above
	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.	As above
	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.	As above

JORC Code, 2012 Edition – Table 1 Report

Safari Bore – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Northern Star has undertaken reverse circulation drilling (RC) and diamond drilling (DD) at Safari Bore. Historic methods conducted since 1968 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for RC and DD drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and DD core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1968- 2004).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	RC chips are cone split and sampled into 1m intervals with total sample weights less than 3 kg. Diamond core is HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star chip and core samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit was initially sampled by 170 AC holes, 984 RAB holes. 6,565 RC holes (assumed standard 5 ¼ ''bit size) and 66 surface diamond HQ core and unknown diameter holes cover the Safari Bore area (5,383 of which are in pit grade control holes). Northern Star has completed 157 diamond holes and are a combination of HQ/NQ sizes. Diamond holes were oriented using an ACT 111 tool It is unknown if historic diamond drill core was oriented.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC sampling recoveries are recorded as a percentage based on a visual weight estimate. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database Limited historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. Historic AC, RAB, RC and diamond drilling to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries due to the competent nature of the ground meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and diamond core records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference. Core is photographed in both dry and wet state.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All RC and DD drillholes holes are logged in full. Historical logging is complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling has been half core sampled or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using cone, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips and DD core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling, with the duplicate being sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate given the grainsize (90% passing 75 microns) of 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.	All samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay, aqua regia, atomic absorption spectroscopy and unknown methods.
	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 have been utilised for reporting gold mineralisation at Safari Bore.
	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 material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for DD and RC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Safari Bore
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Safari Bore) is used. The two-point conversion to MGA_GDA94 zone 51 is SBEast SBNorth RL MGAEast MGANorth RL Point 1 51000 34000 0 451137.753 6734157.921 0 Point 2 51000 30000 0 451137.890 6730157.896 0 Historic data is converted to the Safari Bore local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for exploration drilling ranges from 40m x 40m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias is thought to occur due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Safari Bore resource is located on M39/307. Near mine exploration extends onto M39/639. The tenements are held 100% by Northern Star Resources Ltd. Mining Leases M39/307 have a 21 year life (held until 2036 and 2024, respectively). The tenements are renewable for a further 21 years on a continuing basis. Mining Leases M39/307 and M39/639 are each subject to a caveat (144H/067 and 150H/067, respectively). The tenements are the subject to a royalty of 1.5 % of Sale Proceeds or otherwise Mineral Value of all minerals extracted (excluding Operating Expenses) payable to Resource Capital Fund III L.P. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M39/307 and M39/639 are subject to the Edjudina Pastoral Compensation Agreement. M39/307 is subject to the Yundamindera Pastoral Compensation Agreement. The tenements are affected by the Nyalpa Pirniku (WC2019/002) native title claim. There are no registered Aboriginal Heritage sites within M39/307 and M39/639. The Mining Rehabilitation Fund applies to the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Unsuccessful nickel exploration was carried out in the Mount Celia project area in which Safari Bore is located in the 1960's and 1970's. Pancontinental Mining pegged the ground in 1988 and began gold exploration beginning with a soil geochemistry survey (deemed ineffective due to depth of cover) followed by regional RAB then targeted RC drilling of anomalous areas. Further RC and diamond drilling was carried out to define the Safari Bore resource. Pan Con entered a joint venture with Goldfields in 1995. Extensive regional RAB and RC drilling were carried out along with RC and diamond resource infill drilling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Sons of Gwalia purchased the project from Goldfields in 2001 and completed further regional RAB and RC drilling along with resource definition RC and diamond drilling before mining commenced in 2003. St Barbara acquired the project following the collapse of Sons of Gwalia. No further exploration activities took place and mining operations were suspended in 2005.
Geology	Deposit type, geological setting and style of mineralisation.	The Safari Bore deposit is located within the eastern part of the Norseman-Wiluna greenstone belt in the Eastern Goldfields province of the Archaean Yilgarn Craton. The deposit sits within the Pinjin fault, a major NNW trending regional lineament and comprises a sub vertically WSW dipping NNW striking package of intensely deformed and altered intermediate to mafic intrusive and extrusive rocks and sediments intruded by felsic porphyry. Mineralisation within this sequence occurs in multiple structural and lithological settings, in four discreet lodes (red, green, purple and Serengeti), all associated with quartz-carbonate-albite hydraulic breccia veins. Serengeti and red lodes lie within the margins of gently southerly plunging felsic porphyry. Green and purple lodes are sub vertical sheets oriented sub-parallel to foliation.
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	All significant exploration results released by Northern Star (Saracen) are documented in ASX statements, notably 18/02/2020
	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.	There are no exploration results to report with this document.
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.	There are no exploration results to report with this document.
	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.	There are no exploration results to report with this document.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	There are no exploration results to report with this document.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	There are no exploration results to report with this document.
	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').	There are no exploration results to report with this document.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from previous campaign have been reported, irrespective of success or not
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 substantive data acquisition has been completed in recent times.
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).	Safari Bore is currently under review and exploration targeting will focus on areas with economic gain.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	

Section 3: Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	The database used for the estimate an extract from an AcQuire SQL database. The primary database is regulated by a locked framework called the AcQuire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the AcQuire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person together with other Northern Star's geology personnel have carried out site visits to the Safari Bore deposit on numerous occasions. The competent person has inspected the deposit and has built a sound understanding of the deposit geology. All geological processes undertaken by Northern Star concerning the Safari Bore resource have been done using Northern Star's standard operating procedures.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The confidence in the geological interpretation of the Safari Bore deposit is considered good. The interpretation has been based on the detailed geological work completed by previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The Safari Bore deposit sits within the Pinjin Fault, a major NNW-trending regional lineament dividing the western low-metamorphic-grade Edjudina Domain from the eastern low-to high-metamorphic grade Linden Domain, although within the area of the Safari Bore deposit both domains display green schist facies assemblages. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. All lodes are associated with quartz-carbonate-albite hydraulic breccia veins. Red Lodes and Serengeti mineralisation lie within and at the margins of a gently southerly plunging felsic porphyry. The Serengeti porphyry and associated mineralisation may be a southern structural repetition of the Red Lode. In contrast to the Red Lodes and the Serengeti mineralisation, Green and Purple Lodes are sub vertical sheets lying sub-parallel to foliation. Wider and higher grade shoots within Green and Purple Lodes plunge gently south, mirroring the plunge of the Red and Serengeti zones. As for the other lodes higher grade mineralisation is associated with zones of hydraulic quartz-carbonate-albite brecciation.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, structure and alteration. Interpreted cross cutting faults have been observed and have been used to guide disruptions in the position of the key mineralised domains.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The Safari Bore deposit is generally sub vertical in geometry, with clear well defined zones that show the tenor of the mineralisation. Northern Star considers the current interpretation to be robust based on all the examined geological data. The current resource has been interpreted from 157 diamond holes, and 6565 RC holes (5383 of which are in pit grade control holes).
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. All lodes are associated with quartz-carbonate-albite hydraulic breccia veins. Red Lodes and Serengeti mineralisation lie within and at the margins of a gently southerly plunging felsic porphyry. The Serengeti porphyry and associated mineralisation may be either a southern structural repetition of the Red Lode porphyry and mineralisation, or separate sub-parallel primary shoots. In contrast to Red Lode and the Serengeti mineralisation, Green and Purple Lodes are sub vertical sheets lying sub-parallel to foliation. Wider and higher grade shoots within Green and Purple Lodes plunge gently south, mirroring the plunge of the Red and Serengeti zones. As for the other lodes higher grade mineralisation is associated with zones of hydraulic quartz-carbonate-albite brecciation.
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Safari Bore is transgressive to lithology and occurs within multiple structural and alteration settings. Although the setting of mineralisation is variable, the distribution of gold mineralisation may be explained by a single mechanism. In plan view, the broad distribution of gold at Safari Bore is consistent with mineralisation

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		within a sinistral oblique strike-slip regime. If the central felsic porphyry and the dioritic sheets are considered to lie sub-parallel to the local D (foliation) orientation then gold mineralisation lies within the R, T and P orientations of a sinistral strike slip regime. The variability in the style of gold mineralisation throughout Safari Bore may be attributed to variations in the orientation of the host lithology, and variable physical and chemical properties.
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 gold mineralisation at Safari Bore strikes about 1.3 km in length spanning over an area with 300m in width. The mineralisation extends to below 280m 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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond, RC and face samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and are top cut proximal to population disintegration. Extreme grades are not common in the data set and all domains are analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Many of the principal lodes exhibit bi/multi-model grade populations. These internal populations are controlled by grade indicators based on inflexion points derived from domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1x2x1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. The maximum distance of extrapolation from last known data points for the inferred material is dependent on the geological continuity and confidence across the lode, but less than 40m for the deposit.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No comparison has been done with previous estimates
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Northern Star is unaware if any elements other than gold have been assayed. Arsenic may have been assayed; however, this data has not been made available.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Safari Bore was constructed using a 5 mE x 10 mN x 5 mRL parent block size with sub-celling to 1 mE x 2 mN x 1 mRL for domain volume resolution. All estimation was completed at the parent cell size scale. The search strategy was set up such that the first search pass would fill blocks informed by the typical drill spacing. The second search used search ellipse multiplied by a factor of 2, while the third search increased the dimensions by a factor of 5 to ensure filling of all blocks. With the very limited across structure variogram range. Minimum and maximum number of samples used are determined through KNA analysis, with the minimum number of samples required relaxed by 2 with each subsequent search pass.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Geological controls and relationships were used to define mineralised domains. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. All lodes are associated with quartz-carbonate-albite hydraulic breccia veins. Red Lodes and Serengeti mineralisation lie within and at the margins of a gently southerly plunging felsic porphyry. The Serengeti porphyry and associated mineralisation may be either a southern structural repetition of the Red Lode porphyry and mineralisation, or separate sub-parallel primary shoots. In contrast to Red Lode and the Serengeti mineralisation, Green and Purple Lodes are sub vertical sheets lying sub-parallel to foliation. Wider and higher grade shoots within Green and Purple Lodes plunge gently south, mirroring the plunge of the Red and Serengeti zones. As for the other lodes higher grade Mineralisation is associated with zones of hydraulic quartz-carbonate-albite brecciation.
	Discussion of basis for using or not using grade cutting or capping.	A top cut was used in each sub-zone both within the main domains and according to regolith, based on a review of the histogram, log probability plot, and a summary graph of the effects of top-cutting for each domain combination. A top cut was selected to minimise the effects of isolated high grade outliers, without cutting a large proportion of the data or contained metal within the domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions were carried out. Reconciliation studies for Safari Bore show that the model is conservative in its upper levels and this can be corroborated from the grade control data where there appears to be a different orientation to the resource interpretation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Samples with extreme high grades that bias the mean and positively skew the grade population within each domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic are used to determine top cuts. Top cuts are typically set proximal to population disintegration.
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.	Mining of the Safari Bore at this stage deposit will be by Open pit mining methods involving mechanised mining techniques. Open pit mining will be most likely by a cut-back on the existing Safari Bore pit. Some of the factors used in consideration of the mining method include proximity of the mineralisation to surface, geotechnical and hydrogeological factors, prevailing gold price, planned mining dilution and mining recoveries and the average plant processing recoveries. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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 was conducted on composite samples from Safari Bore. The test-work was aimed at further defining the metallurgical characteristics of the Safari deposit including gravity gold content, gold recovery, viscosity, oxygen demand, comminution characteristics, and mineralogy. The conclusions from the test work are as follows: Metallurgical test work was conducted on composite samples from Safari Bore. The test-work was aimed at further defining the metallurgical characteristics of the Safari deposit including gravity gold content, gold recovery, viscosity, oxygen demand, comminution characteristics, and mineralogy. The conclusions from the test work are as follows: ▪ Red Lode oxide and fresh material generally produced consistent results throughout the test work programs, with moderate to high gravity recoveries and overall 24 hour recoveries ranging from 87% to 97%. The lower Red Lode recoveries were due to low head grades, and therefore analysis of the data at appropriate ore deposit grades produces a recovery of approximately 95% for both oxide and fresh material. ▪ Purple Lode (transitional) material contained a high gravity recoverable component with a 24 hour recovery of 97% (head grade of 3.0 g/t). Limited tests have been conducted on this lode, and therefore further confirmatory test work will be completed. ▪ Conflicting results were obtained for the Green Lode composites assessed. Two of the three test work programs for the Green Lode material generally yielded moderate gravity recoverable components, and lower overall 24 hour recoveries compared to the Red Lode material at approximately 92%. Some results also suggested that this material may be sensitive to grind size with additional gold locked in the coarser size fractions. ▪ Gold recovery was shown to be independent of grind size for the Red Lode material evaluated. Further analysis of this relationship is warranted, especially for the Green Lode material which tended to exhibit sensitivity to grind size. ▪ Oxygen demand test work conducted on the Red Lode material showed minimal oxygen uptake after one hour of sparging, indicating plant oxygen demand should not be significant. ▪ Pulp viscosity test work conducted on both oxide and fresh Red Lode samples indicated that no pumping or screening issues should be observed with this material. ▪ Abrasion indices for the Red Lode Oxide material were 0.17 increasing to 0.35 for the Red Lode Fresh material. Bond ball mill work indices for the Red Lode Oxide and Fresh composites were 14.3 kWh/t and 17.8 kWh/t respectively. ▪ • Further confirmatory test work is planned to be conducted on Safari Bore to further validate the metallurgical recoveries obtained, and to generate additional information for areas with limited results.
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.	There have been previous mining activities at Safari Bore and a number of environmental factors have been considered. These factors include: ▪ Ground water management- dewatering of an estimated 360 kl/day will be required. ▪ This water will be pumped from one or two bores around the pit and from sumps within the pit to a turkey nest dam. ▪ The dam will be used to hold water for dust suppression and as a supply for the proposed Reverse Osmosis plant. ▪ This usage, together with losses from evaporation, is expected to account for the total volumes pumped. No off-site discharge of mine water is expected to be required. ▪ Waste Rock Disposal and Characterisation- A waste rock control strategy was put in place to minimise the impact ARD (Acid Rain Drainage). ▪ Flora and Fauna- Minimise disturbance of flora and Fauna and rehabilitation programs to be implemented to ensure regeneration of the flora fauna. ▪ Aboriginal Heritage Protection- Identified archaeological sites should be avoided at all costs. Northern Star will consider the above factors and others to meet the requirements of the current legislation.
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.	Previous owners have taken routine density measurements when drilling diamond core and have been validated with measurements taken by Northern Star during the most recent drill campaign. The method of calculation is the water displacement technique. Density in the current model has been assigned based on oxidation state. An analysis of both logged density and density as assigned by regolith surfaces was carried out.
	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.	The frequency and distribution is unknown at this point in time. It has assumed from the good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Average mean of densities collected for each lithological and weathering profile has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the construction of wireframes which select and codes the appropriate blocks with the nominated resource classification category.
	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).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. The Safari Bore Resource model was completed by an external consultant under guidance from Northern Star geology personnel. Northern Star has reviewed the resource estimates and is satisfied that they are a true reflection of the global in situ resources for Safari Bore.
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 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 resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the global in situ resources.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Safari Bore resource model was completed by Northern Star geology personnel. The model has been validated thoroughly and the competent person is satisfied that the estimated gold grades give a true reflection of the global in situ resources. Reconciliation studies for Safari Bore show that the model is conservative in its upper levels and this can be corroborated from the grade control data where there appears to be a different orientation to the resource interpretation.

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.	The Mineral Resource Model for the Safari Bore gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of March 2022 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	A Competent Person along with a geotechnical consultant has conducted several site visits to the Safari Bore open pit since the inclusion in the Carosue Dam operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Safari Bore deposit has been mined previous as open pit mine. More recently Northern Star has conducted revised feasibility level study with the view to recommence open pit operation and has been included in Carosue Dam life of mine plan. The 2022 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and input parameters derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Safari Bore Reserve.
	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.	Mining method to be employed at Safari Bore will be conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operation. That way it provides good operating dataset for production and productivity rate measurement and financial modelling.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Life of Mine geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to assist geotechnical aspect of technical studies. It is expected that once the pit is in operation there may be some need for additional geotechnical input and reflect any changes into life of mine pit design. The Grade control method to be employed at Safari Bore will use RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Northern Star.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 15% is applied in the Ore Reserve estimation and reflect the mining performance based in ore body characteristic, mining method and equipment utilised.
	The mining recovery factors used.	A mining ore loss factor of 5% is applied in the Ore Reserve estimation and reflect the mining performance based in ore body characteristic, mining method and equipment utilised.
	Any minimum mining widths used.	A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Northern Star operations and reflects the suitability and efficiency of the mining performance.
	The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of underground mines, 3.7mt processing plant to support current and future mine plan. All other necessary infrastructures like office, workshop and camp are already in place being proximity to Deep South underground mine which is in operation.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93% and 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Safari Bore deposit is estimated to be 94.0%. The recovery estimation is based on met test work and ongoing actual average recovery data collected at the Carosue Plant.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Metallurgical test work has been carried out on samples from the Safari Bore deposit by test and plant lab and indicating higher ~94% recovery.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Safari Bore ore that can impact on ore recoveries at Carosue Dam Plant.
	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.	Number of samples of each expected rock type and grade bins have been sampled through the Carosue Dam processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Safari Bore ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	There are no known deleterious elements present in Safari Bore ore that can impact on ore recoveries at Carosue Dam Plant.
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.	The required infrastructure for Safari Bore mining namely Workshop, offices, accommodation camp, fuel and water storage facilities will utilise existing well maintained facilities for Deep South underground, which is located within close proximity. The Safari Bore mine site is ~70km from the CDO Processing Plant and ~200km northeast of Kalgoorlie, adjacent to Yarri Road. Carosue Dam Operations are well established, with mining activities being conducted previously by Saracen now by Northern Star since 2009. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation comprises at 3.3mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	There will be minimum capital cost relating to infrastructure setup as majority of the facilities have been already layout. Further allowance has been made in financial modelling for pre striping of the pit.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies, and consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations.
	Allowances made for the content of deleterious elements.	There is no evidence of any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5%, and a third party royalty of 1.5% is payable.
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.	For the purposes of Ore Reserve estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	There is a transparent quoted market for the sale of gold.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is in operation and Northern Star has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land and all appropriate compensation agreements are in place. Aboriginal heritage surveys have been conducted and maintain no negative impact within the area. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed appropriately. Adequate water diversion bunds constructed at the existing mined pit and will be adequately reconstructed during the project commencement of the operation to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	A Mining Approval will be submitted for the updated mine reserve pit in timely manner. Environmental study has been completed and other Statutory Government Approvals including vegetation clearing, dewatering and discharge licence have been granted.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as being Probable has been derived from Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Northern Star's Carosue Dam and Thunderbox operations and supplied from contract mining companies and consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Safari Bore deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Indicated category of Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ - Resource estimate ▪ - significant operating history, ▪ - application of current industry practices, ▪ - appropriate operating and capital costs,

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. The Safari Bore pit mining will utilise the same grade control methods that are widely utilised at current Northern Star open pit operations.
	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.	As above
	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.	As above
	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.	As above

JORC Code, 2012 Edition – Table 1 Report

Atbara & Qena – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star in the Atbara/Qena region has consisted of reverse circulation (RC) drilling and RC pre-collar diamond drill tail (RCD). Historic methods conducted since 1993 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for RC and DD drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and DD core provide high quality representative samples for analysis. RC, RAB, AC, RCD and DD core drilling was completed by previous holders to industry standard at that time (1993- 2002).
	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.	RC chips are cone split and sampled into 4m composite intervals and 1m intervals with total sample weights under 3kg. Diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core. All methods are used to produce representative samples of less than 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, B/ETA and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The Atbara/Qena area was initially sampled by 85 AC holes, 170 RAB holes, 224 RC holes (assumed standard 5 ¼ "bit size) and 22 surface diamond HQ core and unknown diameter holes. Northern Star has completed 74 surface RC drill holes, 89 surface diamond holes and 30 RC precollars /diamond tail drillholes (tail depths averaging 166m) Diamond holes were oriented using a Reflex Act III tool. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. Daily rig inspections are carried out to check splitter condition, general site and address general issues. The sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling was sampled to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
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.	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core and chips are photographed in a wet state using Imago photographic software. Qualitative and quantitative logging of historic data varies in its completeness. All RC, RCD and Diamond logging is completed in full.
	The total length and percentage of the relevant intersections logged.	All diamond drillholes and exploration RC holes are logged in full. Every drill line is logged in grade control programs. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling has been half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using spear, grab, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip samples and diamond core are analysed by external laboratories using a 40g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and are total digest methods. Historic sampling includes fire assay, aqua regia, B/ETA and unknown methods.
	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 have been utilised for reporting gold mineralisation at Atbara.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Certified reference material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and DD drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Atbara/Qena
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using the Axis Champ north seeking Gyroscopic continuous in rod survey instrument taking readings every 18m (diamond drilling) or 30m (RC drilling) down hole as drilling progresses, with a continuous survey conducted at the end of the hole taking a reading every 1m metre. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	GDA94 zone MGA_51 is used
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for early stage exploration drilling is 80m x 80m. Later stage exploration drilling is 40m x 40m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	RC drillholes were composited into 4m samples, with mineralised areas being re-sampled to 1m intervals from an original sample coming off the RC rig cone splitter. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias is thought to occur due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

APPENDIX C: 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.	The Atbara/Qena area is located on M31/210, M31/219, and M31/220 The tenements are held 100% by Northern Star Resources Limited. Mining Leases M31/219 and M31/220 have a 21 year life (held until 2041) and are renewable for a further 21 years on a continuing basis. Mining Lease M31/210 has a 21 year life (held until 2023) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/210 is subject to two third party royalties and associated caveats (Caveat 62H/067 and Caveat 513935) Mining Lease M31/219 is subject to two third party royalties and one caveat (Caveat 63H/067). Mining Lease M31/220 is subject to two third party royalties and one caveat (Caveat 64H/067). Mining Lease M31/220 is subject to a bank mortgage (Mortgage 499142). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M31/210 and M31/219 are subject to the Gindalbie Pastoral Compensation Agreement. Mining Lease M31/220 is subject to the Pinjin and Gindalbie Pastoral Compensation Agreements. Mining Leases M31/210, M31/220, and M31/219 are affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) registered claims. The Mining Rehabilitation Fund applies to the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Carosue Dam project area in which Atbara/Qena is located has been subjected to extensive gold exploration by numerous companies since 1991. Airborne geophysics conducted by Aberfoyle Resources in 1997 highlighted numerous targets in the project area with subsequent AC, RAB and RC drilling intersecting mineralisation. Oriole Resources obtained the project in 1998 and, through wholly owned subsidiary company PacMin, completed closely spaced RC drilling to develop the Luvironza resource through to reserve status. Sons of Gwalia carried out minor drilling before their collapse and takeover of the project by St Barbara.
Geology	Deposit type, geological setting and style of mineralisation.	The Atbara/Qena mineralisation is situated along the Kilkenny-Yilgangi fault zone on the boundary of the Steeple Hill and Mulgabbie domains. The lithology comprises primarily intermediate felsic volcaniclastic sandstones, intermediate tuffs and intermediate porphyry units intruded by granites of varying composition, with stratigraphy dipping generally to the east at approx. 60 degrees. Mineralisation has a combined lithological and structurally control dipping parallel to the stratigraphy. Mineralisation is continuous along strike in the footwall but is very discontinuous and patchy in the hanging wall structures and overall controlled by the general NW trending ductile faulting and is characterized by weak Hematite banding on the margins to intense hematite-silica alteration hosted in breccia zones adjacent to the faulting with high grade cores typically sericite-silica breccia. Pyrite is the dominant sulphide.
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 total of 607 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. All material data is periodically released on the ASX: 03/05/2021, 18/02/2020, 11/11/2019, 30/7/2019, 30/04/2019, 18/02/2019, 27/11/2018 A select group of Qena intercepts are reported in this release with all details.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
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 significant intercepts have been length weighted with a minimum Au grade of 0.5ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Drilling is generally perpendicular to the mineralisation
	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').	All results are reported as downhole lengths and estimated true thickness
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from previous campaigns have been reported, irrespective of success or not.
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 substantive data acquisition has been completed in recent times.
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).	Extensional exploration for the Atbara/Qena area at this time is under review.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	N/A

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.	The database used for the estimate an extract from an Acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person regularly visits site to assess geological competency and ensure integrity across all geological disciplines.
	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 resource categories assigned to the model directly reflect the confidence in the geological interpretation. The interpretation is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics.
	Nature of the data used and of any assumptions made.	The geological interpretation of Atbara/Qena has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core and RC Chips were all used to help define the mineralised

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		domains and regolith boundaries. Interpreted shears and faults obtained from pit and underground drive mapping further constrained the domaining. The current resource has been interpreted from 74 surface RC drill holes, 89 surface diamond holes and 30 RC precollar /diamond tail drillholes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust. The mineralisation interpretations have evolved with more drilling density to the point where the current interpretation is considered given the available data.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological domains interpreted from all available geological data are used as estimation domains. They are further sub-domained where internal multi-modal grade populations and sufficient sample data is available in order to improve grade homogeneity and reduce variance.
	The factors affecting continuity both of grade and geology.	The Atbara monzonite is the dominant rock type in the Atbara/Qena deposit and its rheological contact, controls the tenor and character of AU mineralisation. The Atbara monzonite is a large unit 1200m long and up to 600m wide and is concordant with stratigraphy. The unit is typified by crystal packed coarse k-feldspar dominance with very little internal variation within the unit. Prior to Northern Stars involvement this unit was logged as conglomerate by previous workers. Generally, the unit is variably altered, where not altered primary hornblende can be seen. Deep weathering can be observed in places apparently associated with the development of major structures. Au-Cu-Mo-Ag mineralisation is widespread throughout this unit and is intimately associated with potassic alteration in the form of potassium feldspar veining and biotite veining.
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.	Current knowledge of mineralisation indicates an 800m long by 450m wide by 450m deep package with multiple lodes developed. Significant copper and molybdenum and silver assays have been received from the system
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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond, RC and face samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. An ordinary kriged estimation is applied to each domain. Variography is created for all domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Hard boundaries are maintained.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations. With broader spaced sample data alternative estimation techniques were trialled but deemed appropriate at this stage.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	It has been identified during the early stages of the drill-out that Atbara/Qena potentially presents a poly-metallic (gold-copper-molybdenum) resource. Pulp samples previously assayed for gold only have been sent to Lab West to test for both the presence of copper and molybdenum. Future programs intend to assay for multi-elements including gold, copper and molybdenum to better assess this economic potential.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) and optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 1m x1m to ensure high volume resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but typically equate to 1-1.5 times the current 40x40m resource definition spacing. A three pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to stratigraphic position, structural orientation, recorded lithology and specific alteration assemblage. The geological interpretation is mostly based on drill data. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high-grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high-grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.

APPENDIX C: TABLE 1

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.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. Domain composites are visually compared to the estimated block model in cross and long section to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain to give an indication of the quality of the estimate.
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 adopted cut-off grades for Mineral Resource Estimation reporting are 0.5g/t for Open Pit Resources within a $2,250 optimised shell
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The mineral resource is reported as open pit at a cut-off's reflective of current breakeven grade requirements for the mining method assumed. The open pit resource is reported at a 0.5g/t cut-off within an $2250 optimised shell reflecting the bulk mining method assumed.
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.	Preliminary work shows, at a 212 micron grind and a residence time of 26 hours, a head grade of 1.34 g/t Au 61% Au is recovered via gravity and a further 25% Au is recovered through cyanidation for a total of 86% Au recovered. At a 106 micron grind and a residence time of 26 hours, a head grade of 1.34 g/t Au 70% Au is recovered via gravity and a further 24 % Au is recovered through cyanidation for a total of 94% AU recovered. Flotation test work on a separate sample has indicated ~80% recovery of copper, ~40% recovery of Molybdenum.
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.	No waste rock characterisation studies have been done. No environmental issues have been identified except dispersive oxidised material. Atbara is 4km north of Northern Star's Carosue Mill where a waste dump construction plan is in place.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for Atbara/Qena were determined via testing of representative intervals from diamond drill holes. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the Acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in transitional to fresh non-porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type and position in the weathering profile has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Atbara/Qena resource is classified as Inferred. The resource classification has been classified on a whole of domain basis using a string in long section considering mainly estimation quality metrics, drill spacing, grade and geological continuity. Mineralisation has been categorised as inferred if material is within a drill spacing of 80x80. All other mineralisation is assigned a Potential resource category.
	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 taken into account and are validated through rigorous QAQC of the drill hole database, geological knowledge and interpretation of the Atbara/Qena deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The reviewing process allows the Competent Person's to assess and sign off on the model.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		At the completion of resource estimation Northern Star undertake an extensive review of the model that covers; ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, and composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams. The resource estimation process is also annually reviewed by external consultants to ensure estimation methodology is robust and aligned to current industry best practice. Recommendations are always reviewed and implemented as appropriate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

JORC Code, 2012 Edition – Table 1 Report

Kurnalpi – 31 March 2022

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Northern Star has undertaken reverse circulation drilling (RC), RC pre-collar diamond drill tails (RCD) and diamond drilling (DD) at Kurnalpi. Historic sampling methods have included rotary air blast (RAB), Aircore (AC), reverse circulation (RC) and diamond drillholes (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for RC and DD drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and DD core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time.
	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.	RC chips are cone split and sampled into 1m intervals with total sample weights less than 3kg. Diamond core is HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core. Samples are selected to weigh less than 3kg to ensure total sample inclusion at the pulverisation stage. Northern Star chip and core samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, screen fire assay, aqua regia and unspecified methods.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit is sampled by 1,492 RAB holes, 509 Aircore holes, 1,124 surface RC holes (utilising a 143mm diameter bit with a face sampling hammer and an external auxiliary booster), 10 RCD holes and 29 diamond core holes from surface utilising NQ diameter drill bits. Diamond holes were oriented using the Reflex ACT III tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. No historic diamond core recovery data has been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. Historical RAB, RC and diamond drilling to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries due to the competent nature of the ground meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and diamond core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC drillholes are stored in chip trays for future reference. RC grade control samples are photographed using the Imago photo software for high resolution geological logging and modelling. Core is photographed in a wet state using Imago photographic software.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Most geological data that requires description is qualitative, and where measured, such as structural and geotechnical data, is quantitative. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All RC and DD drillholes holes are logged in full. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side of the core preserving logging commentary and orientation lines. Historic diamond drilling has been sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All chip samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle, grab, spear and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips and DD core adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip samples and diamond core samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests		Historic sampling includes fire assay, screen fire assay, aqua regia and unspecified methods.
	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 have been utilised for reporting gold mineralisation.
	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 material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and diamond drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No planned twinned holes have been drilled at Kurnalpi.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using a multi-shot, Axis Champ Gyro recorded at 3m intervals. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	Kurnalpi uses the GDA94 zone 51 grid system.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for drilling is 20m x 20m to 80m x 80m.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB sampling was composited into 4m samples.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias has been recognised due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Kurnalpi area is located on M28/84, M28/374, M28/70, M28/92, M28/375 and M28/7. The tenements owned 100% by Northern Star Resources Limited. All Mining Leases have a 21 year life and are renewable for a further 21 years on a continuing basis. There are no registered Aboriginal sites within the Mining Leases. M28/92, M28/374 and M28/375 encroach on "C" Class Reserves with the purpose of Public Utility Mining Leases M28/84, M28/374, M28/92 and M28/375 are subject to a 0.5% Royalty on Gold Production Mining Leases M28/84, M28/374, M28/92, M28/375 and M28/7 are subject to a 1% Royalty of Gross Revenue All production is subject to a Western Australian state government NSR royalty of 2.5%. The Mining Leases are affected by the Maduwongga (WC2017/001) and Kakarra Part A (WC2020/005) Native Title claims. The Mining Rehabilitation Fund applies to the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Kurnalpi Mining Centre, discovered in 1894, is renowned for its alluvial and deep-lead gold. Several large nuggets of more than 200 ounces have been found and prospectors were working shallow deposits for 'alluvial' gold with some success. In 1989, Barrick Exploration conducted geological mapping and sampling of all accessible mine workings within the prospect. Most of the workings were non extensive, generally consisting of exploratory shafts, shallow pits and trenches. Conclusions of the programme discovered significant gold grades were mostly confined to quartz veining, and structures that may follow lithological contacts. Since then, Kurnalpi has been subject to modern exploration techniques from multiple company owners. In March 2012, Snowden was commissioned by Carrick Gold (later changed to Kal-North) to undertake a Mineral Resource estimate for the Brilliant, Discovery Hill, Halfway Hill, Scottish Lass, Sparkle and Dazzle deposits. Results of the 2012 Mineral Resource is summarized in Table 1 below. In June 2021, Northern Star Resources purchased the project from Kal North Gold Mines Ltd.
Geology	Deposit type, geological setting and style of mineralisation.	The Kurnalpi Project is in the Kurnalpi domain of the Norseman-Wiluna greenstone belt in the Yilgarn Craton. The Kurnalpi domain is bounded by the Avoca shear in the west and Yilgangi shear in the east. The domain comprises of a poorly outcropping and lateralized sequence of the Mulgabbie Formation mafic volcanics, dolerite and gabbro intrusives. The greenstone is intruded by a large granitoid body in the north which forms the core of a south plunging anticline. The local geology mainly consists of basaltic flows with several komatiitic, peridotite flows interbedded with Archaean sedimentary rocks such as sandstone, siltstone and chert which is intruded by granitoid rock and gabbroic sills. The area is dominated by the north-northwest Brilliant shear zone which is a control for the gold mineralisation throughout the local area. The weathering profile can be up to 80 m deep and is overlayed by a lateritic ferriferous capping, ranging from 1 m to 5 m thick.
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	All material data was periodically released on the ASX: nominally the report dated: 03/05/2021, 30/07/2019, 29/07/2010 Future drillhole data will be periodically released or when results materially change the economic value of the project.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	N/A
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being released
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being released
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are being released
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling.
	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').	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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 substantive data acquisition has been completed in recent times.
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).	Kurnalpi is scheduled to commence grade control spaced drilling in 2022-2023 financial year. No further exploration programs have been planned.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation.

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.	The database used for the estimate an extract from an AcQuire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of .csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in .csv format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person regularly visited the site during exploration phases to assess geological competency and ensure integrity across all geological disciplines. The competent person has built a sound understanding of the deposit geology thus far.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics.
	Nature of the data used and of any assumptions made.	The geological interpretation of Kurnalpi has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration, and veining assemblages from diamond drill core and RC Chips were used to help define the mineralised domains and regolith boundaries. The current resource has been interpreted from 1,055 RC holes (97,333m), 10 RCD holes (2,388m), 23 diamond holes (3,456m).
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the discrete mineralised zones are considered to be robust. Alternative interpretations bulking mineralisation together has been considered but deemed unsuitable to appropriately constraining metal distribution.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological domains interpreted from all available geological data are used as estimation domains. They are further sub-domained where internal multi-modal grade populations and sufficient sample data is available in order to improve grade homogeneity and reduce variance.
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Kurnalpi is primarily hosted within a series of parallel North/North-west striking, sub-vertical dolerite units. Mineralisation presents as a series of quartz veins hoisted in this dolerite ranging from 0.1m-5m in thickness with the swarm plunging shallowly to the north.
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.	Kurnalpi mineralisation extends from 6,623,550N to 6,623,300N, 425,900E to 425,250E and 220 metres 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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond and RC samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Extreme grades are not common in the data set and all domains are analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Many of the principal lodes exhibit bimodal grade populations. These internal populations are controlled by grade indicators derived from inflexion points in domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1 x 2 x 1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output. Hard boundaries are maintained across sub-domains. The maximum distance of extrapolation from last known data points for the inferred material is dependent on the geological continuity and confidence across the lode, but less than 80m for the deposit.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been cross checked against several previous estimates. The mine reconciles well against the model and mill with no issues identified.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) and optimised using kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 2m x1m to ensure high volume resolution at ore boundaries. The search distances are dictated by the range of each individual variogram but typically equate to 1-1.5 times the resource definition spacing. A three pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to structural orientation and specific alteration assemblage. The geological interpretation is initially created from drill data but calibrated with mapping of surface exposures. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high grade mineralisation. Dynamic anisotropy has been employed on lodes exhibiting excessive undulation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. Domain composites are visually compared to the estimated block model in cross and long section to ensure a robust correlation. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations, and the natural grade distinction above background, a cut-off grade of 0.5g/t has been implemented.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The project has been evaluated as an open pit project which is expected to enter into production in the 2022-2023 financial year. Resource numbers reported are constrained to internally generated $2250 open pit optimisation shell with the resource reported above COG of 0.5g/t.
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 testing on core and RC composites of oxide and fresh ores identified leach recoveries from 86% to 93% with a high gravity gold component (28% - 58%).
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.	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk densities for Kurnalpi were determined via testing of representative intervals from diamond drill holes. The sample size is generally between 0.5 and 1.3kg and the method of calculation is the water displacement technique. Measurements have been recorded in the Acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Kurnalpi resource is classified as, indicated or Inferred assigned via boundary string by domain based on a combination of physical and estimation quality metrics including drill spacing, search pass, kriging efficiency / slope / variance, grade and geological continuity. Indicated material is assigned if drill spacing is between < 40x40m, search pass either 1 or 2, established grade and geological continuity, predominantly positive kriging efficiency and >50% slope. Inferred material is drill spacing between >40x40m and up to 80x80m's with established geological continuity. All other mineralisation is assigned a Potential resource category.
	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 care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Northern Star undertake an extensive review of the model that covers: ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, and composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical production data is not available, so no comparison of the model has been made.

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.	The Mineral Resource Model for the Kurnalpi gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person along with geotechnical consultant has conducted several site visits to the Kurnalpi open pit since the inclusion in Carosue Dam operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Kurnalpi deposit is closely located within Carosue Dam Operations (CDO) area which is in operation. Northern Star has conducted feasibility level study with the view to commence open pit operation and has been included in Carosue Dam life of mine plan. The 2022 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance at CDO. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.55g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Kurnalpi Reserve.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The mining method to be employed at Kurnalpi will be conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other mining operations, providing a good operating dataset for production and productivity rate measurement and financial modelling. Kurnalpi Reserve pit is designed to mine the deposit from natural surface to achieve life of mine Reserve such that it meets the operation efficiency, safety aspect and productivity. Appropriate mine schedule and lead time have been applied to maintain effective operational delays and productivity rate.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Life of Mine geotechnical recommendations were made by an independent consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The Grade control method to be employed at Kurnalpi will use RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Northern Star.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 14% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment.
	The mining recovery factors used.	A mining ore loss factor of 5% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment
	Any minimum mining widths used.	A minimum operating width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Northern Star operations and reflects the suitability and efficiency of the mining performance.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of open pit and underground mines, a 4mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93% and 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Kurnalpi deposit is estimated to be 92% for weathered material and 89% for primary fresh material. The recovery estimation is based on met test work for Kurnalpi material conjunction with past actual average recovery data collected at the Carosue processing Plant.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Kurnalpi ore that can impact on ore recoveries at Carosue Plant.
	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.	Number of samples of each expected rock type and grade bins have been assessed using a similar process to that of the Carosue Dam processing plant. These bulk samples/pilot test works are considered as sufficient to represent the Kurnalpi ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	No minerals are defined by specification
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.	All required Environment studies have been completed and Statutory Government Approvals including works approvals and clearing permit have been granted. A Mining Proposal and management plan will be submitted for the reserve pit at later stage. The existing Carosue Dam processing facility at which the ore will be processed, and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases. A waste rock characterisation study has been carried out and it is expected to be representative of waste rock. An appropriate landform design criterion has been applied based on rock characteristics to mitigate the current and any future pit expansion plan.
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.	The Kurnalpi deposit will require minimum infrastructure hence provide ability to recommence operation in short timeframe. The Kurnalpi pit is ~65km from the CDO Processing Plant and ~90km northeast of Kalgoorlie, adjacent to Yarri Road. Carosue Dam Operation is well established, with mining activities being conducted previously by Saracen now by Northern Star since 2009. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation comprises at 4mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A modern accommodation camp is located within a few kilometres of the Carosue Operations. A new ~40km gravel access road links between Kurnalpi and Carosue Dam Operations will be constructed to facilitate the operational services. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital work related costs have been allocated for the project establishment budget and further allowance has been made in financial modelling for the pre striping of the pit.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations.
	Allowances made for the content of deleterious elements.	There is no evidence of any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is in operation and Northern Star has good relations with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners and those relationships have been maintained and strengthened over the time. The mine is located on leasehold pastoral land with compensation agreements in place. Aboriginal heritage surveys have been conducted. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed appropriately. Adequate water diversion bunds will be adequately constructed during the project commencement of the operation to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	A Mining Proposal and Mine Closure Plan will be submitted using the updated mine reserve pit in a timely manner. Baseline environment studies have been completed and other Statutory Government Approvals (prescribed premises and groundwater abstraction licenses; vegetation clearing permit), will be submitted in a timely manner.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification for Kurnalpi has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as being Proved and Probable has been derived from Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Carosue Dam and Thunderbox operations and supplied from contract mining companies and independent consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Kurnalpi deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Indicated category of Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ - Resource estimate ▪ - significant operating history, ▪ - application of current industry practices, ▪ - appropriate operating and capital costs, The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. The Kurnalpi operation will utilise the same grade control methods that widely utilised at current Northern Star open pit operations.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Estimates are global but will be reasonably accurate on a local scale.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable
	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.	Kurnalpi is unmined

JORC Code, 2012 Edition – Table 1 Report

Monty's Dam - Elliots – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star at Monty's Dam-Elliot's Lode have included reverse circulation drillholes (RC) and diamond drilling (DD). Historic sampling methods conducted since 1983 have included auger, aircore (AC), rotary air blast (RAB), RC and DD drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1991-2003).
	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.	RC chips are cone or riffle split and sampled into 1m intervals with total sample weights under 3kg. Diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Some grade control RC chips were analysed in the Northern Star on site laboratory using a PAL (pulverise and leach) method. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The Monty's Dam-Elliot's Lode deposit was initially sampled by 93 AC holes, 249 RAB holes, 329 RC holes (assumed standard 5 ¼ "bit size) and 15 surface diamond core holes of unknown diameter. Of the 329 RC holes, Northern Star drilled 110 RC holes using a 143mm diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary/ booster. Northern Star has completed 10 surface RC precollars with NQ diamond tail drillhole (precollar averaging 259m, diamond tails averaging 154m) and 5 diamond drillholes (NQ sized) Diamond tails were oriented using an Ezi-mark tool. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
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.	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness, and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference while remaining core is stored in core trays and archived on site.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All RC and diamond drillholes holes are logged in full. Historical logging is approximately 100% complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are cone or riffle split. Occasional wet samples are encountered. AC, RAB and RC drilling has been sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material 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.	RC chip samples and diamond core are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Historic sampling includes fire assay and unknown methods.
	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 have been utilised for reporting gold mineralisation.
	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 material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and DD. These are not identifiable to the laboratory.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Monty's Dam-Elliot's Lode by Northern Star. It is unknown if previous holders twinned any hole.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of acquire data entry objects utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Drillholes are located using a Leica 1200 GPS with an accuracy of +/-10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system, Old Plough Dam West (OPDW) is used. The two-point conversion to MGA_GDA94 zone 51 is: OPDWEast OPDWNorth RL MGAEast MGANorth RL Point 1 8035.58 20901.34 0 431948.52 6674917.54 0 Point 2 8147.50 17313.10 0 434806.92 6672750.25 0 Historic data is converted to the Old Plough Dam West local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Monty's Dam has a nominal drill spacing ranging from 10m x 10m to 20m x 20m, while Elliot's Lode has nominal 20m x 20m drill 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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias has been recognised due to orientation of drilling in regard to mineralised structures.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of company-wide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Monty's Dam-Elliot's Lode gold deposit is located in M31/209. The tenement is held 100% by Northern Star Resources Limited. Mining Lease M31/209 has a 21 year life (held until 2023) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/209 is subject to two caveats: IRC (61H/067) and RG Royalties, LLC (340983). The tenement is the subject to a royalty of 1.5 % of Sale Proceeds or otherwise Mineral Value of all minerals extracted (excluding Operating Expenses) payable to Resource Capital Fund III L.P. The tenement is the subject of two royalties payable to Royal Gold. The first involves a royalty of $6 per ounce of gold which is in excess of 265,745 ounces of gold produced from the tenement. The second involves a royalty of $10 per ounce of gold in excess of 160,333 ounces of gold produced from the area. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M31/209 is subject to the Gindalbie Pastoral Compensation Agreement. The tenement is affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) native title registered claims. There are no registered Aboriginal Heritage sites on the tenement. The Mining Rehabilitation Fund applies to the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Old Plough Dam project area in which the Monty's Dam-Elliot's Lode deposit is located has been subjected to extensive gold exploration by numerous companies since the 1980s. Monty's Dam was highlighted as an area of interest following a geochemical and ground magnetic survey conducted by Freeport-McMoRan Australia in 1983. Auger sampling undertaken by Pancontinental Mining in 1991 further defined a target which was followed up by RAB drilling. Gold mineralisation at Monty's Dam was confirmed in March 1993 and additional RAB and step-out RC drilling discovered the adjacent Elliot's Lode to the north in 1994-1995. By this time, control over the prospects was transferred to Goldfields Exploration which conducted resource definition drilling, geophysical surveys and metallurgical tests until 2000. Tenement ownership then transferred to Oriole Resources which conducted infill drilling to follow up on previous works. In 2001, Sons of Gwalia (SOG) took over from Oriole Resources and undertook step-out AC drilling to test the NW extension of the deposit. SOG started mining at Monty's Dam in 2002 while drilling AC, RC and DD at the Elliot's Lode prospect. The tenement was then acquired by St Barbara and mined the Monty's Dam deposit until 2005. In 2006, Northern Star took over the tenement and started step-out and infill RC drilling in 2010 at the Elliot's Lode prospect
Geology	Deposit type, geological setting and style of mineralisation.	The Monty's Dam and Elliot's Lode deposits are classified as a late-tectonic, epigenetic (mesothermal) gold deposit reported to be associated with late (D4) N-NNE-trending faults. Stockwork mineralisation overprinting wall rock foliation was produced by low-salinity H2O-CO2 fluids. Mineralisation at Monty's Dam-Elliot's Lode is related to moderately intense quartz veining centred along the contact between fine-grained porphyry and underlying sediment with a strong and pervasive hematite alteration halo that also extends around felsic porphyry unit. Disseminated pyrite and moderate to weak sericitization also characterize the mineralized zone at Monty's Dam. As such, the mineralized zone is pinkish and the grade is correlated to the degree of coloration (Fig. 12). These lensoidal to anastomosing mineralized zones vary in widths from 5 to 40 m. Because of this shape, the orientation can only be inferred to trend northwest, dipping 50 to 60 degrees to the east with a shallow plunge of 10 degrees to the south, which is similar to the regional geologic fabric (Longworth, 1994). Gold commonly occurs as blebs, intergrown within pyrite or as disseminated particles throughout the host rocks.
	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:	All material data is periodically released on the ASX, notably on 9 December 2011 and 27 April 2012.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	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	Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
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 significant intercepts have been length weighted with a minimum Au grade of 1ppm.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
	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').	All results were reported as downhole lengths.
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from the recent campaign have been reported, irrespective of success or not.
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 substantive data acquisition has been completed in recent times.
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).	No further drilling is currently planned. Open pit evaluation work is ongoing.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	N/A

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.	The database used for the estimate an extract from an Acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person regularly visits site (monthly and more so when the geological work is more complex and demanding) to assess geological competency and ensure integrity across all geological disciplines.
	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.	A combination of well documented historic geology and structural information, exploration mapping, geophysical surveys, sufficient drill hole information and geological data collected during production at Monty's Dam has resulted in a confident geological interpretation. Subsequent infill drilling of both Monty's, Elliot's and North West has increased confidence in the current interpretation.
	Nature of the data used and of any assumptions made.	The geological interpretation of Monty's Elliots has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core, RC Chips and pit high wall mapping were all used to help define the mineralised domains and regolith boundaries. Interpreted shears and faults obtained from pit exposures and geophysical data further constrained the domaining. The current resource has been interpreted from 20 diamond holes, 10 RCDD holes and 519 RC holes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Over the life of the project additional drilling campaigns have confirmed and further clarified the ubiquitous pinch and swell geometry of the mineralised lodes in a structurally controlled environment. Whilst structural theories have altered slightly over time, the general trend, dip and plunge of the lodes has remained constant.
	The use of geology in guiding and controlling Mineral Resource estimation.	The geology has heavily influenced the extent of the domains controlling the mineral resource estimation. Mineralisation at Monty's Dam is structurally controlled by the intersection of the local Elliot Lode Shear, (ELS) with the Monty North Shear, (MNS). The northern extent of the ELS intersects a secondary hangingwall shear and hosts the "Elliot Lode". The deposits are hosted in a sequence of volcaniclastic sandstones and porphyritic units, with mineralisation associated with quartz stockwork veining adjacent to the porphyritic contacts. Hematite alteration accompanies mineralisation. Such lithology, alteration, colour, and textures in conjunction with anomalous grade help define the domains. At Monty's North also known as North West (north of Monty's Dam) the mineralisation is of lower grade due to the absence of potassic and hematite alteration within an andesitic porphyritic host. Domaining is predominantly based on economic Au values as the alteration assemblages mimic those of the surrounding waste rock. All mineralised domains were wireframed with hard boundaries.
	The factors affecting continuity both of grade and geology.	ENE (local orientation) shear zones cross cutting the Elliot Lode Shear are most likely responsible for the northern termination or dextral offset of the Monty Dam deposit and similarly for the Elliot lodes. Biotitic assemblages increase in close proximity to these cross-cutting shears and economic Au grade dissipates. It is also possible that these shears affect the continuity of the weakly mineralised Monty North lodes. The intersection of the MNS with the ELS closes out the Monty Dam deposit to the south.
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.	Monty's Elliots has been interpreted in MGA grid with lodes extending along strike >950m along strike, 400m down dip and up to 50m width when stacked together. The total mineralised package including Monty's, Elliot's, and North West is situated between 433950-434700mE, 6672500-6673400mN, and -80-360mRL
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.	Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond and RC samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Many of the principal lodes exhibit bimodal grade populations. These internal populations are controlled by grade indicators based on inflexion points derived from domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed grade populations. The block model used in the CIK estimation has blocks set at 1x2x1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Conventional ordinary kriging was conducted on the full domains as a check estimate however it was deemed unsuitable as a method to accurately quantify mineralisation due to the obvious bimodal grade populations and subsequent smearing of grade into internal waste zones. The current Mineral Resource Estimation is checked against the previous estimations. No historical production data from the Monty's open pit is available to calibrate the estimate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 10m (North-South) x 5m (vertical) optimised using quantitative kriging neighbourhood analysis. Sub-cells have been used at a resolution of 1m x 1m x1m to ensure high resolution at ore boundaries. The search distances are dictated by the range of each individual variogram. A 3 pass nested search strategy is employed with the first pass always set to the full range of the variogram. The second pass is set at 2 times the variogram range with the final pass set at a factor large enough to ensure all blocks comprising the domain are estimated.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation is partitioned into estimation domains relative to stratigraphic position, structural orientation, recorded lithology and specific alteration assemblage. The geological interpretation is initially created from drill data and later calibrated with mapping from open pit exposures and geophysical data. Domains are estimated individually with search geometry and variography controlled by lode orientation and grade continuity respectively. Variogram major search directions are aligned with geologically interpreted high grade shoot trends. Categorical indicator kriging has been utilised to define sub-domains in lodes with mixed grade populations to limit the spread of high grade mineralisation. Boundary analysis has been conducted on key lodes indicating hard boundaries should be maintained across domain and sub-domain contacts.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domain are top cut to reduce the influence of high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top cuts. Top cuts are typically set proximal to population disintegration.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. Volume variance between the wireframe domains and block model domains are assessed. A visual inspection of input composites is compared to the estimated block model in section for each domain. The mean grade of the block model is compared to the naïve and declustered mean grades of the composites by domain with any variance greater than 10% investigated. Swath plots are created by domain and sub-domain in the X, Y, Z, strike and cross strike directions and viewed holistically to vector into any problematic areas. Kriging efficiency, and slope results are reviewed by domain/sub-domain to give an indication of the quality of the estimate. Global change of support plots are created and reviewed for principal domains.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic status the natural grade distinction above background for the Monty's Elliot's deposit is reported at a grade of 0.5g/t.
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.	Historic open pit mining has been conducted at Monty's Dam. There are reasonable grounds to assume that in the future the remaining resource at Monty's Dam and the total resource at Elliot's will be mined by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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.	Historic metallurgical data from the Monty's Dam operation cannot be sourced. Current test work from the 2019 resource definition drill program showed average recoveries of 92% to 94.5% with the gravity component recorded at 77%.
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.	Environmental considerations are captured by Program of Work (PoW) requirements. Operations on these tenements are purely exploratory in nature to date.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The density values applied to the Monty Dam's and Elliot Deposits estimation are largely based on historic density measures from drilling and production at Monty's Dam during SOG's ownership. With recent RC and diamond drilling, historic densities have been calibrated. Density samples are generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	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.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly assigned to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The Monty's Elliots resource is classified as Measured, Indicated or Inferred assigned by boundary string by domain based on a combination of physical and estimation quality metrics including mining exposure, drill spacing, search pass, kriging efficiency /slope, grade and geological continuity. Mineralisation has been categorised as Measured if it has been exposed by mining. Indicated material is assigned if drill spacing is between 20x20m and 40x40m, search pass either 1 or 2, established grade and geological continuity, positive kriging efficiency and >50% slope. Inferred material is drill spacing between 40x40m and 80x80m's with established geological continuity. All other mineralisation is assigned a Potential resource category.
	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 taken into account and are validated through thorough QAQC of the drill hole database and geological knowledge and interpretation of the Karari deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Northern Star undertake an extensive review of the model that covers; ▪ Model inventory and comparisons to previous and budget models if in existence ▪ Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA ▪ Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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 has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The confidence in the model is reflected by the designation of Resource categories. Given the thorough geological analysis of this area and adequate drilling definition, it is a robust estimation of the resource at Monty's Dam and Elliot's Lode. Monty's North, an Inferred resource, is of lower grade and has attracted far less drilling at this stage.

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	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	The Mineral Resource Model for the Monty's Elliots deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
conversion to Ore Reserves		the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of February 2021 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person along with geotechnical consultant has conducted several site visits to the Monty's Elliots open pit since the inclusion in Carosue Dam operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Monty's Elliots deposit was mined previous as open pit mine during early year 2000's and ore processed at current Carosue Dam plant. Northern Star has conducted revised feasibility level study with the view to recommence open pit operation and has been included in Carosue Dam life of mine plan. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Monty's Elliots Reserve.
	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.	Mining method to be employed at Monty's Elliots will be conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other mining operations, providing a good operating dataset for production and productivity rate measurement and financial modelling. The Reserve pit is designed for both deposits namely "Monty's" and "Elliots". Monty's reserve pit is designed as a cutback to existing mined pit, whereas Elliots reserve pit will be mined from natural surface. The life of mine Reserve will be mined such that it meets the operation efficiency, safety and productivity. Appropriate mine schedule and lead time have been applied to maintain effective operational delays and productivity rate.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to oversee geotechnical aspect of technical study and ongoing support. It is expected that once the pits are in operation there may be some need for additional geotechnical input and reflect any changes to into life of mine pit design. The Grade control method to be employed at Monty's Elliots will use RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Northern Star.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 14% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment.
	The mining recovery factors used.	A mining ore loss factor of 5% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment.
	Any minimum mining widths used.	A minimum mining width of 2.5m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Northern Star operations and reflects the suitability and efficiency of the mining performance.

APPENDIX C: TABLE 1

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.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of underground mines, 3.7mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Monty's Elliots deposit is estimated at 94.0%. The recovery estimation is based on met test work and past actual average recovery data collected at the Carosue Plant. Metallurgical test work has been carried out on samples from the Monty's Elliots deposit by test lab, with recoveries in the range of 93-95% hence the estimated recovery is in line with expectation.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Monty's Elliots ore that can impact on ore recoveries at Carosue Plant.
	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.	Number of samples of each expected rock type and grade bins have been sampled through the Carosue Dam processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Monty's Elliots ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	The pit is currently on 'care and maintenance'. All required Environment studies have been completed and Statutory Government Approvals including works approval, dewatering and discharge licence have been granted. A Mining Proposal will be submitted for the reserve pit at appropriate time. The existing Carosue Dam processing facility where ore will be processed and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases. Waste rock characteristic study has been carried out and it is expected to be representative of waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future pit expansion plan.
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.	The Reserve pit will require minimum infrastructure due to its close proximity to Carosue Dam hence provide ability to recommence operation in short timeframe. The Monty's Elliots pit is located ~18km from the CDO Processing Plant via internal private haul road. The CDO operation comprises at 3.7mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A modern accommodation camp is located within a few kilometres of the mining area. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the start-up establishment and pre striping of the pit is included in the financial modelling. Other capital costs around camp and accommodation are minor given close proximity to existing Carosue Dam Operations.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations.
	Allowances made for the content of deleterious elements.	Previous operational experience at Monty's Elliots did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is in operation and Northern Star has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Aboriginal heritage surveys have been conducted and maintain no negative impact within the area. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment. The sufficient bund wall constructed when pit was in operation and currently still in place.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	A Mining Proposal will be submitted for the reserve pit at later stage. All other Statutory permits including vegetation clearing, dewatering and discharge licences are in place and valid.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as being Proved and Probable has been derived from Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Northern Star's Carosue Dam and Thunderbox operations and supplied from contract mining companies and independent consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Monty's Elliots deposit.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Indicated Mineral Resource category.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ - Resource estimate ▪ - significant operating history, ▪ - application of current industry practices, ▪ - appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. The Monty's Elliots pit will utilise the same grade control methods that widely utilised at current Northern Star open pit operations.
	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.	
	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.	
	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.	

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Wallbrook – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star at the Wallbrook project area have included reverse circulation (RC), diamond drillholes (DD) and RC grade control drilling within the pits. Historic methods conducted since 1977 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1977- 2006).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond core is NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are riffle or cone split and sampled into 1m intervals with total sample weights under 3kg Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit was initially sampled by 516 RAB holes, 360 RC holes (assumed standard 5 ¼ ''bit size) and 10 surface diamond HQ, PQ and unknown diameter holes. Northern Star has completed 2 NQ diameter diamond geotechnical holes, 1 HQ diameter diamond drillhole for metallurgical test work, 210 RC holes from surface and 1868 grade control RC holes within the pits. Diamond drillholes were oriented using an Ezy-mark tool. It is unknown if historic diamond drill core was oriented.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. No historic recoveries have been recorded. Recoveries average >95%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; limited historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During exploration RC drilling minimum tolerance shrouds were used to improve sample recovery. These were adjusted based on the difficulty of the clay. During GC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. The sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
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.	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core is photographed in both dry and wet state.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All diamond drillholes and exploration RC holes are logged in full. Every second drill line is logged in grade control programs with infill logging carried out as necessary. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic drill core had been half core, quarter core and full core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All exploration and GC RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory or onsite laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory or onsite laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip samples, diamond core and some grade control chip samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Some GC samples were analysed in the Northern Star onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 have been utilised for reporting gold mineralisation within the Wallbrook project.
	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 material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled in the Wallbrook project area, but grade control drilling has confirmed the width and grade of previous exploration drilling.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	The gird system used at the Wallbrook project area is MGA94 zone 51.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for exploration drilling is 25m X 25m to 25m/20m X 12.5m.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias is thought to occur due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Wallbrook resource is located on M31/172 The tenements are held 100% by Northern Star Resources Limited. The tenements have a 21 year mine life (held until 2029) and are renewable for a further 21 years on a continuing basis. M31/172 is the subject of royalty of 1.5 % of Sale Proceeds or otherwise Mineral Value of all minerals extracted (excluding Operating Expenses) payable to Resource Capital Fund III L.P. All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenement is subject to the Edjudina Pastoral Compensation agreement.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The tenement is affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) native title registered claims. There are no registered Aboriginal Heritage sites on the tenement. The Mining Rehabilitation Fund applies to the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and the licence to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Gold mining began in the Wallbrook area at Redbrook as early as 1903 and continued sporadically until 1942. Regional exploration carried out the 1960's and 1970's by Falconbridge and Asarco focused on base metal discovery with no significant anomalism detected. The exploration focus shifted back to gold in the late 1970's. Sampling and RAB drilling carried out by Pennzoil in 1981 delineated the Wallbrook and Redbrook mineralisation, with RC drilling carried out by Ivernia in 1987 further defining the resource. The project changed hands a number of times with Poseidon, Talon Resources, Croesus and Jackson Gold all carrying out various drilling and sampling campaigns and identifying further resources including Eleven Bells, Red Flag and Crusader before Northern Star acquired the project.
Geology	Deposit type, geological setting and style of mineralisation.	Centred in the Wallbrook region is Wallbrook Hill area is described as a medium-grained leucocratic granitoid that crops out on two low hills which jointly cover an area of approximately 1200m (north south) by 200m (east west). The two hills appear to represent two narrowly separated granitoid bodies surrounded by greenstone. The greenstones are dominantly amygdaloidal basalt and chlorite-plagioclase-rich mafic schist, with minor intermediate to felsic schist. The margins of the granitoids are 'porphyritic and interleaved with greenstone. Competency contrast between the Wallbrook granitoids and adjacent rock types, is considered important in localising mineralised vein systems at the Wallbrook deposit. At Wallbrook a mineralised quartz vein stockwork has developed within and adjacent to a small syenogranite intrusion within metabasalt. Locally however, the wall rocks at Wallbrook comprise relatively incompetent felsic schists. Quartz veins formed a conjugate set while the local principal stress axis was oriented northeast – southwest.
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	All material data is periodically released on the ASX: 31/07/2012, 28/04/2010, 13/04/2010, 30/04/2008, 12/03/2008, 31/01/2008, 03/12/2007, 30/10/2007, 28/09/2007 Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results are being reported
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being reported
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being reported
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements (mentioned above) included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being reported
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.

APPENDIX C: 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.	All results from previous campaigns have been reported, irrespective of success or not.
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.	A number of studies were carried out in 2010 including a hydrological assessment and dewatering investigation that determined no impact on surrounding area, a waste characterisation and acid mine drainage management study that reported no issues and a geotechnical study that concluded geological structures will greatly influence wall stability.
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).	Wallbrook is a prospective area and is well defined. Open Pit optimisation is ongoing. Further work in the future will be focused more on extensional exploration.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	N/A

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.	Northern Star utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors are built into the data entry and import processes.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person visited the geological area at the time of review and exploration to assess geological competency and ensure integrity across all exploration geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	Included in the Wallbrook Project area are two deposits. Redbrook and Eleven Bells, historically mined at a small scale, are well defined by exploration drilling and grade control drilling in the upper levels. Mineralisation at Redbrook is well understood and the resource categories applied to its estimation reflect the geological confidence. Eleven Bells mineralisation is far more complex and historic drilling at various orientations reflects the intricacies in geology. A bulk mining methodology was proposed for this deposit and with that confidence in metal recovery is high. The resource categories consider both geological understanding from drill results and the bulk mining metal recovery.
	Nature of the data used and of any assumptions made.	The geological interpretation of Wallbrook has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core and RC Chips were all used to help define the mineralised domains, regolith boundaries and granite intrusion contacts. Historic in pit mapping further constrained the domaining.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust. Whilst the Eleven Bells wireframes are well defined by geology, the ambiguity surrounding the gold bearing structures resulted in various model runs that included a bulk mining approach, and estimations looking at different composited lengths. Globally they all behaved in a similar manner.
	The use of geology in guiding and controlling Mineral Resource estimation.	The wireframed domains are used as hard boundaries during the Mineral Resource Estimation. They are constructed using all available geological information (as stated above) and terminate along known structures and or granite contacts in the case of Eleven Bells and Redbrook. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	Grade and geology continuity for each of the deposits at Wallbrook are influenced by various controls. Economic mineralisation at Redbrook is largely controlled by the proximity of the granitoid contact that acts as a conduit for au bearing fluids. A stockwork of quartz veining is strongly associated with healthy Au mineralisation. The along strike extents are possibly terminated by structures however further drilling would be required to verify this. The main Redbrook domains are open at depth and down plunge.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Elevenbells mineralisation abuts the northern contact of the granite and subsequently terminates along it. Moving away from the granite the NW extent of the mineralisation naturally attenuates. Quartz veining in the metabasalt host is the only consistent marker for Au mineralisation; however geological relationships are ambiguous due to the orientation of the drilling.
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.	Redbrook and Eleven Bells deposits stretch from 6694800mN to 6695800mN and 433800mE to 434400mE to 300m below surface. The ore lodes have strike lengths from 25m to 260m and plunge extents and widths up to 330m.
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	The mineralised ore domains were wireframed based on geological homogeneity, grade populations, mineralisation styles and orientation of grade continuity. The domain wireframes were used as hard boundaries during the estimation process. Grade control holes assisted in the geological definition of the primary ore domains, though were omitted in the estimation of the resource. An unfolding process was carried out prior to variography and interpolation to remove the variable dip and strike typically associated with the mineralised domains. RAB, Aircore and grab samples were excluded from the estimation process for Redbrook and Eleven Bells due to the unreliability of results. Negative gold grades were replaced with a grade of 0.001 g/t and null gold grades were excluded from the estimation process. Drillhole assays were composited to 1m intervals with a minimum length of 0.3m that best conformed to the sample length of the majority of the RC data. High grades within each domain were identified and top cuts were applied where necessary. Variograms were produced to determine the directional influence of each sample during the estimation process. The Mineral Resource Estimate was interpolated using Ordinary Kriging in Micromine.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	An inverse distance cubed estimate was run simultaneously with the ordinary kriged resource estimate, with an insignificant variance between the global Au grade values. The Wallbrook resource model was compared to the previously run Widenbar OK model of 2009 and changes including increased tonnages were the result of more available mineralised drill intersections, in pit mapping and geophysics data. The current resource model was reconciled with production data on a monthly basis. This information for Redbrook and Eleven Bells was fed back into the resource modelling process and used to refine the model.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Average drill hole data spacing and mining selectivity were among the primary considerations for block size. In the case of Red Brook and Eleven Bells, larger bulk mining practices and broader ore zones resulted in the more appropriate parent cell size of 20m X 20m X 10 m. Sub celling resolutions to 2m x 2m x 2m was applied. The search strategy was set up such that the first search pass would fill blocks informed by the closest spaced drilling, whilst the second search would inform blocks in area of more typical drill spacing. The second search used search ellipse multiplied by a factor of 2, while the third search increased the dimensions by a factor of 5 to ensure filling of all blocks. Initial search distances are done on a domain by domain basis.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralised domains were wireframed within the context of the known local and structural geology. The interpretation was influenced by historical information, geological mapping within the pit (Redbrook only) and geology logging of drillholes. Correlations between rock type, texture, and alteration, veining and gold mineralisation were investigated for each deposit.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domains are top cut to reduce the influence high grade outliers. The geostatistics to determine top cuts includes log probability plots and the coefficient of variation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. The mean grade of the block model is compared to the mean grade of composites by domain. These are then further investigated by appropriate northing, easting and bench intervals in the form of swathe plots. The volume variance between the wireframed domains and block model domains are assessed. Kriging efficiency, and slope results give an indication of the quality of the estimate. A visual inspection of the drillhole assay results are compared to the estimated block model in section.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The adopted cut-off grades for Mineral Resource Estimation reporting are determined by the current mining cut-off grades. For Wallbrook these were set at 0.5 Au g/t.

APPENDIX C: 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.	Open cut mining has been successful at the Redbrook and Eleven Bells deposit. It is therefore assumed that there are reasonable grounds to mine the remaining resource at these deposits by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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 testing (and processing operations at CDO) identified Wallbrook ores as being free milling sizes with leach recoveries in excess of 90% with a moderate gravity gold component (30% - 40%).
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.	Wallbrook Waste characterisation indicated that seepage from waste rock stockpiles at Wallbrook are slightly alkaline, non-saline to slightly brackish and contain very low concentrations of metals and metalloids. Waste materials have been classed as NAF, small percentage of low risk acid forming materials will be encapsulated in Waste Rock Dump through dump strategy. No processing or beneficiation of ore expected on these tenements, as ore is hauled to Carosue Dam mine site for Processing.
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.	Density in the current model has been assigned based on oxidation state, using both recent density determinations carried out by Northern Star on its drill samples and historical data. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database.
	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.	Ore zones predominantly exist in transitional to fresh nonporous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Drill hole location plots have been used to ensure that local drill spacing conforms to the minimum expected for the resource classification. Measured material has been defined where there is detailed grade control and resource definition drilling where confidence in lode volume and continuity is very high. Indicated material is generally confined to areas where resource definition drilling is typically defined by 25m x 25m spaced drilling or closer, and there is still high confidence in lode location and continuity. Inferred material lies beyond the Indicated boundaries and meets the criteria expressed in the JORC Code for Inferred Resource. Based on the above criteria a series of strings were constructed and linked together to form solid wireframes that defined the measured (RESCAT = 1) and indicated (RESCAT = 2) categories. The block model outside the Indicated wireframe was given the default Inferred value of RESCAT = 3. Additionally, estimation properties, such as search passes, number of samples, and kriging efficiencies, were considered in the definition of the resource boundaries and were visually compared to the RESCATS previously defined by the drill spacing and geological continuity.
	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 taken into account and are validated through thorough QAQC of the drill hole database and geological knowledge and interpretation of the Wallbrook deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	At the completion of resource estimation Northern Star undertake an extensive review of the model that covers model inventory and comparisons to previous and budget models. Geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
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	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Northern Star uses a standard approach to resource estimation and the procedure requires the systematic completion of the Northern Star

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that with improved software, validation and additional KNA measures would help improve the optimisation of the block model.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Compared to production data, Redbrook resource estimation reconciled well, reporting 98% accuracy in ounces. This equates to a 97% tonne and 102% grade reconciliation. This is indicative of the broad and consistent ore zone mined at Redbrook. Geology and mineralisation is less well understood at Eleven Bells and variability (10% - 35% less ounces) in historic production figures with resource estimates is indicative of this complex setting. The current bulk resource estimation takes this complexity into account, reducing the potential for ore misallocation. This setup produces far more favourable and minable set of parameters.

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.	The Mineral Resource estimate for the Wallbrook gold deposit is a robust global estimate that considers the intricacies of the geology for each deposit within the geological region. Accordingly, Eleven Bells adopted a bulk modelling and estimation approach and the Redbrook estimation honoured the greater geological understanding and definition. These "reduced risk" estimations were used as a basis for conversion to the Ore Reserve estimation. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of February 2021 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person and independent external Geotech consultant have conducted several site visits to the Wallbrook mining region since the inclusion in Northern Star life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Wallbrook deposit was mined as open pit in the past between years 2011-2012. Since then, revised feasibility level study was undertaken with the view to recommence open pit operation and has been included in Carosue Dam life of mine plan. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.50g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Wallbrook Reserve.
	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.	Mining method to be employed at Wallbrook will be conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other mining operations, providing a good operating dataset for production and productivity rate measurement and financial modelling. The Reserve pit includes two deposits namely "Eleven Bells" and "Redbrook". Reserve pits include successive cutbacks to achieve life of mine such that it meets operational efficiency, safety and productivity. Appropriate mine schedule and lead time have been applied to maintain effective operational delays and productivity rate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to oversee geotechnical aspect of technical study and ongoing support. It is expected that once the pits are in operation there may be some need for additional geotechnical input and reflect any changes to into life of mine pit design. The Grade control method to be employed at Wallbrook will utilise RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Northern Star.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 5% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment.
	The mining recovery factors used.	A mining ore loss factor of 5% is applied in the Ore Reserve estimation and reflect the expected mining performance for the given ore body characteristic, selected mining method and equipment.
	Any minimum mining widths used.	A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Northern Star operations and reflects the suitability and efficiency of the mining performance.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of underground mines, 3.7mt processing plant, modern camp site and all other required infrastructure to support current and future mine plan.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Wallbrook deposit is estimated at 94.0%. The recovery estimation is based on met test work and past actual average recovery data collected at the Carosue Plant. Approximately one year of processing the Wallbrook ore through this plant have resulted in a solid understanding of the metallurgical parameters of the ore.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Wallbrook ore that can impact on ore recoveries at Carosue Plant.
	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.	When in operation the Wallbrook ore were processed through to Carosue Dam that representing a sizeable bulk sample/pilot test.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	The pit is currently on 'care and maintenance'. All required Environmental studies have been completed and Statutory Government Approvals including works approvals, dewatering and discharge licence have been granted. A Mining Approval has been granted, however will be resubmitted to accommodate updated ore reserve and new pit footprint. The existing Carosue Dam processing facility where ore will be processed and the accommodation village all lie on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases. Waste rock characteristic study has been carried out and it is expected to be representative of waste rock. An appropriate landform design criteria has been considered based on rock characteristic to mitigate current and any future pit expansion plan.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
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.	The Reserve pit will require minimum infrastructure hence provide ability to recommence operation in short timeframe. The Wallbrook pit is ~40km from the CDO Processing Plant via internal private haul road. Carosue Dam Operation is well established, with mining activities being conducted by Northern Star. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation now comprises at 3.7mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A modern accommodation camp is located within a few kilometres of the Enterprise mining area. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs relating to the start-up establishment and pre striping of the operation is included in the financial modelling. Other capital costs around camp and accommodation are minimal given close proximity to existing Carosue Dam Operations.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies and independent consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations.
	Allowances made for the content of deleterious elements.	Previous operational experience at Wallbrook did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	An assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
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.	For the purposes of the Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is in operation and Northern Star has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Aboriginal heritage surveys have been conducted and maintain no negative impact within the area. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed by the construction of appropriate water diversion bunds to provide safe and risk-free work environment. The sufficient bund wall constructed when Wallbrook pit was in operation and currently still in place.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	A Mining Proposal has previously been granted, however will be resubmitted to accommodate updated ore reserve and new pit footprint. All other Statutory Government permits including vegetation clearing, dewatering and discharge licences are in place and valid.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve estimate classification has been in accordance with the JORC code 2012. The Ore Reserve estimate is classified as being Proved and Probable has been derived from the Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Carosue Dam and Thunderbox operations and supplied from contract mining companies and independent consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Wallbrook deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Measured and Indicated ore of the Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ - Resource estimate ▪ - significant operating history, ▪ - application of current industry practices, ▪ - appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. The Wallbrook operation will utilise the same grade control methods that widely utilised at current Northern Star open pit operations.
	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.	
	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.	
	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.	

APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Twin Peaks – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling methods undertaken by Northern Star at Twin Peaks have included reverse circulation (RC) and diamond drillholes (DD). Historic methods conducted since 1991 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling for diamond and RC drilling is carried out as specified within Northern Star sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1991- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond core is NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg Northern Star core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The deposit was initially sampled by 41 AC holes, 185 RAB holes, 110 RC holes (assumed standard 5 ¼" bit size) and 21 surface diamond HQ core and unknown diameter holes. Northern Star has completed 7 surface RC precollar with NQ diamond tail drill holes (precollars averaging 241m, diamond tails averaging 209m), and 11 RC holes. Diamond tails were oriented using an Ezy-mark tool. It is unknown if historic surface diamond drill core was oriented.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >98%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During RC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
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.	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged.	All diamond drillholes and exploration RC holes are logged in full. Historical logging is approximately 95% complete.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling was half core sampled or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using spear, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentration in rock and is a total digest method. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 have been utilised for reporting gold mineralisation at Twin Peaks.
	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 material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC and DD drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Twin Peaks.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	A local grid system (Old Plough Dam West) is used. The two-point conversion to MGA_GDA94 zone 51 is OPDWEast OPDWNorth RL MGAEast MGANorth RL Point 1 8035.58 20901.34 0 431948.52 6674917.54 0 Point 2 8147.50 17313.10 0 434806.92 6672750.25 0 Historic data is converted to Old Plough Dam West local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for exploration drilling is 20 m x 20 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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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 significant sampling bias is thought to occur due to orientation of drilling in regard to mineralised structures.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Twin Peaks pit is located on M31/208. The tenement is held 100% by Northern Star Resources Limited. Mining Lease M31/208 has a 21 year life (held until 2023) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/208 is subject to two caveats: IRC (60H/067) and RG Royalties, LLC (513933). The tenement is the subject of royalty of 1.5 % of Sale Proceeds or otherwise Mineral Value of all minerals extracted (excluding Operating Expenses) payable to Resource Capital Fund III L.P. The tenement is the subject of two royalties payable to Royal Gold. The first involves a royalty of $6 per ounce of gold which is in excess of 265,745 ounces of gold produced from the tenement. The second involves a royalty of $10 per ounce of gold in excess of 160,333 ounces of gold produced from the area. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M31/208 is subject to the Gindalbie Pastoral Compensation Agreement.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The tenement is affected by the Maduwongga (WC2017/001) and Nyalpa Pirniku (WC2019/002) native title claims. There are no registered Aboriginal Heritage sites on the tenement. The Mining Rehabilitation Fund applies to the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Exploration at Twin Peaks began in 1991 with a soil auger program carried out by Pancontinental Mining outlining a number of anomalies that were followed up with RAB drilling, intersecting encouraging mineralisation. Geophysical surveys followed by RAB, RC and diamond drilling were then carried out by Pan Con to further define the mineralised zone and strike extensions of the Twin Peaks deposit and calculate a resource. Goldfields acquired the project and completed further RC and DD resource definition drilling as well as RAB and aircore traverses targeting mineralisation extensions, and geophysical surveys. PacMin carried out infill resource drilling before Sons of Gwalia took ownership of the project and mined the Twin Peaks open pit between 2003 and 2004. Regional aircore and RC drilling was carried out before the collapse of Sons of Gwalia and takeover of the project by St Barbara.
Geology	Deposit type, geological setting and style of mineralisation.	The Twin Peaks deposit lies within a greenstone-granite belt within the Edjudina-Kanowna region of the Archaean Yilgarn Block. The Twin Peaks mineralisation is located in metasedimentary rocks below the regional-scale Kilkenny-Yilgangi Fault within an intensely fractured, easterly plunging alteration zone. The mineralisation is associated with potassic alteration surrounded by carbonate zones within a quartz-feldspar dominated turbiditic sequence that appears to be isoclinally folded, with silt to sand particle size. The stratigraphy strikes northwest and dips on average 60 - 70 degrees to the northeast with 'way up' indicators suggesting the entire section in overturned.
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	All material data is periodically released on the ASX: Material relating to Twin Peaks was released on 27/01/2012. Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results are being reported
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being reported
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results are being reported
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being reported
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.

APPENDIX C: 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.	All results from previous campaign have been reported, irrespective of success or not
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 substantive data acquisition has been completed in recent times.
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).	Twin Peaks is a current exploration play that will be further reviewed post optimisation processes.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	N/A

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.	The database used for the estimate an extract from an AcQuire SQL database. The primary database is regulated by a locked framework called the AcQuire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the AcQuire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person together with other Northern Star's geology personnel have carried out site visits to the Twin Peaks deposit on numerous occasions. The competent person has inspected the deposit and has built a sound understanding of the deposit geology. All geological processes undertaken by Northern Star concerning Twin Peaks Resource have been done using Northern Star's standard procedures.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation has been based on the detailed geological information obtained from both exploration and GC data. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The Twin Peaks mineralisation is located in metasedimentary rocks below the regional-scale Kilkenny-Yilgangi Fault within an intensely fractured, easterly plunging alteration zone, The mineralisation is associated with potassic alteration surrounded by carbonate zones within a quartz-feldspar dominated turbiditic sequence that appears to be isoclinally folded, with silt to sand particle size. The stratigraphy strikes northwest and dips on average 60 - 70 degrees to the northeast with 'way up' indicators suggesting the entire section in overturned.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. GC data has been used to fine tune the dip geometries of the ore lodes and help define the subsidiary domains. Interpreted cross cutting faults have been observed and have been used to guide disruptions in the position of the key mineralised domains. The dominant structural controls on mineralisation appear to be the east dipping foliation, the fault hosting the east-west dyke and south-plunging folds. The large ellipsoid above 100 metres appears to have developed at the intersection of the two main structural controls. Surface mapping had been included in the interpretation. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	In the 2015 reinterpretation the GC data was also considered which highlighted a more moderate dip to the major domains and the occurrence of subsidiary lodes that were previously undefined by exploration data alone. Northern Star has conducted extensional down dip drilling which supports the current interpretation which is considered to be robust.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. The most important distinction is between the Breccia Zone and the Footwall Zone. This separation was handled by the position of the transitional to fresh boundary. The breccia zone is within the transitional area and the footwall zone is in the fresh area.
	The factors affecting continuity both of grade and geology.	At the deposit scale the gold distribution is predominantly characterised by a quartz-arsenopyrite breccia within a sericite-carbonate alteration envelope. This has been overprinted by a later quartz-pyrite-biotite vein event, which has remobilised or introduced a new phase of Au mineralisation. The dominant structural controls on mineralisation appear to be the east dipping foliation, the fault hosting the east-west dyke and south-plunging folds. The large ellipsoid above 100 metres appears to have developed at the intersection of the two main structural controls.
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.	Within 100 metres of the surface, the orebody has an ellipsoid shape measuring approximately 90 x 45 metres. Below this depth, mineralisation is pipe-shaped, measuring approximately 50 x 20 metres (in the horizontal plane) and plunging to grid southeast at around 50°. The deposit is open below 300m.
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.	Based on drill spacing 20m x 20m to 8m x 6m (GC), the gold grade was estimated by ordinary kriging in Micromine into the parent cells, 10m East X 20m North X 5m RL that were sub celled to 1m x 2m x 1m. Hard boundaries were utilised between the major domains at Twin Peaks. There were two model runs, one that used exploration data only: the other used both exploration and GC data. These models used different composites and top cuts, however the estimation technique and model parameters remained consistent. The exploration data was composited to 1m with a minimum of 0.3m which represented the majority (97%) length of the data. With the addition of the GC data to the dataset, the composited length was changed to 1.5m and a minimum of 0.3m. This represented the data with 79% at an average length of 1.5m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, mean variance plots and CVs). Top-cuts were reviewed and applied on a domain basis for each dataset. Due to the flexures in the mineralised envelopes, the estimation process was in unfolded space. The blocks are relocated back to their original space after the estimation. Variography was conducted in unfolded space using Snowden's supervisor software. KNA was utilised to determine the optimal block size, sample numbers and search parameters. Finally, based on estimate validation, the GC & exploration informed model was spliced above the 220mRL and the exploration only informed estimate was utilised below the 220mRL.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Comparisons with previous estimates, (2009, & 2011) indicate that the current model contains 25% more tonnes, 22% less grade for the same ounces.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Based on drill spacing 20m x 20m to 8m x 6m (GC), the gold grade was estimated by ordinary kriging in Micromine into the parent cells, 10m East X 20m North X 5m RL that were sub celled to 1m x 2m x 1m. Hard boundaries were utilised between the major domains at Twin Peaks Estimation was into the Parent Cells. A three pass search was used, whereby the search ellipse dimensions for the first search corresponded to the mineralisation continuity ranges interpreted from the variogram analysis, (15 – 25m in major direction). The second search expanded the ellipse to outer ranges of the variogram (25 – 50m major direction) and the minimum number of samples required to inform the estimation were decreased. The dimensions of the third search were doubled and the minimum samples dropped to ensure complete estimation of domains in zones of limited data. The minimum and maximum samples used were 6 and 32 samples respectively, where the minimum dropped to 4 for more sparsely populated domains, particularly for the 3rd search.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation strongly correlates with the mineralised domains within metasediments, inside an intensely fractured, pipe-like, easterly plunging alteration zone. This alteration pipe has a central high gold grade core associated with potassic alteration and surrounded by carbonate zones. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in each domain at Twin Peaks to generally have a reasonable coefficient of variation (<1.6), but it was noted that some of the estimation domains included outlier values that required top-cut values to be applied.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model involved a volumetric comparison of the resource wireframes to the block model volumes with 100% reconciliation. Validating the estimate, compared block model grades to the input data that resulted in comparisons within the 10% allowed tolerance. Swathe plots were also used showing northing, easting and elevation comparisons. These showed good conformance. Visual validation of grade trends and metal distributions was carried out. Discrepancies with historic mined data and reported poor reconciliations at the time make direct comparisons to the current model inaccurate. The final ounces reported for the mined material of the 2015 model sits between the two reported mined values from 2004.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen. A 1.2 g/t cut-off was used to define the underground resource based on economic considerations.
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.	Mining of the Twin Peaks at this stage deposit will be dominantly by underground mining methods involving mechanised mining techniques. The geometry of the deposit will make it amenable to mining methods currently employed in many underground operations in similar deposits around the world. No assumptions on mining methodology have been made as yet. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within MSO underground shells generated at 1.2 g/t cut-off.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The following conclusions can be made from the test work conducted at Twin Peaks: ▪ Mineralogical analysis of the ore showed a large proportion of free gold with particles at 10m to 100m in size. No composite gold was detected. Sulphides present were mainly as pyrite and arsenopyrite. ▪ High proportion of gold recovered to Knelson concentrate (up to 83%). ▪ An overall gold recovery of 93% was obtained for this material. The gold recoveries ranged between 90% to 93%, with the lower recovery attributed to gravity stage / intensive cyanidation inefficiencies. ▪ Grindability tests showed low ore hardness with a BWi result of 6.9 kWh/t, and low abrasiveness with an abrasion index value of 0.116. ▪ The slurry viscosity measurements at the various shear rates showed no major pumping or mixing issues should be experienced with this material. ▪ The samples exhibited low cyanide consumptions and very low oxygen demands. A large variation in gold recoveries were obtained depending on test work methods used. Tests which utilised a gravity stage were deemed as most appropriate for assessing anticipated plant performance. The test work showed that high gold recoveries of 93% for the Twin Peaks material, is achievable. No major processing difficulties are anticipated for this deposit (assuming the material tested is representative of the ore deposit).
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.	No processing or beneficiation of ore expected on these tenements, as ore is hauled to Carosue Dam mine site for processing. Rehabilitation of Twin Peaks WRL is progressing with 45% of the total area rated as stable with self-sustaining vegetation. The landform is functionally intact and there is no loss of material to the surrounding landscape. While ecosystem diversity completion targets are mostly achieved, landscape stability targets are yet to be achieved. Approximately 70% of the rehabilitated ROM landform, east of Twin Peaks' WRL is poorly vegetated, of which 50% is highly saline. Remedial treatment may be required to achieve 'sign-off'. Repair works are currently under review by SGM management and will be factored into future budgets.
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.	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Density in the current model has been assigned based on oxidation state, using the most recent density determinations carried out by Northern Star on the diamond drill samples. A detailed set of density data were available for Twin Peaks; these had been rigorously validated. The data was flagged by domain and analysed statistically.
	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.	The frequency and distribution is unknown at this point in time. It has assumed from the good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Average mean of densities collected for each lithological and weathering profile has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the construction of wireframes which select and codes the appropriate blocks with the nominated resource classification category.
	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).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at Twin Peaks consists of a primary mineralisation is associated with easterly plunging alteration zone. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Northern Star has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted on this deposit as Northern Star is still conducting an internal scoping study.
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 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 resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the global in situ resources.
	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 statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Twin Peaks resource model was done using Northern Star' s resource estimation procedures. The model has been validated thoroughly and the competent person is satisfied that the estimated gold grades give a true reflection of the global in situ resources. The model had been compared with previous production data and it can be concluded that the model is conservative based on all the available data.

JORC Code, 2012 Edition – Table 1 Report

Moody's Reward – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Northern Star has complete reverse circulation (RC) drilling at Moody's Reward. Sampling methods undertaken at Moody's Reward by previous owners have included aircore (AC) rotary air blast (RAB) reverse circulation (RC) and diamond (DD) drilling along with auger and soil sampling. Limited historical data has been provided by previous owners.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sampling was guided by Northern Star Sampling and QAQC procedures as per industry standard Historic RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time.
	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	Northern Star RC and aircore samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40 g sub sample for analysis by FA/AAS. Historic AC and RAB drilling was spear sampled. Sampling methods for DD drilling are unknown. Sampling was generally analysed via 30g or 50g fire assay.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	No information has been found or supplied for older drilling assumed all RAB, RC and DD and sampling was carried out to industry standard at that time. Most assay methods are unknown
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Historic drilling activities at Moody's Reward initially included a number of RAB, RC and AC holes. The resource was further defined with 110 RC holes and 3 DD holes (unknown diameter). It is unknown if core was oriented. Northern Star have completed 29 RC drillholes
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Sampling recoveries of Northern Star RC holes were recorded as a percentage based on a visual weight estimate. No other recoveries have been provided; it is unknown if they were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	At the RC rig, sampling systems are routinely cleaned to minimise contamination and drilling methods are focused on sample quality. Previous AC and RC drilling were carried out according to industry standard at that time
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No sample recovery issues have impacted on potential sample bias. Any historical relationship is not known.
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.	Logging of RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. All chips have been retained in chip trays
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	It is unknown if all diamond core was photographed.
	The total length and percentage of the relevant intersections logged.	All Northern Star RC drilling has been logged in full Most historical drillholes appear to have been logged in full
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	The sampling method for drill core is unknown
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Northern Star RC samples were cone split, historic RAB drilling was spear sampled, RC samples were riffle split, most samples were dry Some sampling methods remain unknown.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding using an LM5 to a grind size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material 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.	RC chip samples are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay and unknown methods
	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, spectrometer, handheld XRF have been utilised for reporting gold mineralisation.
	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 material (standards and blanks), with a wide range of values, are inserted into every drillhole at a rate of 1:25 for exploration RC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Historic intercepts are noted as being verified by the Exploration Manager
	The use of twinned holes.	DD drilling was planned to twin and verify existing RC drilling
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collated in a set of Excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure AcQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Northern Star AcQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
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.	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm some historic collar locations were surveyed using hand help GPS with all holes assigned a generic estimated RL. Downhole surveys are carried out using a gyroscopic camera at regular intervals (usually 5-10m). It is unknown how downhole surveying was carried out
	Specification of the grid system used.	GDA94 Zone 51 grid coordinate system is used
	Quality and adequacy of topographic control.	No detail of topographic control was supplied or found
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal spacing for drilling is 40x40m
	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 drilling is distributed and spaced such that geological and grade continuity can be established to estimate the mineral resource and ore reserve appropriately. The mineralisation is continuous over a 1.5 km strike length, therefore the 40m x 40m exploration drill spacing effectively defines the continuity.
	Whether sample compositing has been applied.	Some RC drilling was composited into 4m samples, with anomalous or geologically significant areas reassayed on 1m intervals
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 bulk of the drilling has been oriented to the west in order to provide the best intersection angles possible for the steeply east dipping orebody. This ensures that minimal bias is introduced when sampling.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible.
Sample security	The measures taken to ensure sample security.	Samples are prepared on site under supervision of Northern Star geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Moody's Reward resources are located on M39/1112 which is held 100% by Northern Star Resources Limited. Mining Lease 39/1112 has a 21 year life and is held until 2038. The tenement is renewable for a further 21 years on a continuing basis.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		All production is subject to a Western Australian State Government NSR royalty of 2.5%. The tenement is affected by the Nyalpa Pirniku (WC2019/002) native title claim. There are no registered Aboriginal Heritage sites on the tenement. The Mining Rehabilitation Fund applies to the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Moody's Reward area was soil sampled by AngloGold Australia, WMC and Delta gold between 1986 -2000. No further work was carried out until Hawthorn acquired the tenements and carried out soil and auger sampling, and RAB, RC and DD drilling
Geology	Deposit type, geological setting and style of mineralisation.	Locally the geology of the Moody's Reward area consists of intermediate schists and igneous intrusives adjacent to sediments. Basaltic andesite, felsic volcanics and volcaniclastics trend in a northwest- southeast direction. The northern tenements are dominated by interbedded undifferentiated sediments and andesite. Differentiated dolerite sills intrude into conglomeritic and polymictic sands stones towards the east of the tenements. Interbedded ultramafic, peridotite-bearing intrusives and dolerite form a distinctive north-west trend in along the west of the tenements. These lithologies can be overlain by Cenozoic ferruginous clay, colluvium and silts. Several significant drainage systems in the licence are associated with alluvium, clay, silt and sand
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 total of 150 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when results materially change the economic value of the project.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results are being reported
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No interval below 1m was sampled.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results are being reported
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results are being reported
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.	All significant exploration results released by Northern Star are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results from previous campaigns have been reported, irrespective of success or not.
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	Detailed SAM (sub-audio magnetics) and aeromagnetic surveys were carried out over Moody's Reward and surrounding tenements by previous owners in order to define targets for drilling

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	
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).	Northern Star is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Moody's Reward mineral 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.	N/A

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.	The database provide to Northern Star was stored in a number of excel spreadsheets and text files. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person regularly visited site and directed work in his role as Exploration Manager.
	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.	At the Moody's Reward Prospect, a strongly gold mineralised, silicified shear zone has been discovered within a broader, gold mineralised, altered stockwork quartz veined package of felsic volcanics and volcaniclastic sediments. Despite an extensive history of modern exploration in the prospect area this newly identified mineralised unit had not previously been identified or drilled, prior to Hawthorn's (Previous owner) exploration discovery. The gold mineralised zones dip consistently at 40 and 65 degrees to the east or northeast. The mineralised widths vary between 3 – >30 metres true width. The generally thick and consistent nature of the mineralisation intersected to date indicates that limited dilution may be occur should an open pit mining operation be developed. Drilling to date has not indicated that the gold mineralisation develops a plunge orientation, however this remains a possibility. All available geological data including RC and DDH drilling has been used in the interpretation. It is understood that there are no known factors which would affect the geological continuity and grade.
	Nature of the data used and of any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, structure and alteration. Interpreted cross cutting regional faults have been observed and have been used to guide disruptions in the position of the key mineralised domains. The current resource has been interpreted from 10 surface diamond holes, 2 surface RC with NQ2 diamond tail drill holes and 138 RC holes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Northern star considers the current interpretation to be robust based on all examined geological data.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. The gold mineralised zones dip consistently at 40 and 65 degrees to the east or north-east with mineralisation developed between areas of contrasting rheological competency. The mineralised widths vary between 3 – >30 metres true width.
	The factors affecting continuity both of grade and geology.	Mineralisation at Moody's reward is affected by flexures in the local geology. These positions are well understood and define by Northern Star.
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 zone of mineralisation extends for approximately 1500 m along strike, 3 to 30 m across strike and from near surface (1-2 m BSL) up to 180 m vertically. Limited drilling has occurred between 100 metres and 180 metres vertical depth. The 100 m BSL (287 m RL) was used as a vertical constraint for Indicated material based on both a lack of drillholes beneath this depth and an estimate of the realistic notional mining depth of an open cut pit

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	There are no by-products currently known. At this time there has been no estimation for deleterious elements as the data collection is ongoing. There is no correlation between gold grades and any other element known at this time. There is no relationship between grade and structure or depth. A potential correlation between mineralisation and brecciation of a fine grained silicified felsic tuff and or lava unit is considered possible. Datamine software was used for the estimation. JORC Code 2012.Block model cell sizes of 5 mE x 10 mN x 5 mZ were used. Variogram modelling completed using Snowden's Supervisor software. Models were generated on normal scores variograms and back transformed for use in Datamine. Mineralisation is domained based on geological continuity. All domain wireframes are created using Leapfrog software and all subsequent estimation is completed using Datamine software. Lode wireframes are intersected with a validated drill database from which all RAB, air core, and erroneous drill holes have been removed. All remaining diamond, RC and face samples are flagged with a domain identifier and composited to 1m with 0.3m minimum sample. Residual samples are distributed across adjacent component intervals. Composites are analysed for population outliers by domain and top cut proximal to population disintegration. Many of the principal lodes exhibit bi/multi-model grade populations. These internal populations are controlled by grade indicators based on inflexion points derived from domain log probability plots from which indicator variograms are created. Categorical indicator kriging (CIK) is then used to sub-domain lodes with mixed populations. The block model used in the CIK estimation has blocks set at 1x2x1m to ensure sub-domain complexity is maintained then optimised and re-blocked to the parent block size of 5x10x5m. This model is then used to back flag the composite file with the defined sub-domain identifiers. Variography is created for all domains and sub-domains with sufficient sample data. Output variograms are utilised in kriging neighbourhood analysis (KNA) to generate optimum parent block sizes and estimation parameters. Domains and sub-domains are estimated using ordinary kriging utilising the estimation parameters defined in the KNA as inputs. Grade is estimated into parent blocks only and all kriging quality metrics and search pass values are output.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	There are no material differences between the current estimate by Northern Star and the previous estimate by Hawthorn (previous owner).
	The assumptions made regarding recovery of by-products.	There are no by-products currently known
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	There are no known deleterious elements to date.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 5mE × 10mN × 5mRL. These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 25m × 12.5m and 25m × 25m and to a 30m x 30m up to 50m x 50m patterns at depth. Parent blocks have been sub-celled to X (1.0m) by Y (1.2m) by Z (1.0m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. Minimum number of samples, numbers of drill holes, and search distances were determined by drill pattern spacing, and the geometry of the mineralised lodes. In the southern deposits major mineralisation occurs in relatively thick tabular lodes, often 10 - 20 meters in width, so a minimum of 12 samples per drill hole, in 4 drill holes was selected for the first search pass. The subsequent passes are set to lower minimums while increasing the search distances to find sufficient samples where drilling density decreases. A similar approach to the northern deposits was taken, however due the thin undulating nature of the ore zones the maximum number of samples was increased to 32 and the minimum for the first search pass was dropped to 10. This improved the number of samples obtained in the first pass without a significant increase in negative weights.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been explored by Northern Star at this stage
	Any assumptions about correlation between variables.	
	Description of how the geological interpretation was used to control the Resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Hard wireframes were used to define all the mineralised domains.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts, (if necessary) for every single domain for each deposit.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. The mean average composite grade and block model grade by deposit and domain were compared. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means versus the mean block estimates.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed in areas where data density is lower.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnage has been calculation on a dry bulk density. No allowance for moisture has been made.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Based on Northern Star's current economic status the natural grade distinction above background for the cut-off grade used to report the resource at Moody's Reward is set at a grade of 0.5g/t.
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.	Open pit mining is proposed once the extent of the resource is fully understood. Minimal mining dilution is expected due to the broad nature of the ore lodes at Moody's Reward. To best capture "reasonable prospects for eventual economic of extraction", the mineral resource was reported within an optimised pit shell at $2250 at a 0.5g/t cut off for the open pit resources.
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 detailed metallurgical recovery work has been undertaken at this time at Moody's Reward. Further work is ongoing to confirm that there are no deleterious properties at Moody's Reward
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.	Work is required to confirm that there will be no impact from acid rock drainage (ARD) from waste material at the Moody's Reward prospect. Any tailings placement to be stored on site will require detailed environmental assessment.
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 total of 290 core samples were assessed for Specific Gravity by wax immersion at Bureau Veritas Kalgoorlie 17 Holes at Moody's Reward were surveyed by a Geovista Dual gamma probe operated by ABIMS Pty Ltd Density data from the diamond core was used as a benchmark for calibration of the downhole survey density data
	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.	The Moody's Reward Resources was classified as either Indicated or Inferred based on a number of factors, such as ▪ Distance to nearest sample ▪ Number of samples used for estimation and ▪ Estimation pass ▪ Drill spacing
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	No audits have been done at this time.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	A total of 290 core samples were assessed for Specific Gravity by wax immersion at Bureau Veritas Kalgoorlie 17 Holes at Moody's Reward were surveyed by a Geovista Dual gamma probe operated by ABIMS Pty Ltd Density data from the diamond core was used as a benchmark for calibration of the downhole survey density data
	Whether appropriate account has been taken of all relevant factors (i.e., relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The Moody's Reward Resources was classified as either Indicated or Inferred based on a number of factors, such as ▪ Distance to nearest sample ▪ Number of samples used for estimation and ▪ Estimation pass ▪ Drill spacing
	Whether the result appropriately reflects the Competent Person's view of the deposit.	No audits have been done at this time.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	A total of 290 core samples were assessed for Specific Gravity by wax immersion at Bureau Veritas Kalgoorlie 17 Holes at Moody's Reward were surveyed by a Geovista Dual gamma probe operated by ABIMS Pty Ltd Density data from the diamond core was used as a benchmark for calibration of the downhole survey density data
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.	At this time the Indicated Mineral resources are being considered for further technical evaluation. The statements relate to global estimate of tonnes and grade. Following metallurgical / hydrological / geotechnical assessments to be carried out in the upcoming quarters a Scoping study may be produced that assesses the economic viability of each resources.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

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.	The Mineral Resource Model for the Moody's Reward gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. Resource estimate was compiled by Northern Star using exploration, resource definition, and grade control drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by various kriging methods. The block model was depleted with end of February 2021 survey pickup for Reserve Estimation.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	A Competent Person along with a geotechnical consultant has conducted several site visits to the Moody's Reward open pit since the inclusion in the Carosue Dam operations life of mine plan. The purpose of these visits is to collect information for optimisation work, validating input parameters, visual pit inspection, discussion and feedback for life of mine planning. The information also includes the discussion around current mining performance, wall conditions and overall stability, and groundwater condition.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Moody's Reward deposit is closely located to Deep South operation which is in operation. Northern Star has conducted revised feasibility level study with the view to commence open pit operation and has been included in Carosue Dam life of mine plan. The 2021 Ore Reserve has been subject to validating all aspects of operational inputs such as production parameters, operating costs of mining, processing, general administration and environment management related costs.
	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.	Modifying factors have been applied to the optimisation study and resultant Reserve pit design work to ensure the rigor of the financial analysis. Operational costs and production parameters have been estimated from actual mining and processing performance. Northern Star has completed all appropriate supporting mining studies required for Ore Reserve estimate.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	The Ore Reserve is estimated at cut-off grade of 0.60g/t, estimated using assumed gold price of AUD$1,750/oz and operating cost of mining, processing, haulage and general administration. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve Estimate.
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).	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and input parameters derived from current operational data, contractors and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Moody's Reward Reserve.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	Mining method to be employed at Moody's Reward will be conventional open pit with hydraulic excavator and dump truck fleet, and drill and blast activity. The class of excavator employed is similar to other open pit mining operation. That way it provides good operating dataset for production and productivity rate measurement and financial modelling. Moody's Reward Reserve pit is designed to mine the deposit from natural surface to achieve life of mine Reserve such that it meets the operation efficiency, safety aspect and productivity. Appropriate mine schedule and lead time have been applied to maintain effective operational delays and productivity rate.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Life of Mine geotechnical recommendations were made by independent external consultant following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. The geotechnical consultant was engaged to assist geotechnical aspect of technical studies. It is expected that once the pit is in operation there may be some need for additional geotechnical input and reflect any changes into life of mine pit design. The Grade control method to be employed at Moody's Reward will use RC drilling and sampling method. The method and practice has been utilised successfully at all current and past mining operations at Northern Star.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The Ore Reserve Estimate is based on detailed life of mine pit design work by using geology approved resource model and making appropriate dilution and recovery factor allowance for mining fleet and method utilised.
	The mining dilution factors used.	A mining dilution factor of 15% is applied in the Ore Reserve estimation and reflect the mining performance based in ore body characteristic, mining method and equipment utilised.
	The mining recovery factors used.	A mining ore loss factor of 5% is applied in the Ore Reserve estimation and reflect the mining performance based in ore body characteristic, mining method and equipment utilised.
	Any minimum mining widths used.	A minimum mining width of 25m has been adopted for the primary excavation fleet. Where 'pinch-points' occur or "Goodbye" cuts are considered at the base of the pit, it is assumed that a smaller or more versatile excavator will be employed. The practice is very consistent across both Northern Star operations and reflects the suitability and efficiency of the mining performance.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is excluded from the ore reserves and treated as waste material. Which incurs a mining cost but is not processed and do not generate any revenue. Therefore, final pit reserve inventory has excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method and location of the pit is close to operating Carosue Dam mining operations, which consists of underground mines, 3.7mt processing plant to support current and future mine plan. All other necessary infrastructures like office, workshop and camp are already in place being close proximity to Deep South underground mine which is in operation.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Ore Reserve will be treated at the established Carosue Dam processing facility. The facility is a conventional crushing, gravity circuit, grind, and CIL (carbon in leach) plant and is appropriate for the extraction of gold from free milling mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	The current processing plant and method applied utilises well tried and proven technology since being in operation with average gold recovery typically between 93 to 94% for deposits around Carosue Dam operations.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average gold recovery for Moody's Reward deposit is estimated to be 94.0%. The recovery estimation is based on met test work and ongoing actual average recovery data collected at the Carosue Plant. Metallurgical test work has been carried out on samples from the Moody's Reward deposit by test and plant lab and indicating higher ~94% recovery.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Moody's Reward ore that can impact on ore recoveries at Carosue Dam Plant.
	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.	Number of samples of each expected rock type and grade bins have been sampled through the Carosue Dam processing plant for trial test work. These bulk samples/pilot test work is considered as sufficient to represent the Moody's Reward ore body as a whole.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	N/A
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.	All required Environment studies have been completed and Statutory Government Approvals including works approvals and clearing permit have been granted. A Mining Proposal and management plan will be submitted for the reserve pit at later stage.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		The existing Carosue Dam processing facility at which the ore will be processed and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases. A waste rock characterisation study has been carried out and it is expected to be representative of waste rock. An appropriate landform design criterion has been applied based on rock characteristics to mitigate the current and any future pit expansion plan.
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.	Moody's Reward will require limited mining infrastructure and will uses all other facilities from well-established Deep South underground and next in pipeline Safari Bore operations due to tis close proximity. The Moody's Reward mine site is ~30km from Deep South operation and ~90km from the CDO Processing Plant and well connected to both operations via internal haul road network. Carosue Dam Operations are well established, with mining activities being conducted previously by Northern Star now by Northern Star since 2009. The operation extends from the south (CDO plant, administration, Whirling Dervish & Karari mines) to the North (Deep South mine) and is connected via a private haulage road. The CDO operation comprises at 3.3mtpa CIL ore processing facility, aerodrome with sealed runway, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Northern Star and Shire of Kalgoorlie gravel roads are well maintained.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	There will be minimum capital cost relating to infrastructure setup as majority of the facilities have been already layout. Further allowance has been made in financial modelling for pre striping of the pit.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from Carosue Dam/Thunderbox Operations and costs supplied by various contract mining companies, and consultants. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam operations.
	Allowances made for the content of deleterious elements.	There is no evidence of any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
	The source of exchange rates used in the study.	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges.	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carosue Dam.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carosue Dam.
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government royalty of 2.5%, and a third party royalty of 1.5% is payable.
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.	For the purposes of Ore Reserve Estimation, it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Assumed gold price of AUD$1,750/oz has been adopted for the financial modelling. No allowance is made for silver by-products.
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.	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve Estimation is based on detailed life of mine pit design and reflects positive economic outcomes. All relevant capital and operating costs as well as revenue and royalty factors have been included with appropriate discount factor for cash flow analysis.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model is developed with sensitivities applied to all key inputs and assumptions.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Carosue Dam is in operation and Northern Star has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land and all appropriate compensation agreements are in place. Aboriginal heritage surveys have been conducted and maintain no negative impact within the area. Granted mining leases cover all of the proposed mining and processing assets.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	Water inrush is identified as naturally occurring risk within the operation and has been addressed appropriately. Adequate water diversion bunds will be adequately constructed during the project commencement of the operation to provide safe and risk-free work environment.
	The status of material legal agreements and marketing arrangements.	Contracts are in place for all critical goods and services to operate Carosue Dam Operations.
	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.	A Mining Approval will be submitted for the updated mine reserve pit in timely manner. Environmental study has been completed and other Statutory Government Approvals including vegetation clearing, permit have been in place.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The Ore Reserve Estimate classification has been in accordance with the JORC code 2012. The Ore Reserve Estimate is classified as being Probable has been derived from Mineral Resource classified as Indicated and Measured only.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and modifying factors applied to the pit optimisation and subsequent designs were derived from current operational data relating to Northern Star's Carosue Dam and Thunderbox operations and supplied from contract mining companies and consultants. Results of these optimisations and the resultant analysis reflect the Competent Person's view regarding the Moody's Reward deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	100% of Probable ore from Ore Reserve estimate has been derived from Indicated category of Mineral Resource.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve estimation process is in line with the Northern Star Ore Reserve Policy and undergone internal review.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The Ore Reserve estimate has been prepared in accordance with the guideline of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Ore Reserves. Based upon; ▪ - Resource estimate ▪ - significant operating history, ▪ - application of current industry practices, ▪ - appropriate operating and capital costs, The range of the modifying factors and mining parameters applied are appropriate and confidence in the resulting reserve estimate is reasonable. The Ore Reserve estimation have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the reserve. The Moody's Reward pit mining will utilise the same grade control methods that are widely utilised at current Northern Star open pit operations.
	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.	

APPENDIX C: TABLE 1

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.	
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

JORC Code, 2012 Edition – Table 1 Report

Paulsens Surface (Belvedere, Merlin) - 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by Diamond Drilling (DD) and Reverse Circulation (RC) drilling. Diamond core sample intervals are defined by the geologist to honour geological boundaries. RC initially sampled to 4m comps, any samples reporting > 0.1gpt were re-split and re-assayed as 1m composites.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC drilling completed by previous operators, assumed to be to industry standard at the time (1998). Northern Star Resources (NSR) sampling methodologies are to current industry standard.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	DD completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NSR and Intrepid Mines Ltd diamond core samples are fire assayed (50gm charge). Fine grained free gold is encountered occasionally. Pre NSR, Taipan Resources NL RC sampling assumed to be industry standard at that time. NSR RC sampling using mounted static cone splitter for dry samples to yield a primary sample of approximately 4kg.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Surface RC drilling used ~5.25" face sampling bit. Surface DD core used NQ2. The surface core was orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals. Overall recoveries are good.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC and diamond drilling by previous operators to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There has been no work completed on the relationship between recovery and grade.
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.	RC chips and surface DD core logged by company geologists to industry standard. All relevant items such as interval, lithologies, structure, texture. Grain size, alterations, oxidation mineralisation, quartz percentages and sulphide types and percentages are recorded in the geological logs. RC logging completed by previous operators to industry standard.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative, all core photographed, and visual estimates are made of sulphide, quartz alteration percentages.
	The total length and percentage of the relevant intersections logged.	100% of the drill core and RC drilling chips were logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Core sample intervals are generally to 0.3-1.2m in length, honouring lithological boundaries to intervals less than 1m as deemed appropriate. NQ2 core is half core sampled cut with Almonté diamond core saw. The right half is sampled, to sample intervals defined by the Logging Geologist along geological boundaries. The left half of core is archived. All samples are oven-dried overnight (105^{0}C), jaw crushed to <10mm. The total sample is pulverised in an LM5 to 90% passing 75µm and bagged. The analytical sample is further reduced to a 50gm charge weight using a spatula, and the pulp packet is stored awaiting collection by NSR.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	NSR RC initially sampled to 4m comps, any samples reporting > 0.1gpt were re-split and re-assayed as 1m composites. Rig mounted static cone splitter used for dry samples to yield a primary sample of approximately 4kg. Off-split retained. Duplicate samples are taken at an incidence of 1 in 25 samples. Pre- NSR assumed to be industry standard.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	There was no data available on Taipan Resources NL sample preparation practices. It is assumed to be industry standard along with NSR processes which are Industry standard.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	NSR standard QAQC procedures and previous owners in the case of Taipan Resources NL are assumed as Industry standard.
	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.	The field QAQC protocols include duplicate samples at a rate of 1 in 25, coarse blanks inserted at a rate of 3%, commercial standards submitted at a rate of 4%. Industry standard QAQC procedures are assumed to have been employed by Taipan.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	DD - Core is half cut. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. Total gold is determined by fire assay using the lead collection technique (50 gm sample charge weight) and AAS finish. Various multi-element suites are analysed using a four-acid digest with an ICP-OES finish. Taipan Resources NL assay techniques were assumed to be industry standard.
	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 are used or reporting of analyses.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The laboratory QAQC protocols include a repeat of pulps at a rate of 3%, sizing at a rate of 1 per batch. The labs internal QAQC is loaded into NST database. In addition to the above, about 5% of samples are sent to an umpire laboratory. Failed standards trigger re-assaying a second 50 gm pulp sample of all samples in the fire above 0.1ppm. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) are deemed acceptable. Although no formal heterogeneity study has been carried out or nomograph plotted, informal analysis suggests that the sampling protocol currently in use is appropriate to the mineralisation encountered and should provide representative results. Industry standard QAQC procedures are assumed to have been employed by pre NSR operators
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are verified by NSR senior staff as required.
	The use of twinned holes.	There is no purpose drilled twin holes however holes BVRC018 and BVRC027 are 4m apart and reported 6m @ 2.6gpt and 5m @ 2.4gpt respectively.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NSR data thoroughly vetted by database administrators. Data is stored in GBIS database and has inbuilt validations. Taipan Resources NL holes of the 2006 database collated and extensively verified by third party consultancy.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data.

APPENDIX C: 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.	NST collar positions were surveyed using DGPS. Taipan Resources NL collars were surveyed at the end of a drill program. Old mine workings have been picked up on surface, but actual extent and depth has been estimated using 1930's survey plan. Topographic control uses airborne photo data supplemented with local DGPS pickups.
	Specification of the grid system used.	MGA 94_50.
	Quality and adequacy of topographic control.	Topographic control is based on the collar surveys and airborne photogrammetric survey.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Exploration results are based on the drill traces as attached.
	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.	Data spacing is approximately 20m by 20m. Except one area where deviating holes have left a larger gap of 20m by 40m. Data spacing is adequate for the Resource estimation.
	Whether sample compositing has been applied.	Drill core is sampled to geology; sample compositing is not applied until the estimation stage. NSR RC samples initially taken as 4m composites to be replaced by 1 m samples if assays >0.1gpt were reported. Taipan RC samples treated similarly though historical details not fully reviewed.
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.	Intercept angles are predominantly moderate to high angle (70° to 90°) to the interpreted mineralisation resulting in unbiased sampling.
	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.	Unknown, assumed to not be material.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by NSR. Samples are stored on site and are delivered to assay laboratory in Perth by Contracted Transport Company. Consignment notes in place to track the samples. Whilst in storage they are kept in a locked yard. Pre NSR operator sample security assumed to be adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There have not been reviews of sampling techniques on NSR drilling phases.

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.	Mining Lease M08/222 is wholly owned by Northern Star Resources Limited and is in good standing. Heritage surveys have been conducted and the area was cleared for drilling. Relationship with the traditional owners is well informed and adequate. Paulsens Gold Mine is currently on care and maintenance.
	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.	Mining Lease M08/222 is valid currently to 2021. The access road L08/15 is valid until 2021.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Pre NSR data relevant to this Resource was collected by Taipan Resources NL (35 RC holes in 1998). All previous work is accepted as to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Mineralisation at this deposit is considered a mesothermal quartz reef (s) associated with quartz carbonate +/ pyrite, arsenopyrite chalcopyrite and galena, on the contact of by a north south trending dolerite dyke and surrounding sediments. A smaller domain is fault hosted and external to the dolerite host.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length	No exploration results being released this time.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results being released this time.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results being released this time.
	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.	Weighted by length when compositing for estimation.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	No exploration results being released this time.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Geometry of the mineralisation to drill hole intercepts is at a high angle, often nearing perpendicular.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	No exploration results being released this time.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See plan view of drill traces for Belvedere and surrounding areas.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results being released this time.
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.	Old Belvedere mine. Other Exploration results not considered material. Geotechnical holes were drilled in 2015, results from these are used in pit optimisations.
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).	Follow up drilling to infill and extend.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	See attached plan view.

APPENDIX C: 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 entered directly into the logging package OCRIS. Constrained look-up lists, depth and some interval validation are inbuilt and ensure that the data collected is correct at source. Data is imported to a GBIS relational geological database where additional validation checks are conducted, including depth checks, interval validation, out of range data and coding. Where possible, raw data is loaded directly to the database. Pre-Northern Star Resources Limited (NSR) data assumed correct, but no validation has been undertaken. For all data, the drilling looked reliable visually and no overlapping intervals were noted.
	Data validation procedures used.	NSR data validated by database administrators by checking 2% of raw data files. Taipan Resources NL data has not been validated apart from resurveying the old collar positions where found. No inconsistencies were found.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken several times by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Site visited.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was conducted using a systematic approach to ensure continuity of the geology by the supervising and logging geologists. Sectional interpretations were digitized in Vulcan software and triangulated to form three dimensional solids. Confidence in the geological interpretation is moderate. Weathering zones and bedrock sub surfaces were also created.
	Nature of the data used and of any assumptions made.	All available valid data was used including drill data, mapping previous interpretations and existing 1930's mine development extents. Where pre-NSR drill data was used, it is assumed to be correct.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	There are currently no different interpretations.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geology is used to constrain the quartz veins to the dolerite host.
	The factors affecting continuity both of grade and geology.	Grade continuity is related to quartz vein extent, within the constrained dolerite dyke host.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Strike length = 150m. Width = 80m with zones 2 to 3m thick. Depth = from surface to ~160m below surface (top ~20m mined in the 1930's and wholly excluded from the Resource).
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.	ID^2 was used to estimate this Resource using Vulcan 9.1 software. Domains are snapped to drilling, and composited to 1m downhole, Composites of less than 0.15m length are merged with the last composite. Four domains were used to reflect the 2 styles of mineralisation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	A Resource was estimated internally in June 2015.
	The assumptions made regarding recovery of by-products.	No assumptions of by product recovery are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 2.5m x 2.5m x 2.5m. Sub-celled down to 1.25m x 1.25m x 1.25m to best fit estimation domains. Average drill hole spacing is variable ranging from <10m to 40m (average sample spacing~ 25m). Two search ellipse 70m x 25m x 9m (for Main, hanging wall and footwall zone) and 50m x 50m x 10m (Belvedere fault zone) were used. Minimum of 4 samples to estimate, max 2 samples per octant.
	Any assumptions behind modelling of selective mining units.	No assumptions made.

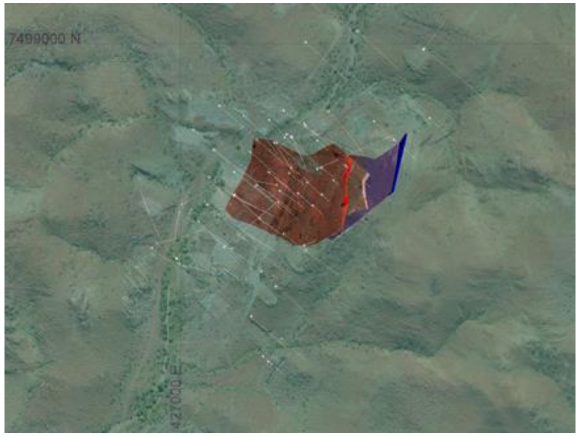
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of a mineralised wire frame.
	Discussion of basis for using or not using grade cutting or capping.	Composites were cut to 20gpt (Main and hanging wall) and 5gpt (Footwall and Belvedere Fault mineralisation) based on log distribution.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades were compared visually to drilling data. Validation is also through swath plots comparing composites to block model grades, along 10m eastings, 10m nothings and 5m elevations, comparing Inverse Distance to nearest neighbour estimations. All compared favourable but there was no reconciliation against previous mining.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low (~1-2 %) as it is fresh rock with minimal voids reported.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 1.0gpt based on similar gold projects in the Ashburton Goldfields. Modeling lower grade cut off = 0.3gpt nominally, not more than 2m of internal dilution and requires minimum 2 holes.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed Belvedere will initially be mined by open cut mining methods, and quick evaluations support the economics. Below the economic pit depth, grades are high enough to potentially be mined by underground methods.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Extensive metallurgical testing including comminution, leaching and adsorption, flocculation, rheology and geochemistry test work was completed by ALS metallurgy in early 2015. Belvedere ore will be amenable to processing in the existing plant though the thickener may need to be optimised for best recovery.
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.	No environmental, permitting, legal, taxation, socio-economic, marketing or other relevant issues are known, that may affect the estimate.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density used was based on 756 samples. Measurements were taken using the immersion method and related back to dominant rock code.
	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.	Bulk density of the host rock is well covered, but of the mineralisation only lower grade intersections are represented in only seven samples. Ten samples were used to determine an average SG of weathered rock.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied to geological units.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on drill spacing to delineate Resource classifications.
	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).	Confidence in the relative tonnage and grade is high, NSR data input reliable, Taipan Resources NL data assumed to be reliable (based on Paulsens experience). Distribution of data and continuity is moderate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The result appropriately reflects the Competent Person(s)' view of the deposit.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This Resource has not been externally reviewed or audited.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered robust and representative. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the Resource on a global scale. It relies on historical data being of similar standard as recent infill drilling. This applies to approximately half of the holes. The relevant tonnages and grade are variable on a local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The global assessment is more of a reflection of the average tonnes and grade estimate. Local variations are anticipated.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There is no production data available.

PLAN VIEW OF THE BELVEDERE DEPOSIT



APPENDIX C: TABLE 1

JORC Code, 2012 Edition – Table 1 Report

Paulsens Underground (Voyager, Titan, Upper Paulsens & Galileo) - 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by Reverse Circulation (RC), Diamond Drilling (DD) and face chip sampling. Sample intervals are defined by the geologist to honour geological boundaries. RC drill results are used in the Upper Paulsens model.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and most surface core drilling completed by previous operators to industry standard at the time (late 1990's to 2011).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Diamond drilling and face sampling are completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200 gm pulp sub sample to use in the assay process. Pre-June 2013, diamond core samples are fire assayed (30gm charge), current fire assay charge is 40 gm. Face samples are assayed by Leachwell. Visible gold is occasionally encountered in core and face sampling. RC sampling to industry standard at the time. There is evidence of mineralisation widths being exaggerated in the lower zone particularly, these areas have now been mined out and do not affect current Resource.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Upper Paulsens: Surface RC drilling, 332 holes (face sampling hammer, ~5 1/4" bit size), Surface drill core, 140 holes, (NQ2 sized, standard tube), 999 Underground DD, 3,494 faces used to generate sample composite. Titan: Surface diamond drill holes 2, 565 Underground drill holes, 560 faces/rises used to generate sample composite. Voyager: 3,287 Underground drill holes and 7935 faces/rises used to generate the sample composite. Galileo: 502 Underground drill holes and 252 faces/rises used to generate the sample composite. Underground diamond holes are LTK60 or NQ2 size. Surface core is orientated using the EZ ORI-shot device, underground drill core is rarely oriented. Faces are chip sampled aiming to sample every ore development cut but ~10% of ore cuts were missed pre-2015, now all faces are mapped and sampled.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond drill recoveries are recorded as a percentage calculated from measured core versus drilled intervals. Achieving >95% recovery. Greater than 0.2 metre discrepancies are resolved with the drill supervisor. Surface RC drill recoveries are unknown.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Standard diamond drilling practice results in high recovery due to competent nature of the ground. RC drilling by previous operators to industry standard at the time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core logging is carried out by company geologists, who delineate intervals on geological, structural, alteration and/or mineralogical boundaries, to industry standard. Surface core and RC logging was completed by previous operators to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and all core is photographed. All sampled development faces are photographed. Visual estimates are made of sulphide, quartz and alteration percentages.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	LTK 60 is generally whole core sampled, NQ2 core is generally half core sampled. If not whole core sampled, then core is half cut with an Almonté diamond core saw and half core sampled. The right half is sampled, to sample intervals defined by the logging geologist along geological boundaries. The left half is archived. All major mineralised zones are sampled, plus associated visibly barren material, >5m of the hangingwall and footwall. Quartz veins >0.3m encountered outside the know ore zone and ±1m on either side are also sampled. Ideally, sample intervals are to be 1m in length, though range from 0.3m to 1.2m in length. Total weight of each sample generally does not exceed 5kg. All samples are oven-dried overnight, jaw crushed to <6mm, and split to <3kg in a static riffle splitter. The coarse reject is then discarded. The remainder is pulverised in an LM5 to >85% passing 75µm (Tyler 200 mesh) and bagged. The analytical sample is further reduced to a 30 gm charge weight using a spatula, and the pulp packet is stored. Post 2013, samples are crushed to 90% passing 3mm before a rotary split to 2.5 kg, all of which is then pulverised to 90% passing 75 microns. For older core, pre- NSR, best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Development face samples are chipped directly off the face into a sample bag, aiming for >2.5kg. Sample intervals range between 0.3 to 1.2m in length, modified to honour geological boundaries, and taken perpendicular to the mineralisation if practical. Site lab sample preparation since January 2013 uses a Boyd crusher to crush and split to 3mm. Before that, a jaw crusher (6mm aperture) and 50/50 rifle splitter were used.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation is deemed adequate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	For drill core the external labs coarse duplicates are used. One face sub sample per day is sent offsite for fire assay analysis to compare to Leachwell assay results. RC drilling by previous operators to industry standard at that time.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, i.e., other half of cut core, are not routinely assayed. For each development face, one field duplicate is taken of the highest grade area to assess the reproducibility of the assays, and the variability of the samples. Variability is very high due sampling technique and to nuggetty nature of the mineralisation. The variability is accepted, countered by the high density of sampling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30 gram sample charge weight. An AAS finish is used, considered to be total gold. A 40 gram fire assay charge is used post June 2013. Various multi-element suites are analysed using a four-acid digest with an ICP-OES finish. Face samples are analysed using Leachwell process and are not considered total gold. RC drill samples by previous operators assumed fire assay with AAS finished.
	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 other sources of data reported.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: Site sourced coarse blanks are inserted at an incidence of 1 in 40 samples. From April 2013, commercial blanks are used. Commercially prepared certified reference materials are inserted at an incidence of 1 in 40 samples. The CRM used is not identifiable to the laboratory. NSR's blanks and standards data is assessed on import to the database and reported monthly, quarterly and yearly. The primary laboratory QAQC protocols used include the following for all drill samples: Repeat of pulps at a rate of 5%. Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 100 samples. The laboratory and Geology department report QAQC data monthly. Failed standards are followed up by re-assaying a second 30 gm pulp sample of the failed standard ± 10 samples either side by the same method at the primary laboratory. One standard is inserted with every face sampling submission to assess site lab performance.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
		Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) are deemed acceptable. QAQC protocols for surface RC and diamond drilling by previous operators is unknown, assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are reviewed by the geology manager and senior corporate personnel.
	The use of twinned holes.	Twinned holes are not specifically drilled. Occasionally deviating holes could be considered twins, showing similar tenor of mineralisation.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Until June 2014, data was hard keyed or copied into excel spreadsheets for transfer and storage in an access database. Data is now entered in the OCRIS data capture system, where it is then exported to the GBIS Geology database after validating. Hard copies of face and core / assays and surveys are kept on site. All face sheets are scanned and saved electronically as well. Internal checks are made comparing database to raw assays files. Visual checks are part of daily use of the data in Vulcan. Data from previous operators taken from 2006 database compilation by Maxwell Geoservices and further maintained by a succession of Paulsens owners. All data now stored in GBIS and electronically logged and downloaded.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data. First gold assay is utilised for any Resource estimation.
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.	Drill hole collar positions are picked up by survey using a calibrated total station Leica 1203+ instrument. Drill hole, downhole surveys are recorded at 15m and 30m, and then every 30m after, by calibrated Pathfinder downhole cameras. Face samples are located by laser distance measurement device and digitised into Vulcan software. The faces are represented as "pseudo-drill holes" to allow assignation of survey, lithology, assay, and other relevant information. Underground workings are tied into defined surface survey stations. Surface hole collars picked up by the mine surveyors in mine grid. Pre - NSR survey accuracy and quality assumed to be industry standard.
	Specification of the grid system used.	A local grid system (Paulsen Mine Grid) is used. It is rotated 40.61 degrees to the west of MGA94 grid. Local origin is 50,000N and 10,000E Conversion. MGA E = (East_LOC*0.75107808+North_LOC*0.659680194+381504.5)+137.5 MGA N = (East_LOC*-0.65968062+North_LOC*0.751079811+7471806)+153.7 MGA RL = mRL_LOC-1000
	Quality and adequacy of topographic control.	Topographic control is not that relevant to the underground mine. For general use, airborne surveys are flown annually. Resolution is +/- 0.5m.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Exploration result data spacing can be highly variable, up to 100m and down to 10m.
	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.	Measured data spacing is better than 7m x 7m and restricted to areas in immediate proximity to mined development. Data spacing for indicated material is approximately, or better than, 20m x 20m. All other areas where sample data is greater than 20m x 20m, or where intercept angle is low, is classified as inferred.
	Whether sample compositing has been applied.	Core and faces are sampled to geology, sample compositing is not applied until the estimation stage. RC samples are initially taken as 4m composites to be replaced by 1 m samples in ores zones above assumed threshold.
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.	Intercept angles are mixed; however, all material remains inferred until reconciled by moderate to high angle (45° to 90°) grade control drilling, or mining activities. Hanging-wall drill drives provide excellent intercept orientation to the geological structures used in the estimate.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the Resource estimation. As the opportunity arises, better angled holes are drilled with higher intersection angles.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are transported via freight truck to Perth, with consignment note and receipts. Sample pulp splits are returned to NSR via return freight and stored in shelved containers on site. Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Recent external review confirmed core and face sampling techniques are to industry standard. Data handling is considered adequate and was further improved recently with a new database. Pre NSR data audits found less QAQC reports, though in line with industry standards at that time.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

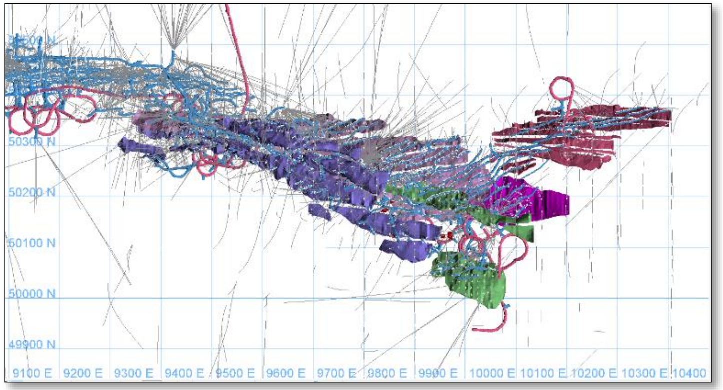
Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	M08/196 and M08/99 are wholly owned by Northern Star Resources (NSR) and in good standing. Surface expression of the Paulsens Gold Mine is on M08/99, most of underground workings are on neighbouring M08/196. There are no heritage issues with the current operation. Relationship with the traditional owners is good. There is an on-going Production royalty payment to the traditional owners the terms of which are confidential.
	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.	M08/196 and M08/99 are valid for 21 years and are renewable.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to these Resources was collected by CRA, Hallmark, Taipan, St Barbara, Nustar and Intrepid Mines Ltd before NSR. All previous work is accepted as to be at industry standard at the time.
Geology	Deposit type, geological setting and style of mineralisation.	Paulsens is a high grade, quartz hosted, mesothermal gold deposit within metasediments.
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	No new drill hole information in this report. Too many (>9000) holes to practically summarise all information for all drill holes and faces used in the Resources.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of information does not detract from this report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	No new exploration results released
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Short intervals are length weighted to create the final intersections.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
	These relationships are particularly important in the reporting of Exploration Results:	

APPENDIX C: TABLE 1

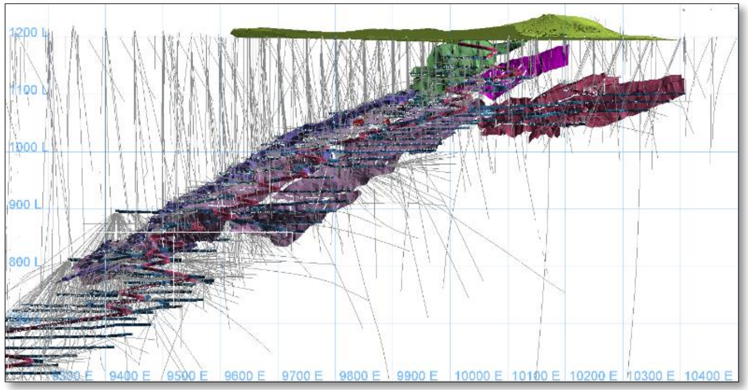
Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').	Downhole length in addition to estimated true width is shown in the report tables.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No new exploration results released
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No new exploration results released
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other relevant data to report.
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).	Paulsens is currently on care and maintenance. In early 2021, a series of 83 underground diamond drill holes were completed to test and extend the best remnants around the existing workings. Results have been received, built into a new model and are currently being assessed.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams attached.

PAULSENS UNDERGROUND - REPRESENTATIVE PLAN & LONG SECTION

Plan View – Paulsens upper Levels

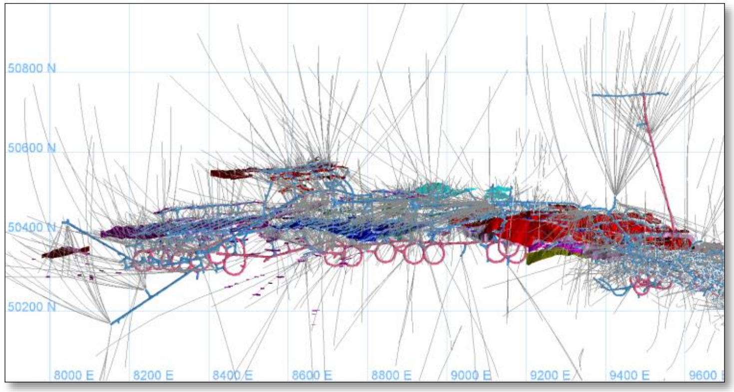


Long Section View – Paulsens upper levels looking north.

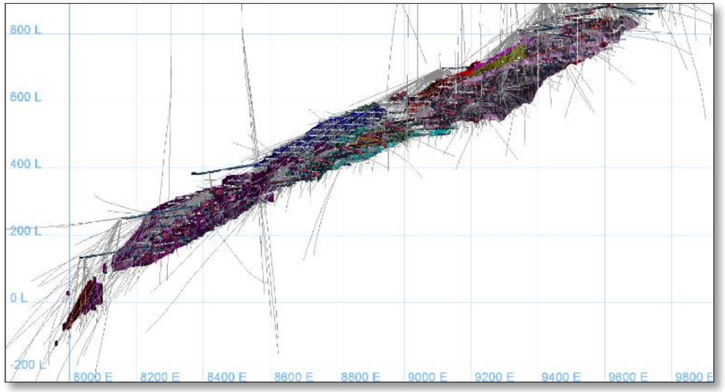


APPENDIX C: TABLE 1

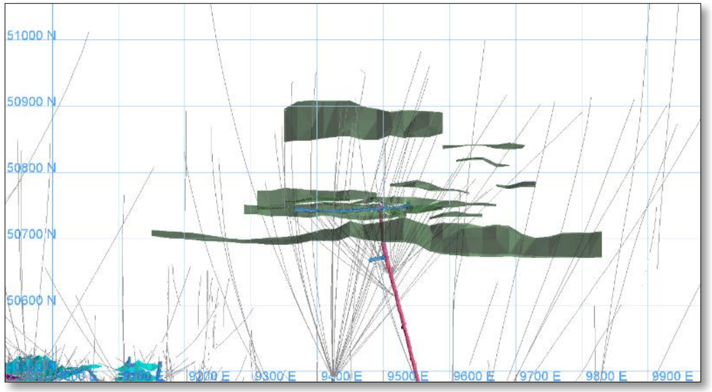
Plan View – Paulsens Voyager & Titan deposits



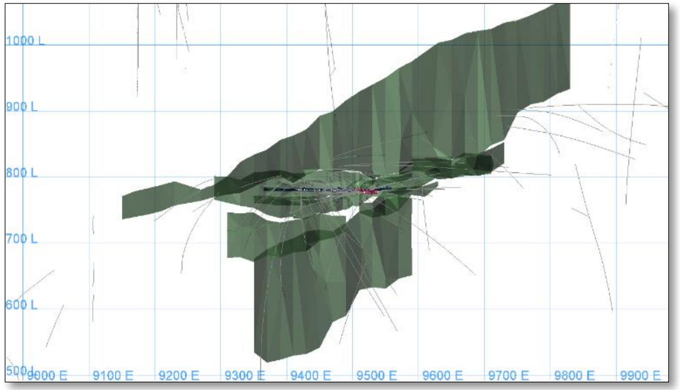
Long Section View – Paulsens Voyager & Titan deposits looking north



Plan View – Paulsens Galileo deposit

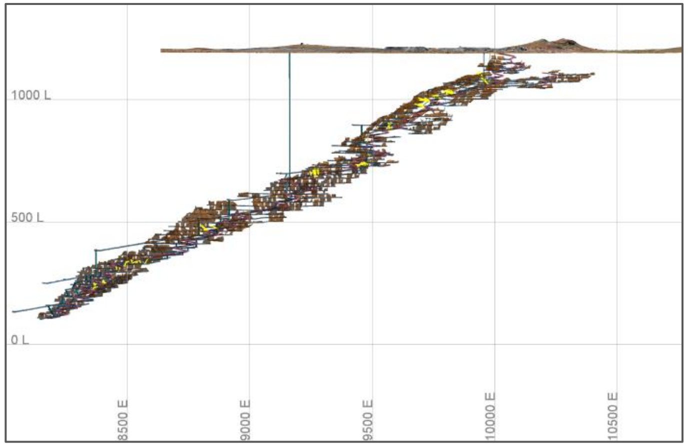


Long Section View – Paulsens Galileo deposit looking North



APPENDIX C: TABLE 1

PAULSENS DEPOSIT
Long section view of Paulsens looking North (mine grid), highlighting the 2021 infill drilling in yellow



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 entered into the OCRIS logging data capture system then transferred to GBIS database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from the laboratory. Pre-Northern Star Resources (NSR) data assumed correct, maintained by database administrators.
	Data validation procedures used.	Random checks through use of the data as well as database validations. Checks as part of reporting significant intersections and end of program completion reports are also completed. In addition to this, 5% of the underground drill holes, faces and sludge samples have been validated against the raw data collected. Maxwell Geo Services extensively validated the 2006 data compilation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The CP has visited this site on numerous occasions between 2004 and 2017. This Resource estimate has been conducted by geologists working in the mine and in direct, daily contact with the ore body data used in this Resource estimate.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral Resource. The confidence in the geological interpretation is high with all the information and plus 13 years of operation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling faces, photos, structures.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No substantially different, alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Most of the mineralisation is located within a large, variably folded and faulted quartz host, close to, or on, the contacts with the surrounding wall rock sediments between an offset Gabbro intrusive. Drill core logging and face development is used to create 3D constrained wireframes.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Grade continuity is related to the quartz and sulphide events within the boundaries of the gabbro extent. Mineralised veins are also within the gabbro.
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.	Upper Paulsens: ▪ Strike length = 1,100m down plunge at 30-35deg to the west; ▪ Width = ~80m (though high-grade component ~ 5m wide); ▪ Depth = from ~130m below surface to ~550m below surface; Voyager: ▪ Strike length = 1,850m down plunge, 25-30 deg to grid west; ▪ Width = ~190m; ▪ Depth = from ~550m below surface to ~1,100m below surface; Titan: ▪ Strike length = 350m down plunge, 25 degrees to grid west; ▪ Width = 50m; ▪ Depth = from 750 to 925m below surface; Galileo: ▪ Strike length = 360m down plunge,10 degrees to grid west; ▪ Width = 50m; ▪ Depth = from 380 to 520m 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.	Inverse distance squared (ID^2) was used to estimate this Resource, using Vulcan 11. Mineralisation domains (combined into one model) were used to constrain the various lodes, defined by orientation, geological continuity, and grade population. Each domain is validated against the lithology, and then snapped to the drill-hole and face data to constrain the mineralised envelope as a 3D wireframe. Compositing of drill-hole samples was completed against these wireframed domains at 1m (downhole) interval.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Recent reconciliations of the area have been in line with Resource expectations.
	The assumptions made regarding recovery of by-products.	No assumptions are made, but silver is a by-product that makes up part of the refinery revenue. This is not in the model and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 5m x 4m x 5m, sub-blocked to 1m x 0.25m x 1m to suit the narrow east-west orientation of most of the domains. Average sample spacing is 3.5m in the case of face samples. Search ellipsoids are 25 * 12 * 6m to 50 * 20 * 10m, varying the minimum number of samples required on successive passes as well as utilizing an octant search to decluster.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were used based on statistical analysis undertaken in Supervisor that ranges from 10 to 200gpt on individual domains. Top cuts are set to incorporate approximately 97.5% of the available sample population for each domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation is through swath plots comparing composites to block model grades, along 20m eastings and RL, comparing the block model means vs composite means for each domain. 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.	Tonnages are estimated on a dry basis. Moisture content within the ore is low (~1-2 %).

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Resource reporting based on MSO (Mining Stope Optimiser) using blocks 10m high by 10m wide (variable widths) at a grade of 3.1gpt based on a gold price of $2,250 and mine restart costs Individual MSO Blocks are then visually assessed for “mineability”. Remnant stope “skins”, small remote blocks and inaccessible pillars are removed.
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.	Standard sub level retreat mining methods are predominantly used. Historical mining and reconciliation data have been taken into consideration but without affecting wire frame interpretation. The total model has been coded to identify previously mined areas and only reports remnant mineralisation. Mine Stope Optimiser (MSO) was run at 10m by 10m blocks to identify potentially economic material. This is coarser than the manually created reserve shapes. Small reserve shapes, not picked up by the Resource MOS process, were added to the overall resource.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The ore is free milling (Life of Mine over 14 years 91.5% recovery), average hardness (BWI15-16), and with no significant refractory component. There are few deleterious elements, the footwall graphitic shales being a concern in that this can affect recovery through preg-robbing if processed in isolation. High percentages of pyrrhotite and chalcopyrite have been known to affect recovery. This known effect is managed through blending the ROM feed to the crusher prior to milling.
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.	Paulsens was recently an operating mine, currently on Care and maintenance, and all permits and closure plans are in place. As with all unweathered, underground deposits, when mined, natural oxidation and weathering occurs, however, the ore and waste material mined at Paulsens has been reviewed multiple times by both independent and contracted consultants with the overall finding that there appears to be no major effects on the environment outside of the environmental conditions imposed with the granting of the initial mining Licence.
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.	Over 4,000 bulk density measurements from diamond drill holes have been taken from 443 mineralised and un-mineralised intervals within the project area. The bulk densities are derived from laboratory pycnometer readings, with some of the domain densities adjusted over time through mine tonnage reconciliations. Immersion method SG calculations are now routinely preformed to validate against the block model bulk density estimates.
	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.	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.	Individual bulk densities are applied to geological units and ore zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is defined by data spacing of diamond holes, face/wall and rise sampling and reflects the degree of confidence in the areas specified. Measured Resource classification is where the estimate is supported by data less than 5m apart and/or within 5-7m of development. Indicated Resource classification is where the mineralisation has been sufficiently defined by a drill spacing of 12-15m x 12-15m or better, and/or where development has occurred within 12-15m. Inferred Resource is based in addition to the above to a maximum search distance of 50 m from last sample point and high angle drill intercepts. The area has also been externally estimated by Ordinary Kriging (Hellman and Schofield 2007-2010), Inverse distance (ResEval Pty Ltd) 2004-2006, Conditional Simulation and Ordinary Kriging (Golders) 2002.
	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).	Classification is primarily based on 14 years of Paulsens mining experience.
	Whether the result appropriately reflects the Competent Person’s view of the deposit.	This mineral Resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This Resource has not been audited externally. Previous estimates of this area utilising the same, or very similar variables, have been reviewed by external parties and internal parties with protocols deemed appropriate.

APPENDIX C: 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.	This Resource is one in an iterative, evolutionary approach, attempting to increase confidence with each estimation. Taking account of all reconciliation, audits, mentor, and increased ore body knowledge the qualitative confidence improves with mining and drilling.
	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 Upper Paulsens, Voyager, Titan and Galileo areas, and will show local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The current inverse distance estimation methodology appears to perform sufficiently as an estimation technique for the Paulsens mineralisation.

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.	NST MY 2021 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.
	If no site visits have been undertaken indicate why this is the case.	Site visit undertaken.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Update of previous Ore Reserve based on parameters from the operating mine.
	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.	Update of previous Ore Reserve.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A cut-off grade is generated, and all potential reserve material is evaluated, based on the direct costs of all tasks involved and corporate gold price guidance. Historic actual costs are relied upon in determining cut-off grades and costs.
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).	Indicated Resources were converted to Probable Ore Reserves subject to mine design physicals and an economic evaluation.
	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 Paulsens since 2005.
	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Assumptions based on actual mining conditions.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This table one applies to underground mining only.
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 18% for stoping and 18% for development is applied based on historical data.
	The mining recovery factors used.	Mining recovery factor of 94% has been applied.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Any minimum mining widths used.	2.0m.
	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.
	The infrastructure requirements of the selected mining methods.	Infrastructure in place and is maintained as part of the care and maintenance strategy.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Paulsens gold mill utilises a CIL (Carbon in Leach) circuit for the extraction of gold. Reserves are based on historical data from the operation of the plant and a Processing recovery of 88% has been applied.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 12 years' continuous 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 since 2005, 12 years' continuous 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 since 2005, 12 years' continuous operation.
	For minerals that are defined by a specification, has the ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?	Gold only being reported.
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.	Paulsens is currently compliant with all legal and regulatory requirements. All government permits and Licences and statutory approvals are either granted or in the process of being granted.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	All current site infrastructure is suitable to the proposed mining plan.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Actual mine operating costs used.
	The methodology used to estimate operating costs.	Processing, Mining Services, Geology Services and Administration costs have been estimated as a cost per ore tonne based on tracked historical performance. Mining Services fixed cost is based on the monthly lump sum provided in the schedule of rates and then annualised and divided by the budgeted annual processing rate to obtain a cost per ore tonne.
	Allowances made for the content of deleterious elements.	No allowances made for deleterious elements.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.	Single commodity pricing for gold only, using a long-term gold price of AUD$1,750 per ounce 2.5% WA State Government royalty.
	The source of exchange rates used in the study.	All in $AUD.
	Derivation of transportation charges.	Historic performance.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Refining charge built into the cost model.
	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.	Revenue was based on a gold price of AUD $1,750 per ounce.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	NSR internal Resource and Reserve guidelines 2021. These are documented in internal emails and memorandums.
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 that all gold is sold direct to the market.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not relevant to gold.
	Price and volume forecasts and the basis for these forecasts.	Not relevant to gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not relevant to gold.
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 not assessed.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional landowner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	No issues foreseen.
	The status of material legal agreements and marketing arrangements.	No issues foreseen.
	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.	As a current operation, all government approvals are in place. No impediments are seen in any of these agreements for the continuation of mining activities.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved (if any) and Probable classifications based off the underlying Mineral Resource model classifications whereby Measured Resource may convert to Proved or Probable and Indicated material convert to Probable Reserve.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results accurately reflect the Competent Person's view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	None.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	There have been no external reviews of this Ore Reserve estimate. Internally reviewed by site and corporate staff.
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 reasonable 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.	Other than dilution and recovery factors, no additional factors have been applied to the 2021 MY estimation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	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.	Reconciliation results from past mining at Paulsens has been considered and factored into the Reserve assumptions where appropriate.

JORC Code, 2012 Edition – Table 1 Report

Central Tanami JV – 31 March 2022

Section 1: Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using diamond drill (DD) or reverse circulation (RC) drilling. Some drill holes were pre-collared using RC drilling methods and completed with DD tails while others were drilled DD core from surface.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond drilling used NQ2 sized core (minor HQ3 used). Drill core was oriented, aligned, and half-cut using geologically determined intervals (min 0.3 metres).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.	Samples were dispatched to ALS Perth for preparation by drying, crushing to <6mm for samples <3kg (sample >3kg are crushed to 2mm then rotary split), and pulverising the entire sample to <75µm. Bulk pulp splits (300 gm) were then taken for fire assay purposes. Fire assay was conducted using a 50 gm charge and an AAS finish.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling used a 5.25" face sampling hammer drill bit. Diamond core (including tails) was NQ2 size and oriented where possible (using an in-line core orientation tool).
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	DD core recoveries are recorded as a percentage calculated from measured core versus drilled intervals length.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	The DD contractors adjusted their rate of drilling and method if recovery issues arose. All recovery was recorded by the drillers on core blocks. This was checked and compared to the measurements of the core by the geological team. Any issues were communicated back to the drilling contractor at the time and necessary adjustments made.
	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.	Overall DD recoveries were good. There has been no work completed to determine if any relationship between recovery and grade exists.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	DD core is logged by company geologists to industry standards. All relevant features such as lithology, structure, texture, grain-size, alteration, oxidation state, vein style and veining percentage per interval, and mineralisation were recorded in the geological logs.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging was quantitative where possible and qualitative elsewhere. All DD core was photographed.
	The total length and percentage of the relevant intersections logged.	The entire length of each RC and DD hole was logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core was cut in half using an Almonté diamond core saw. Half core was sampled on intervals between 0.3 - 1.1m in length honouring lithological boundaries. The right-hand side of the core was bagged as the primary sample for analysis. The remaining half of core was archived and stored for reference.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples were collected in plastic bags; primary samples were collected as 4m speared composites. Assay results of composite samples with gold grades over 0.5gpt were re-split from their respective 1m bulk sample using a 3-tier riffle splitter.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation was conducted at ALS Perth. Samples were dried at less than 110°C to prevent sulphide breakdown. Samples were jaw crushed to a nominal -6mm particle size. If the sample weight is greater than 3kg, a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg at a nominal <2mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300gm pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Grind checks are performed at both the crushing stage (2mm) and pulverising stage (75µm), 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.	The sample preparation is considered appropriate and to industry standard. No field duplicates were submitted for DD core sampling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50 gm fire assay charge is fired with an introduced lead flux and fired in a typical gas-fired furnace. The resultant "button" was then totally digested by Aqua Regia before using Atomic Absorption Spectroscopy (AAS) determination for gold.
	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) were inserted into the sample sequence at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations were re-assayed with a new CRM. Certified blanks (Bunbury Basalt) were routinely inserted into the sample sequence at a rate of 1 per 25 samples and again specifically after potential or existing high grade mineralisation to test for contamination. Failures of blanks above 0.1gpt were followed up and re-assayed. New pulps were prepared if failures continued.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections were verified by a Northern Star Senior geologist on-site during the drill-hole validation process and later by signed off by a Competent Person, as defined by JORC.
	The use of twinned holes.	No twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging was directly entered into LogChief logging package, exported into an Access database on-site. Assay files are loaded directly into the Access database by the Senior on-site geologist. Hardcopy and electronic copies of the data was stored for future reference.
	Discuss any adjustment to assay data.	No adjustments were made to the 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 were pegged using a Differential GPS by company geologists and field assistants. The final hole collars were surveyed (by company geologist and field assistant) by Differential GPS in the MGA 94_52 grid. The accuracy of the DGPS was validated by an external surveyor using an ultra-accurate temporal multi-satellite corrected RTK jigger. Down-hole surveys were performed using a Reflex Ez-Trac or Ranger camera system, recording the down-hole dip and magnetic azimuth. These results were then uploaded into the Access database. At the completion of a hole, a surface referenced gyro survey was performed and upload into the Access database as well as being validated against single shot downhole surveys.
	Specification of the grid system used.	Collar coordinates were recorded in MGA94 Zone 52.
	Quality and adequacy of topographic control.	Topographic control was established through detailed aerial and ground survey control from previous mining operations.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill-hole spacing across the area varies, although minimum 25m spacing was targeted during the design and drilling phases.
	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 drill spacing and geological continuity is sufficient to classify this Resource as Indicated and Inferred.
	Whether sample compositing has been applied.	Samples are composited to 1m as part of the estimation process.
Orientation of data in relation to	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of specific targets is typically well understood, and the drilling direction is considered near perpendicular to the orientation of mineralisation.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
geological structure	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	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 ALS laboratory, they are stored in a secure fenced compound and tracked through the assay process by established chain of custody procedure and via audit trails conducted by independent and company specialists.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The NST database was reviewed internally, and no material issues were identified.

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 from the Groundrush deposit located within the ML22934 tenement which is owned by Tanami Gold NL (75%) and Northern Star Resources Limited (25%). There are statutory royalties' payable to the Northern Territory Government and a range of payment obligations under existing agreements with the Central Lands Council.
	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 Groundrush area has been explored since the mid 1980's. Numerous companies, including Zapopan NL, Otter Gold NL, Normandy Mining Ltd, Newmont (Asia Pacific), and Tanami Gold NL have been active in the area. Previous drilling at this project adds gold grade and geological context to the subsequent Northern Star Resources interpretation of the area as tested by the drill holes covered by this report.
Geology	Deposit type, geological setting and style of mineralisation.	The Groundrush deposit is hosted by rocks of the Killi Killi Formation exposed in a narrow N to NNW trending corridor flanked by lobes of the younger Frankenia Dome granite. Groundrush lies within rocks of a similar age to the host rocks of The Granites and Dead Bullock Soak gold deposits 100km to the south, but older than the Mount Charles Formation, which hosts the Tanami gold deposits 50km south west. Less than 1 km to the north of Groundrush, the Killi Killi beds are truncated by a fault bounded outlier of younger sediment of the Mount Charles Formation. At Groundrush, a package of relatively undeformed, steeply west dipping, sedimentary rocks are intruded by two tabular dolerite units which are broadly conformable with bedding. The main dolerite body exposed in the open pit consists of a coarser grained leucocratic quartz dolerite. Gold mineralisation is mainly hosted in quartz-sulphide veins and stockwork zones within steeply dipping shear zones in the quartz dolerite unit as well as flat dipping quartz-sulphide brittle fracture veins.
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	Exploration results not being reported.
	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.	Exploration results not being reported.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results not being reported.
	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.	Mineralised intersections were composited to 1m with smaller intersects distributed throughout intersection. Top cuts were used and ranged from10-150gpt depending on the domain.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used in this Resource.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	Exploration results not being reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The exact orientation of the Groundrush mineralised system is generally well understood. Geometry of the mineralisation to drill hole intercepts generally at a high angle, often nearing perpendicular. There is enough historic exploration and production data at Groundrush to infer geological continuity in mineralisation reported.
	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').	The down hole widths have been clearly specified when used.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this release.
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. All intercepts for all holes have been reported regardless of grade.
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.	Bulk density measurements were conducted on every fifth hole throughout the waste and mineralized zones.
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 is continuing to determine the extents of the Groundrush system.
	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.	Logging data is entered directly into the logging package Logchief. Constrained look-up lists, depth and some interval validation are inbuilt and ensure that the data collected is correct at source. Data was exported as *.csv and imported into a "restricted access" Access database. Sampling and raw assay files were directly imported into a "restricted access" Access database, with internal validations and QAQC protocols used to check integrity. Pre-NSR data assumed correct, but no validation has been undertaken. For all data, the drilling looked reliable visually and no overlapping intervals were noted.
	Data validation procedures used.	NST data validated by internal protocols within the access database and by database administrators. Pre-NSR data has been validated by previous owners and is assumed to be correct. One hole was excluded due to unrepresentative intercept angle.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person has visited this site.
	If no site visits have been undertaken indicate why this is the case.	Site visited.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology by the supervising and logging geologists. Sectional interpretations were digitized in Vulcan software and triangulated to form three dimensional solids. Confidence in the geological interpretation is moderate to high. Weathering zones and bedrock sub surfaces were also created.

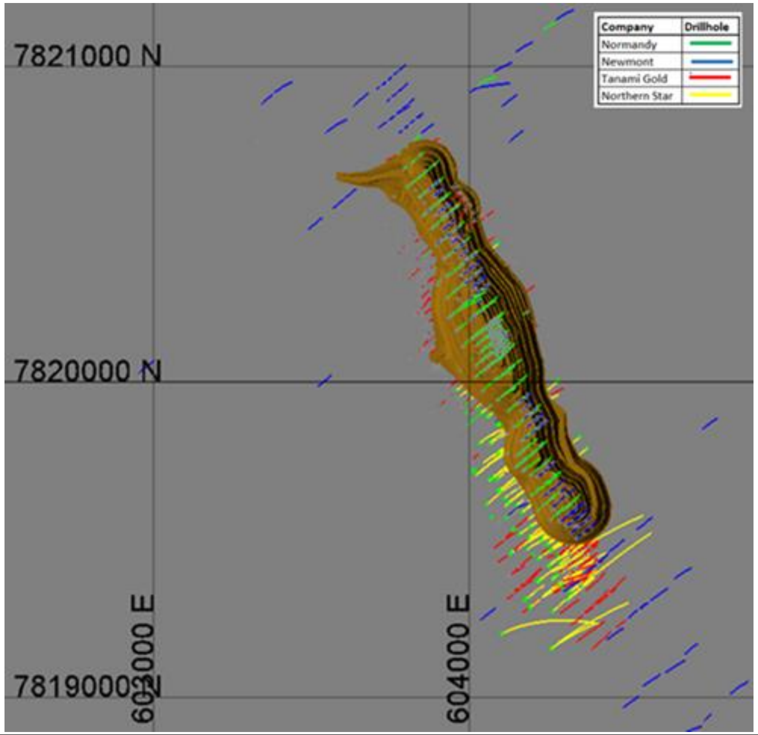
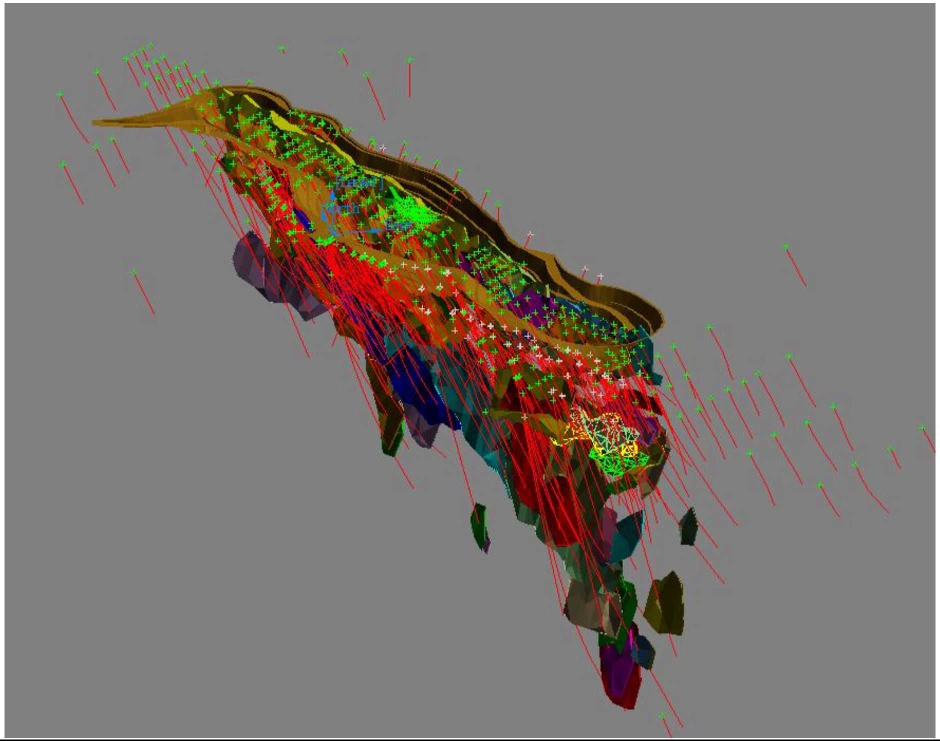
APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	Nature of the data used and of any assumptions made.	All available valid data was used including drill data, mapping, and previous interpretations. NSR drilled 118 of the 778 holes used in the current Resource. Where pre-NSR drill data was used, it is assumed correct and to industry standards of the time.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	A previous Resource used narrow, high-grade interpretations based on the structural data. While those narrow structures do exist, it is evident from the infill grade control, pit mapping and continues drilling that the narrow structures form larger cohesive units. The effect of the broader interpretation approach results in lower grade, higher tonnes and a realistic model to be used for economic studies.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geology is used to constrain the mineralised packages (containing variously orientated quartz veins) within the Groundrush dolerite host.
	The factors affecting continuity both of grade and geology.	Grade continuity is related to mineralised packages extent within Groundrush dolerite host.
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.	Maximum Strike Length = 1,650m with individual zones 50 to 1,100m long. Maximum Width = 80m with zones 2 to 35m thick. Maximum Depth = from surface to ~680m 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.	Ordinary Kriging (OK) was used to estimate this Resource using Vulcan 9.1 software. Domains are snapped to drilling and composited to 1m downhole. Small composites were merged throughout intersection. Four statistical domains were used to reflect the different orientations of mineralisation packages. A maximum search ranges from 18 - 220m (all directions and passes) was used in the mineralised packages.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The modelling techniques were compared to a Mineral Resource was estimated in 2012 that reported all material greater than 1gpt and previous open pit production records.
	The assumptions made regarding recovery of by-products.	No assumptions of by product recovery are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 4m x 12m x 4m, sub-celled down to 0.5m x 1.5m x 0.5m to fit estimation domains. Average drill hole spacing is ~ 25-50m. Four search ellipses were used over four passes with a minimum of 15 samples to estimate per block (1^{st} Pass) with a maximum of 32. Subsequent pasts used fewer numbers of samples (8) and maximum search range was increased (3^{rd} Pass). Waste was assigned a valve of 0.005gpt.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the Resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe.
	Discussion of basis for using or not using grade cutting or capping.	Composite grades were cut to between 10 – 150gpt based on log distribution on individual domains.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades were compared visually to drilling data. Validation is also through swath plots comparing composites to block model grades, along northings comparing OK to ID2 to nearest neighbour estimations. All compared favourable.
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 with natural moisture. Moisture content within the ore is expected to vary through the oxide to fresh. Minimal voids reported within all rock types. Water table at approximately 60m below surface.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 1.0gpt.
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	It is assumed Groundrush will be mined by either open pit and/or underground mining methods, and scoping level evaluations support the economics. Below the economic pit depth, grades are high enough to potentially be mined by underground methods. Assumed nearby Central Tanami Project mill will be refurbished for processing.

APPENDIX C: TABLE 1

Criteria	JORC Code explanation	Commentary
	not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to 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 holes were drilled as a part of the current drilling program. Metallurgical test work from previous owners and previous production data indicate that the mineralisation is free milling with high (90%+) gold recovery using standard CIL processing through the nearby Central Tanami Project mill.
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.	No environmental, permitting, legal, taxation, socio-economic, marketing or other relevant issues are known, that may affect the estimate.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk densities are based on 845 samples from 20 DD holes. Measurements were taken using the immersion method and related back to dominant rock code. This validated previously reported bulk density measurements and assumptions.
	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.	Bulk density of the host rock and mineralisation is well covered and validates previous bulk density work.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied to geological units.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on drill spacing and passes used to delineate Inferred and Indicated Mineral Resource.
	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).	Confidence in the relative tonnage and grade is moderate to high based on interpretation continuity which will be confirmed by future infill drilling. Pre-NSR data was audited previously and is assumed to be reliable.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The result appropriately reflects the Competent Person(s)' view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This Groundrush Mineral Resource has been internally and externally reviewed. Several recommendations highlighted during the processes were implemented as required.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Groundrush Mineral Resource estimate is considered as robust and representative. The application of geostatistical methods has increased the confidence of the model and quantify the relative accuracy of the Resource on a global scale. It relies on historical data being of similar standard as recent infill drilling. The relevant tonnages and grade are variable on a local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This Mineral Resource report relates to the Groundrush Gold Project where it is likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historic production from the Groundrush pit has been recorded as 4.2Mt @ 4.5gpt for 611koz. Comparison with current Mineral Resource shows similar results (4.4Mt @ 4.2gpt for 600koz @ 0.8gpt cut-off), on a global scale this compares favourably.

APPENDIX C: TABLE 1

<table>
<tr><th colspan="2">CENTRAL TANAMI - REPRESENTATIVE PLAN & OBLIQUE VIEW (GROUNDRUSH DEPOSIT)</th></tr>
<tr><td>Plan View – Groundrush deposit

</td><td>Oblique View - Groundrush deposit with drill hole traces. Wireframes denote major mineralised structures and open pit.
</td></tr>
</table>