KALPINI GOLD PROJECT MINERAL RESOURCE UPDATE

HIGHLIGHTS

- Successful infill, extension and validation drilling completed at the Kalpini gold project, 65km northeast of Kalgoorlie-Boulder in the Western Australian goldfields
- A total of 49 RC holes and three diamond holes were completed for 5,677m to infill areas for improved classification and for structural, geotechnical and metallurgical assessment
- Significant results received included [1]:
  - **12m @ 5.57g/t Au from 203m including 2m @ 12.92g/t Au from 211m** (KPRC21049)
  - **5m @ 10.21g/t Au from 70m including 1m @ 28.83g/t Au from 72m** (KPRC21030)
  - **7m @ 6.01g/t Au from 91m including 1m @ 22.04g/t Au from 93m** (KPRC21034)
  - **1m @ 41.53g/t Au from 195m** (KPRC21047)
  - **6m @ 4.45g/t Au from 90m including 1m @ 10.24g/t Au from 92m** (KPRC21021)
  - **1.5m @ 20.74g/t Au from 99.5m including 0.5m @ 54.25g/t Au from 99.5m** (KPDD21033)
  - **5m @ 3.97g/t Au from 3m including 1m @ 11.04g/t Au from 6m** (KPRC21023)
- Results demonstrate both open pit and underground potential with excellent width and grade continuity and mineralisation open along strike and at depth with further drilling planned
- Updated Mineral Resource estimate (after depletion) now compiled and stands at:
  - **1.87Mt grading 2.33g/t Au for 139,000oz at a 0.8g/t Au lower cut-off grade [2]**
- Importantly, over 78% of the ounces are now in the Indicated Resource category [2]
- Horizon's total Mineral Resource estimate (excluding Cannon) now stands at:
  - **20.50Mt grading 1.69g/t Au for 1,116,700oz with 73% in the M&I Category [3]**
- Stage 1 of the Gambia open pit at Kalpini completed in 2019 producing approximately 39,000oz with a mill reconciled grade of 2.62g/t Au and calculated gold recovery of 95.1%
- Mine optimisation and open pit design work underway with a maiden Ore Reserve for Kalpini expected early in the March Quarter 2022 [4]

Commenting on the Kalpini resource update, Horizon Managing Director Mr Jon Price said:

"Kalpini was acquired late in 2020 for $2.75 million and it is very encouraging to see excellent drilling results enabling an improved JORC 2012 Mineral Resource estimate with significant open pit and underground growth potential. We now look forward to completing the mine optimisation and design studies for Ore Reserve generation as part of the consolidated Feasibility Study."

[1] As announced to the ASX on 27 July 2021. [2] See Table 1 and Competent Persons Statement on page 7 and JORC Tables on Page 17. [3] See Tables and Confirmations on Page 14. [4] See Forward Looking and Cautionary Statements on Page 16.

163 Stirling Hwy
Nedlands WA 6009

PO Box 1104
Nedlands WA 6909

T: +61 8 9386 9534
F: +61 8 8389 1597
E: info@horizonminerals.com.au

horizonminerals.com.au
ACN 007 761 186
ABN 88 007 761 186

Overview

Horizon Minerals Limited (ASX: HRZ, Horizon or the Company) is pleased to announce an updated Mineral Resource Estimate (MRE) for the Kalpini gold project located 65km northeast of Kalgoorlie-Boulder in the heart of the Western Australian goldfields (Figure 1).

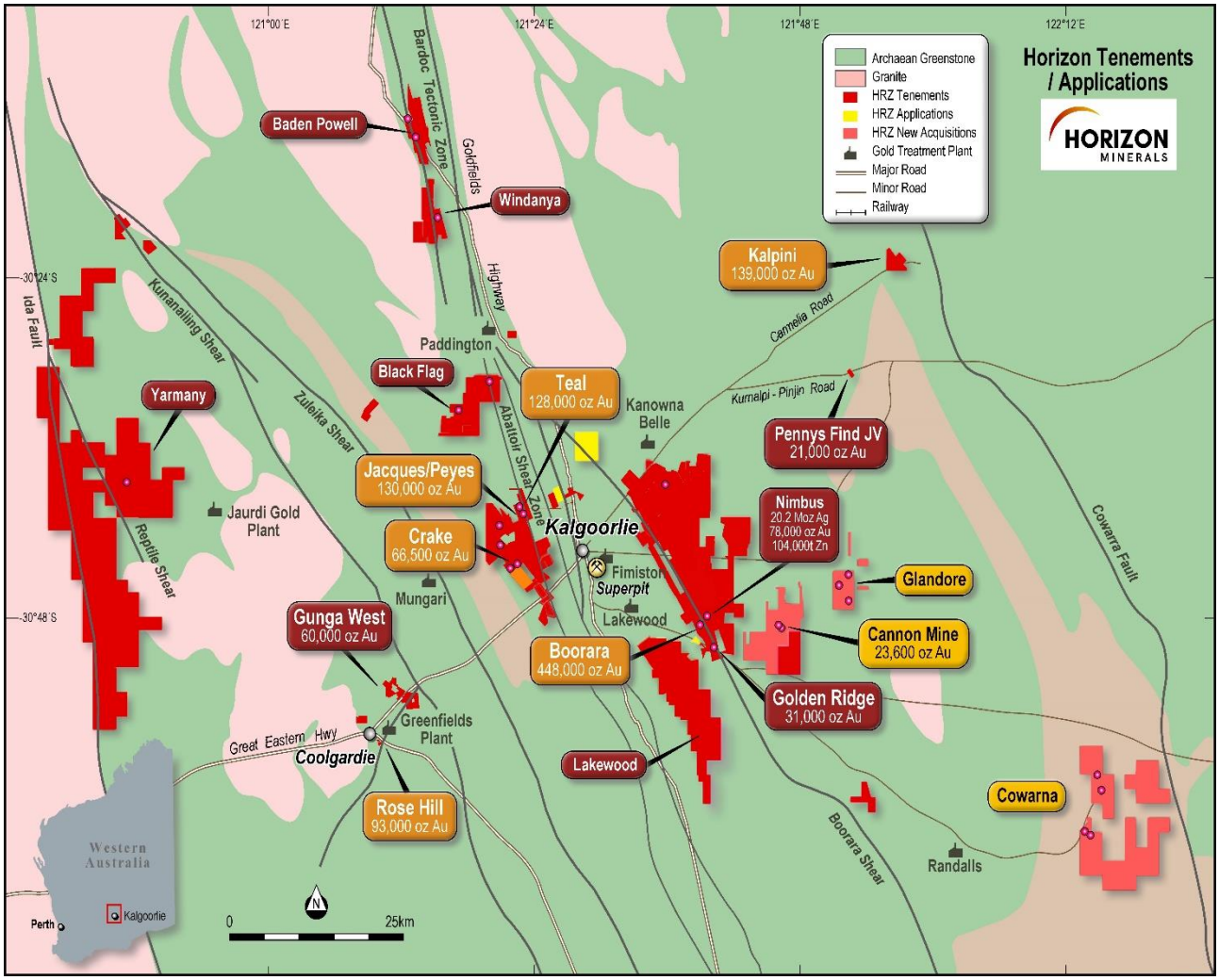

Figure 1: Kalgoorlie Regional Project area location and surrounding infrastructure

Kalpini is one of six core open pit and underground satellite gold projects being advanced to complement the baseload Boorara gold project as part of the consolidated Feasibility Study to deliver a minimum five-year initial mine plan and underpin the establishment of a stand-alone centralised processing facility at the Boorara mine site.

RC and diamond infill and extensional drilling was completed in the March and June quarters 2021 with all data now incorporated into the geological model for the updated Mineral Resource Estimate. The new model will now be used to generate a maiden Ore Reserve for Kalpini and is expected for completion early in the March Quarter 2022.[1]

[1] see Cautionary and Forward-Looking Statement on Page 16.

Project Geology

Kalpini is located in the Kurnalpi domain of the Norseman Wiluna greenstone belt in the Yilgarn Craton. The region is characterised by a series of north-northwest trending interconnected greenstone belts which have been intruded by granitoid batholiths.

The dominant lithology encountered in Gambia is an Archean dolerite-gabbro unit. This is a medium grained igneous rock with common granophyric textures. Based upon assay results and observations made in hand specimen and drill core, two types of primary ore have been identified. A more common strongly bleached ore type, typified by strong silicification and often accompanied by quartz veining. Sulphides are abundant in this ore type. A second less common second ore type is typified by a dark colour with very little or no bleaching, and strong carbonate alteration. Pyrite is often present in this ore type but not in high concentrations. Magnetite is sometimes present in this ore type and is sometimes accompanied by small concentrations of pyrite. Veining in this ore type is less intense, and sometimes includes carbonate minerals.

Gold mineralisation along the Gambia-Camelia trend has been defined over a 1,500m strike length and is confined to multiple stacked narrow (0.5-5m) high grade flat dipping lodes hosted within gabbro. The lodes are characterised by arsenopyrite-sericite-carbonate quartz breccia's that have a limited leucoxene-chlorite-carbonate alteration halo in the host gabbro. Arsenopyrite content is variable but in the high-grade lodes can be 1-3%. Importantly, all drilling along the Gambia-Camelia trend has focussed on the flat dipping lodes in the central portion of the gabbro, with no drilling targeting the contact with the intermediate volcanoclastic rocks. Both the hanging and footwall contacts of the gabbro may provide the locus for shear hosted gold mineralisation, the flat narrow high-grade lodes being perhaps brittle link lodes.

Resource Update

As announced to the ASX on 27 July 2021, the aim of the Kalpini 2021 program (Figure 2) was to validate and infill/extend the historical drilling enabling the previous JORC 2004 resource to be upgraded to JORC 2012 standard whilst improving the resource classification for generation of Ore Reserves.

Significant downhole RC and diamond intercepts reported in 2021 included [1]:

- **12m @ 5.57g/t Au from 203m including 2m @ 12.92g/t Au from 211m** (KPRC21049)
- **5m @ 10.21g/t Au from 70m including 1m @ 28.83g/t Au from 72m** (KPRC21030)
- **7m @ 6.01g/t Au from 91m including 1m @ 22.04g/t Au from 93m** (KPRC21034)
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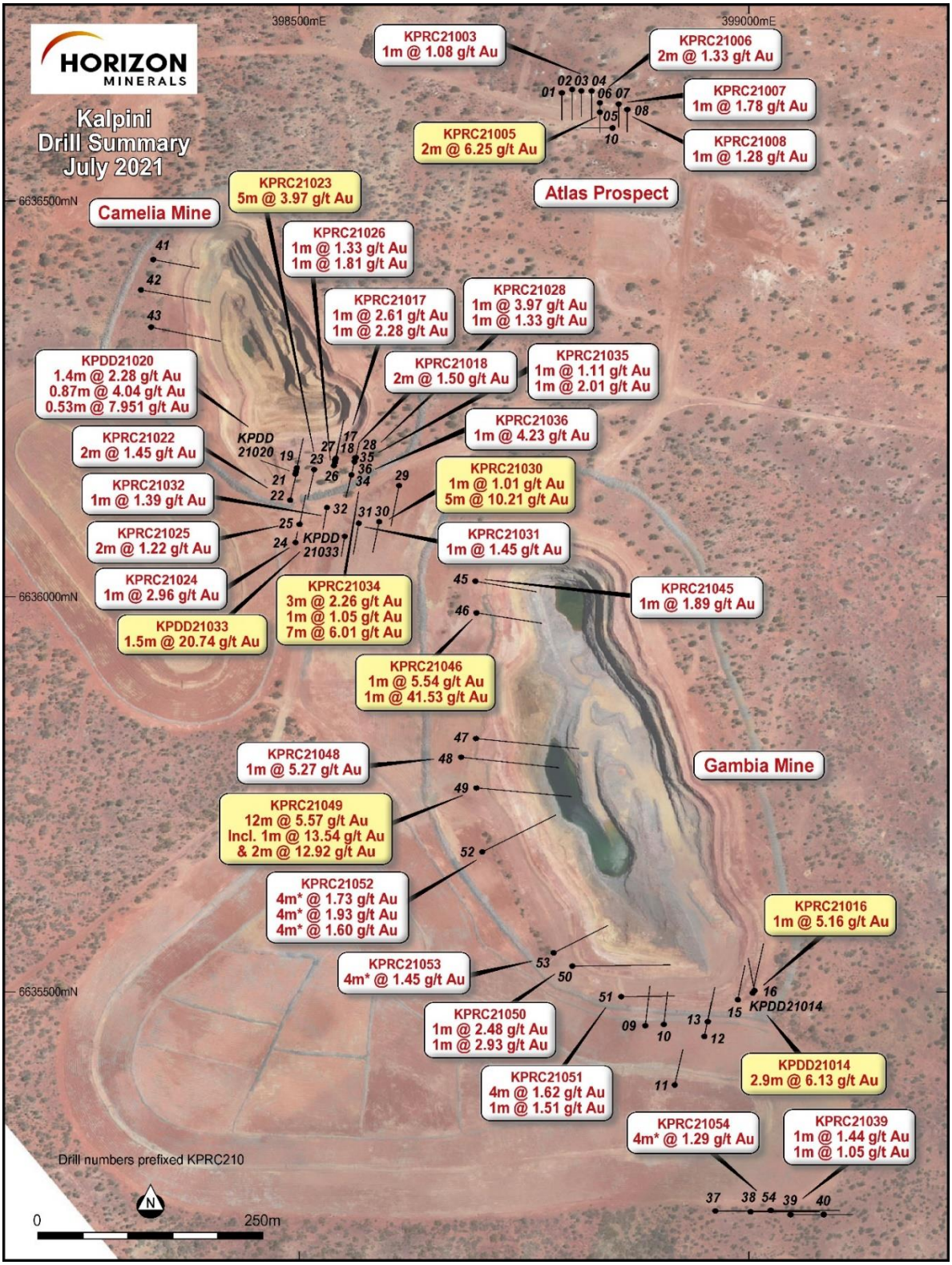


Figure 2: Kalpini project drilling results to date[1]

Stage 1 of the open pit was completed in 2019 and produced approximately 39,000oz with a mill reconciled grade of 2.62g/t Au and calculated gold recovery of 95.1%.

[1] As announced to the ASX on 27 July 2021.

Composite RC samples were submitted to Independent Metallurgical Operations for initial metallurgical testwork on the fresh material below the existing open pits. Overall gold recoveries were 88% with gravity recoveries of 52.4% for the fresh composite and low reagent consumption observed for all gravity/leach tests.

The drilling data was compiled and used to generate an independent Mineral Resource estimate (after depletion) compliant with the 2012 JORC Code of 1.87Mt grading 2.33g/t Au for 139,000oz at a 0.8g/t Au lower grade cut-off*.

Further breakdowns of ore types and categories are shown in Table 1.

Table 1: Kalpini Project – by Classification and Material Type – 0.8 g/t Au Cut Off *

Material	Class	Tonnes	Au g/t	Ounces
Oxide	Indicated	24,600	1.78	1,570
	Inferred	5,300	1.40	240
Transition	Indicated	204,900	1.83	12,000
	Inferred	18,300	1.17	680
Fresh	Indicated	1,168,100	2.55	95,000
	Inferred	448,100	2.08	29,700
Grand Total		**1,872,000**	**2.33**	**139,000**

Tonnages are dry metric tonnes. Minor discrepancies may occur due to rounding.

* The information in this report related to the Kalpini Mineral Resource estimate is based on work completed by Mr Dave O'Farrell: BSc (Hons), MAusIMM, Exploration Manager for Horizon Minerals Ltd and Mr Stephen Godfrey: BSc (Hons), FAusIMM, MAIG, Resource Development Manager for Horizon Minerals Ltd. Mr O'Farrell was responsible for database and data quality at the Kalpini deposits. Mr Godfrey was responsible for the development of the geological model, mineralisation interpretations, resource estimation, classification and reporting.

Mr O'Farrell and Mr Godfrey have sufficient experience relevant to the style of mineralisation and deposit type under consideration and to the activities 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 O'Farrell and Mr Godfrey consent to the inclusion in the report of matters based on their information in the form and context in which it appears.

Next Steps

The updated MRE will now be used for open pit mine optimisation, design and economic analysis for generation of a maiden Ore Reserve for Kalpini expected early in the March Quarter 2022.

Significant mineralisation remains outside the current resource envelope with further drilling planned at Kalpini in 2021 testing the strike and depth extensions of the mineralisation. Further Drilling is also planned at the Atas project immediately to the northeast.

Approved for release by the Board of Directors

For further information, please contact:

Jon Price
Managing Director
Tel: +61 8 9386 9534
jon.price@horizonminerals.com.au

Michael Vaughan
Media Relations – Fivemark Partners
Tel: +61 422 602 720
michael.vaughan@fivemark.com.au

Listing Rule 5.8.1 Disclosures

Mineral Resource Statement

The Mineral Resource Statement for the Kalpini Gold Mineral Resource Estimate (MRE) was prepared by Mr Stephen Godfrey, Resource Development Manager of Horizon Minerals Ltd, during September 2021 and is reported under the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code') 2012 edition.

This MRE update includes an additional 5,677m of drilling from 49 reverse circulation (RC) holes and 3 Diamond Drillholes (DD) completed in 2021 by Horizon Minerals Ltd (HRZ). The depth from surface to the current vertical limit of the Mineral Resources is approximately 200m.

A total of 108,104.4m of drilling from 1,836 drill holes was available for the MRE. Drilling comprised 11 DD drillholes, 520 RC drill holes, 974 RC Grade Control drill holes and 331 RC drill holes with diamond tails. Mineralisation interpretations were informed by 1401 RC drill holes and 7 DD drillholes.

In the opinion of Mr Godfrey, the resource evaluation reported herein is a reasonable representation of the global gold Mineral Resources within the Kalpini deposit, based on sampling data from RC and diamond (DD) drilling available as of 1 September 2021. The Indicated and Inferred Mineral Resources comprise oxidised, transitional and fresh rock.

The Mineral Resource Statement is presented in Table 1.

Table 1: Kalpini Mineral Resource at a 0.8 g/t Au cut-off.

Deposit	Mineral Resource Category	Tonnes (kt)	Grade (g/t Au)	Ounces (koz)
Kalpini	Indicated	1,401	2.43	109
	Inferred	471	2.04	30
	Total	**1,872**	**2.33**	**139**

Tonnages are dry metric tonnes. Minor discrepancies may occur due to rounding.

Competent Person's Statement

The information in this report related to the Kalpini Mineral Resource estimate is based on work completed by Mr Dave O'Farrell: BSc (Hons), MAusIMM, Exploration Manager for Horizon Minerals Ltd and Mr Stephen Godfrey: BSc (Hons), FAusIMM, MAIG, Resource Development Manager for Horizon Minerals Ltd. Mr O'Farrell was responsible for drilling, sampling and data quality at the Kalpini deposits. Mr Godfrey was responsible for the development of the geological model, mineralisation interpretations, resource estimation, classification and reporting.

Messrs O'Farrell and Godfrey have sufficient experience relevant to the style of mineralisation and deposit type under consideration and to the activities being undertaken to qualify as a Competent Persons as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr O'Farrell and Mr Godfrey consent to the inclusion in the report of matters based on their information in the form and context in which it appears.

This MRE includes Inferred Mineral Resources, which are unable to have economic considerations applied to them, nor is there certainty that further sampling will enable them to be converted to Indicated or Measured Mineral Resources.

Drilling Techniques

Historical drilling was completed by Carrick Gold and KalNorth Gold Mines. Detailed information on the drill programs is incomplete or missing. Historical sampling included RC, DD and Rotary Air Blast (RAB) drill holes.

Goldfields Technical Services (GTS) have drilled 51,000m of RC holes (RCGC) as part of the mine development program. The drilling employed a 5.75 inch face sampling RC hammer bit. Diamond drilling used an NQ2 size bit.

HRZ completed RC holes in 2020 using a 4.5-inch face sampling hammer bit. The HQ3 (2.406-inch core) DD holes used triple tube to help maximise core recovery.

All drill collar locations were initially pegged and surveyed using a hand-held Garmin GPS, accurate to ±3m to 5m. The holes are normally accurately surveyed using an RTK-DGPS system later (±10mm). Holes were drilled on a regular spacing. All reported coordinates are referenced to MGA94 Zone 51. The topography is relatively flat at the location of the drilling. Down hole surveys were taken.

Sampling and Sub-Sampling Techniques

Historically, duplicate samples are collected every 20th sample from the drill chips or core samples. Dry RC 1m samples are split on the rig to 3kg as drilled and dispatched to the laboratory. Any wet samples are recorded in the database as such and allowed to dry before splitting and dispatching to the laboratory.

GTS have drilled 51,000m of RC holes, the samples were split through a cone splitter, producing ~3kg sub-samples. No standards, blanks or field duplicates were inserted. The only QAQC samples were lab standards, blanks and duplicates.

HRZ 1m samples were taken using a cone splitter. 4m composite samples of the 1m intervals were taken with a 450 mm x 50 mm PVC spear thrust to the bottom of the sample bag. If analysis of the 4m composite returned a grade above a nominal 0.2g/t Au cut-off, the individual 1m samples for the composite interval were analysed. Half-core samples were taken from the diamond drill core.

Sample Analysis Method

Historical samples were pulverized prior to splitting in the laboratory to ensure homogenous samples with 85% passing 75µm. A 200gm subsample extracted by spatula is used to make the 50gm charge for a standard fire assays. All samples submitted to the laboratory are sorted and reconciled against the submission documents. In addition to duplicates a high-grade or low-grade standard is included every 20th sample.

GTS samples were analysed using standard fire assaying using a 50g charge with an AAS finish.

The most recent HRZ RC and DD samples were submitted to SGS or Jinnings in Kalgoorlie for analysis. The RC samples were dried, crushed and pulverised to 90% passing 75µm. They were then split to a 50g charge weight for fire assaying, with checks routinely undertaken.

The RC drilling was primarily used to obtain 1m samples from which approximately 1.5–2kg was submitted to the laboratory. Half-core was sampled nominally over 1m intervals adjusted for geological boundaries. All samples were pulverised to produce a 50g charge for fire assay. Samples were assayed for gold only.

Field duplicates were routinely taken by HRZ to monitor laboratory sample preparation precision. HRZ intermittently resubmitted samples to a referee laboratory and CRMs were submitted with all sample batches to monitor laboratory accuracy.

Once samples arrived in Kalgoorlie or Perth, further QC work including replicates and duplicates was undertaken at the laboratory. Grind size is routinely recorded and monitored.

Geology and Geological Interpretation

Kalpini is located in the Kurnalpi domain of the Norseman Wiluna greenstone belt in the Yilgarn Craton. The region is characterised by a series of north-northwest trending interconnected greenstone belts which have been intruded by granitoid batholiths.

The dominant lithology encountered in Gambia is an Archean dolerite-gabbro unit. This is a medium grained igneous rock with common granophyric textures. Based upon assay results and observations made in hand specimen and drill core, two types of primary ore have been identified. A more common strongly bleached ore type, typified by strong silicification and often accompanied by quartz veining. Sulphides are abundant in this ore type. A second less common second ore type is typified by a dark colour with very little or no bleaching, and strong carbonate alteration. Pyrite is often present in this ore type but not in high concentrations. Magnetite is sometimes present in this ore type and is sometimes accompanied by small concentrations of pyrite. Veining in this ore type is less intense, and sometimes includes carbonate minerals.

Gold mineralisation along the Gambia-Camelia trend has been defined over a 1500m strike length and is confined to multiple stacked narrow (0.5-5m) high grade flat dipping lodes hosted within gabbro. The lodes are characterised by arsenopyrite-sericite-carbonate quartz breccia's that have a limited leucoxene-chlorite-carbonate alteration halo in the host gabbro. Arsenopyrite content is variable but in the high-grade lodes can 1-3%. Importantly, all drilling along the Gambia-Camelia trend has focussed on the flat dipping lodes in the central portion of the gabbro, with no drilling targeting the contact with the intermediate volcanoclastic rocks. Both the hanging and footwall contacts of the gabbro may provide the locus for shear hosted gold mineralisation, the flat narrow high-grade lodes being perhaps brittle link lodes.

Mineralisation occurs primarily within subparallel, structurally controlled lodes in a porphyry host unit. Prior to domain interpretations, host lithology modelling was completed to define the contact between the porphyry and volcaniclastic sediments. This contact orientation underpinned the mineralisation package and guided subsequent mineralisation modelling.

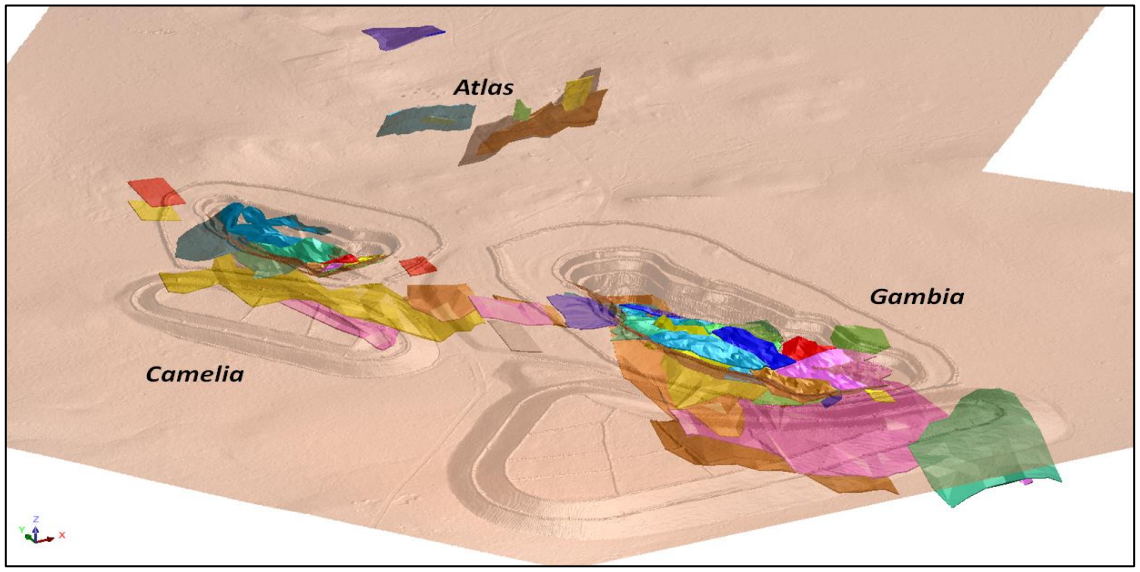
Lodes are structurally controlled but not thoroughly understood. The higher density grade control drilling supports the continuity implied in the less well drilled interpreted mineralisation domains.

A total of 55 mineralisation domains were interpreted at the Kalpini deposit. The mineralisation package at Kalpini extends over a 1500m strike length through Gambia and Camelia. The Atlas deposit, offset from the main Kalpini lodes, has been identified over a 360m strike length.

Modelled lode widths are narrow and variable and range from 2m to 5m. Mineralisation has been identified within 20m of surface and is exposed in the open pits. Mineralisation extends to 200m below surface (150m RL) based on the current interpretation.

A nominal cut-off grade of 0.3g/t Au was utilised to guide the geological continuity of the interpreted mineralisation. Within the mineralised wireframe, if an intercept fell below the nominal cut-off but continuity was supported by host lithologies, the intercept was retained for continuity purposes due to the commodity and the style of deposit.

Figure 3: Oblique section of Kalpini deposit (~-30° to 045°) showing mineralised lodes, prospects and the existing open pits.



Estimation Methodology

Sample data within mineralisation domains were composited to 1m downhole lengths using 0.3m minimum threshold for inclusion. The data was sub-domained by the weathering profile.

Exploratory Data Analysis (EDA) composited gold variable within the mineralised domain groups was undertaken using proprietary software. Analysis for sample bias, domain homogeneity and top-cutting was undertaken.

Assessment of top-cutting for the estimate was undertaken on the gold variable within individual domains. Top cuts were applied to 30 domains to control the influence of outlier samples.

Variography was undertaken on the larger mineralised domains. Robust variogram models with a moderate nugget (40%) were delineated. These variograms were applied in the estimation of the smaller domains.

Interpolation was undertaken using Ordinary Kriging (OK) in GEOVIA Surpac™ within parent cell blocks. Dimensions for the interpolation were Y: 10mN, X: 5mE, Z: 2.5mRL, with sub-celling to 0.625m. The model was unrotated.

A three-pass estimation search strategy was employed, with all domains estimated within a maximum distance of 80m and the neighbourhood composites ranging from a minimum of 4 to a maximum of 32 samples. A fourth pass was run with a widened search ellipse to populate peripheral blocks.

Domain boundaries represented hard boundaries, whereby composite samples within that domain were used to estimate blocks within the domain. Global and local validation of the gold variable estimated outcomes was undertaken with statistical analysis, swath plots and visual comparison (cross and long sections) against input data. The 3D block model was coded with density, weathering and Mineral Resource classification prior to Mineral Resource reporting.

Classification Criteria

Mineral Resources were classified as Indicated and Inferred to appropriately represent confidence and risk with respect to data quality, drill hole spacing, geological and grade continuity and mineralisation volumes. Previous MRE's have classified material, now mined, as Measured.

Additional considerations were the stage of project assessment, amount of RC drilling, the current understanding of mineralisation controls and previous mining. In the competent person's opinion, the drilling, surveying and sampling undertaken, and the analytical methods and quality controls used are appropriate for the style of deposit under consideration.

Indicated Mineral Resources were defined where a moderate level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where:

- Blocks were well supported by drill hole data with the distance to the nearest sample being within 30m or less or where drilling was within 30m of the block estimated.

Inferred Mineral Resources were defined where a low to moderate level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where:

- Drill spacing was averaging a nominal 50m or less, or where drilling was within 50m of the block estimated.

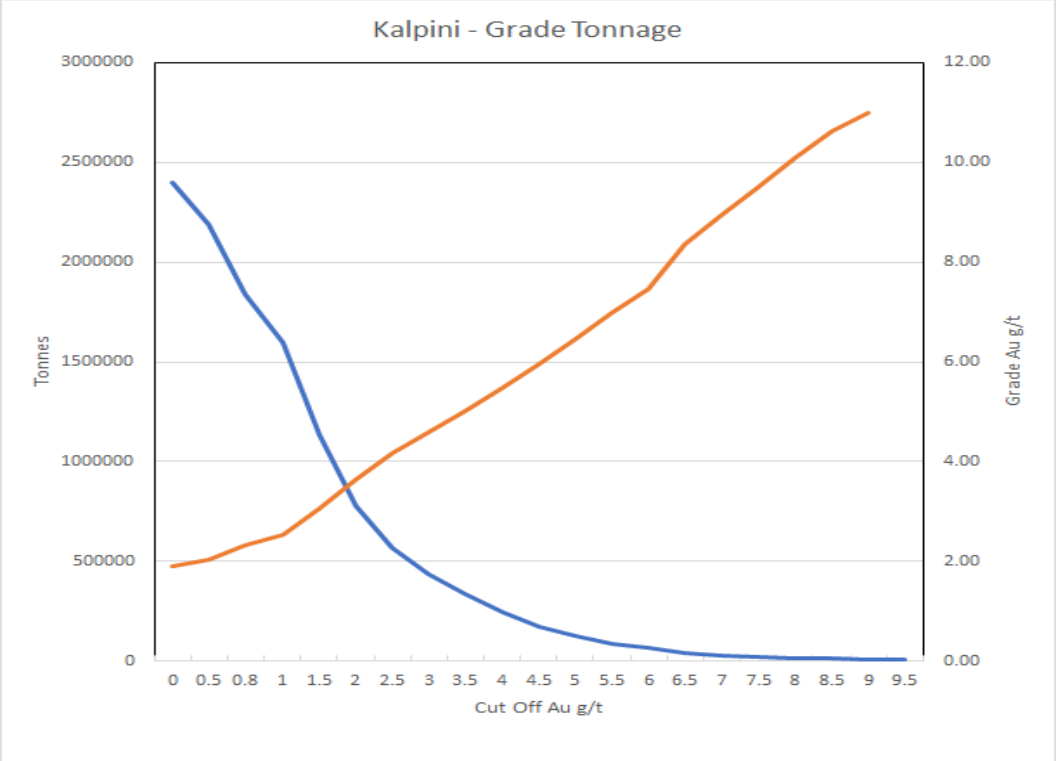
The reported Mineral Resource was constrained at depth by the available drill data. All classified Mineral Resources were reported inside the tenement boundary.

Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The MRE does not account for selectivity, mining loss or dilution. This MRE update includes Inferred Mineral Resources which are unable to have economic considerations applied to them, nor is there certainty that further sampling will enable them to be converted to Measured or Indicated Mineral Resources.

Cut-off Grade

The Mineral Resource cut-off grade for reporting of global gold resources at the Kalpini deposit was 0.8g/t. This was based on consideration of grade-tonnage data (Figure 4), selectivity and benchmarking against comparable sized deposits of similar mineralisation style and tenor. Tonnages were estimated on a dry basis.

Figure 4: Grade-tonnage curve for the Kalpini deposit – Indicated and Inferred Mineral Resources.



Bulk Density

Bulk density values at the Kalpini deposit were derived from 31 'ore' and 245 'waste' sample measurements collected by GTS. Archimedes density measurements (weight in air/weight in water method.) were undertaken on oxide, transitional, and fresh drill core.

- Oxide: 1.75 t/m^3
- Transitional: 2.56 t/m^3
- Fresh: 2.75 t/m^3

Project History and Historical Mineral Resources

The area has been prospected and mined since 1901. Drilling has been conducted by several companies since then including Norseman Mining 1970-1971, Pennzoil of Australia 1977, Kennecott 1979-1981, Esso Exploration 1984-1987, City Resources 1987, Geopeko 1988-1991, Moregold Carbon Services 1994, Kurnalpi Gold 1996-1999, Man o' War Resources 2004, Carrick Gold 2005-2012, Kalnorth 2012-2016 and Goldfield Technical Services 2018-2020.

The Kalpini Gold Project areas have been subject to previous underground mining activity. There are mine workings such as the Camellia open cut and a number of shafts and within the Kalpini tenements. The shafts were mined at the turn of the century. The 'Man o War' shaft (Atlas) reportedly produced 7,806 ounces of Au from 15,218 tonnes of ore at an average grade of 16.5 g/t Au.

The estimates of Mineral Resources were originally reported by KalNorth Gold Mines Limited (previously Carrick Gold Limited) on 16 July 2012 and 24 October 2012 as a JORC 2004 compliant Resource by a Competent Person employed by KalNorth Gold Mines Limited:

- KalNorth Gold Mines Limited, July and October 2012: 4.6Mt grading 1.7g/t Au for 255,600oz (reported at a 1.0g/t cut-off grade).

Optimisation studies were completed, and reserves generated for mining the Gambia pit. In 2017, the project was divested for $3.2 million to NBT Metals which completed the first stage of mining of the Gambia Pit in 2019 via contract mining and toll milling. Recorded production totalled 485,000t milled at a reconciled grade of 2.62g/t Au and a gold recovery of 95% for 38,800oz.

Post mining an MRE update was produced in 2019 by Goldfields Technical Services:

- September 2019: 1.7Mt grading 1.84g/t Au for 102,600oz (reported at a 0.5g/t cut-off grade).

The 2019 resource includes 92kT of stockpiled low-grade ore (0.64 g/t Au for 2000 ounces Au)

Assessment of Reasonable Prospects for Eventual Economic Extraction

The assessment of RPEEE used the 150mRL, which is approximately 200m below the natural surface as the maximum depth that could potentially form an economic pit shell given the deposit geometry and current drilling. This is based on the results of similar optimisations run by HRZ on deposits in the Kalgoorlie area.

Metallurgy

Composite RC samples were submitted to Independent Metallurgical Operations for initial metallurgical testwork on the fresh material below the existing open pits. Overall gold recovery was 88% with gravity recovery of 52.4% for the fresh composite with low reagent consumption observed for all gravity/leach tests.

The open pit was mined, and toll treated in 2019 and produced 39,000oz at a grade of 2.62g/t Au and a metallurgical recovery of 95.1%.

Given existing testwork data, the Company does not consider metallurgical amenability poses a material risk to the eventual extraction of the MRE under consideration in this Report. Therefore, no metallurgical recovery factors were applied to the Mineral Resources or Mineral Resource tabulations.

Horizon Minerals Limited – Summary of Gold Mineral Resources

Project	Cut-off grade (g/t)	Measured			Indicated			Inferred			Total Resource		
		Mt	Au (g/t)	Oz	Mt	Au (g/t)	Oz	Mt	Au (g/t)	Oz	Mt	Au (g/t)	Oz
Boorara OP	0.5	1.28	1.23	50,630	7.19	1.27	294,140	2.56	1.26	103,470	11.03	1.26	**448,240**
Kalpini	0.8				1,40	2.42	108,000	0.47	2.04	31,000	1.84	2.33	**139,000**
Jacques-Peyes	0.8				0.97	2.59	81,000	0.77	1.98	49,000	1.74	2.32	**130,000**
Teal	1.0				1.01	1.96	63,680	0.80	2.50	64,460	1.81	2.20	**128,140**
Kalpini	0.8				1.33	1.47	63,150	0.08	1.27	3,300	1.42	1.46	**66,450**
Rose Hill OP	0.5	0.19	2.00	12,300	0.09	2.00	6,100				0.29	2.00	**18,400**
Rose Hill UG	2.0				0.33	4.50	47,100	0.18	4.80	27,800	0.51	4.60	**74,900**
Pennys Find (50%)	1.5				0.09	5.71	17,500	0.03	3.74	3,500	0.13	5.22	**21,000**
Gunga West	0.6				0.71	1.60	36,440	0.48	1.50	23,430	1.19	1.56	**59,870**
Golden Ridge	1.0				0.47	1.83	27,920	0.05	1.71	2,800	0.52	1.82	**30,720**
TOTAL		**1.47**	**1.33**	**62,930**	**13.59**	**1.70**	**745,030**	**5.43**	**1.77**	**308,760**	**20.50**	**1.69**	**1,116,700**

Confirmation

The information in this report that relates to Horizon's Mineral Resources estimates is extracted from and was originally reported in Horizon's ASX announcements "Intermin's Resources Grow to over 667,000 Ounces" dated 20 March 2018, "Rose Hill firms as quality high grade open pit and underground gold project" dated 8 December 2020, "Updated Boorara Mineral Resource Delivers a 34% Increase In Gold Grade" dated 27 April 2021, "Penny's Find JV Resource Update" dated 14 July 2021, "Updated Crake Resource improves in quality" dated 7 September 2021 and "Jacques Find- Peyes Farm Mineral Resource update" dated 15 September 2021, each of which is available at www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in those announcements continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings in relation to those Mineral Resources estimates or Ore Reserves estimates have not been materially modified from the original market announcements.

Horizon Minerals Limited – Summary of Vanadium / Molybdenum Mineral Resources

Project	Cut-off grade (%)	Tonnage (Mt)	Grade			Metal content (Mt)		
			V_2O_5 (%)	Mo (ppm)	Ni (ppm)	V_2O_5	Mo	Ni
Rothbury (Inferred)	0.30	1,202	0.31	259	151	**3.75**	0.31	0.18
Lilyvale (Indicated)	0.30	430	0.50	240	291	**2.15**	0.10	0.10
Lilyvale (Inferred)	0.30	130	0.41	213	231	**0.53**	0.03	0.03
Manfred (Inferred)	0.30	76	0.35	369	249	**0.26**	0.03	0.02
TOTAL		**1,838**	**0.36**	**256**	**193**	**6.65**	**0.46**	**0.36**

Horizon Minerals Limited – Summary of Silver / Zinc Mineral Resources

Nimbus All Lodes (bottom cuts 12g/t Ag, 0.5% Zn, 0.3g/t Au)

Category	Tonnes	Grade	Grade	Grade	Ounces	Ounces	Tonnes
	Mt	**Ag (g/t)**	**Au (g/t)**	**Zn (%)**	**Ag (Moz)**	**Au ('000oz)**	**Zn ('000t)**
Measured Resource	3.62	102	0.09	1.2	**11.9**	10	**45**
Indicated Resource	3.18	48	0.21	1.0	**4.9**	21	**30**
Inferred Resource	5.28	20	0.27	0.5	**3.4**	46	**29**
Total Resource	12.08	52	0.20	0.9	**20.2**	77	**104**

Nimbus high grade silver zinc resource (500g/t Ag bottom cut and 2800g/t Ag top cut)

Category	Tonnes	Grade	Grade	Ounces	Tonnes
	Mt	**Ag (g/t)**	**Zn (%)**	**Ag (Moz)**	**Zn ('000t)**
Measured Resource	0	0	0	**0**	**0**
Indicated Resource	0.17	762	12.8	**4.2**	**22**
Inferred Resource	0.09	797	13.0	**2.2**	**11**
Total Resource	0.26	774	12.8	**6.4**	**33**

Confirmation

The information is this report that relates to Horizon's Mineral Resources estimates on the Richmond Julia Creek vanadium project and Nimbus Silver Zinc Project is extracted from and was originally reported in Intermin's and MacPhersons' ASX Announcement "Intermin and MacPhersons Agree to Merge – Creation of a New Gold Company Horizon Minerals Ltd" dated 11 December 2018 and in MacPhersons' ASX announcements "Quarterly Activities Report" dated 25 October 2018, "Richmond – Julia Creek Vanadium Project Resource Update" dated 16 June 2020, "New High Grade Nimbus Silver Core Averaging 968 g/t Ag" dated 10th May 2016 and "Nimbus Increases Resources" dated 30th April 2015, each of which is available at www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in those announcements continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings in relation to those Mineral Resources estimates have not been materially modified from the original market announcements.

Forward Looking and Cautionary Statements

Some statements in this report regarding estimates or future events are forward looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Forward looking statements include, but are not limited to, statements preceded by words such as “planned”, “expected”, “projected”, “estimated”, “may”, “scheduled”, “intends”, “anticipates”, “believes”, “potential”, “could”, “nominal”, “conceptual” and similar expressions. Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward looking statements may be affected by a range of variables that could cause actual results to differ from estimated results, and may cause the Company’s actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward looking statements. These risks and uncertainties include but are not limited to liabilities inherent in mine development and production, geological, mining and processing technical problems, the inability to obtain any additional mine licenses, permits and other regulatory approvals required in connection with mining and third party processing operations, competition for among other things, capital, acquisition of reserves, undeveloped lands and skilled personnel, incorrect assessments of the value of acquisitions, changes in commodity prices and exchange rate, currency and interest fluctuations, various events which could disrupt operations and/or the transportation of mineral products, including labour stoppages and severe weather conditions, the demand for and availability of transportation services, the ability to secure adequate financing and management’s ability to anticipate and manage the foregoing factors and risks. There can be no assurance that forward looking statements will prove to be correct.

Statements regarding plans with respect to the Company’s mineral properties may contain forward looking statements in relation to future matters that can only be made where the Company has a reasonable basis for making those statements.

This announcement has been prepared in compliance with the JORC Code (2012) and the current ASX Listing Rules.

The Company believes that it has a reasonable basis for making the forward-looking statements in the announcement, including with respect to any production targets and financial estimates, based on the information contained in this and previous ASX announcements.

Appendix 1 – Kalpini Gold Project

JORC Code (2012) Table 1, Section 1, 2 and 3

Mr David O'Farrell, Exploration Manager of Horizon Minerals compiled the information in Section 1 and Section 2 of the following JORC Table 1 and is the Competent Person for those sections. Mr Stephen Godfrey, Resource Development Manager of Horizon Minerals compiled the information in Section 3 of the following JORC Table 1 and is the Competent Person for that section.

The following Table and Sections are provided to demonstrate the preparation and reporting of the Mineral Resource has been completed under the guidelines of the JORC Code (2012).

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	The Kalpini Gold deposit has been sampled using Reverse Circulation (RC) Diamond (DD) and Rotary Air Blast (RAB) drill holes
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For RC drilling regular air and manual cleaning of cyclone was undertaken to remove hung up sample where present. Duplicate field samples were submitted from the RC drilling. Commercial standards (CRM) were submitted with all samples sent for analysis. Standards & replicate assays added by the laboratory. Based on statistical analysis of these results, there is no evidence to suggest the samples are biased or not representative. Sampling of the diamond core was consistent with one half of the sawn core being sent 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 30 g 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 drilling was managed by qualified geologists. For the recent drilling mineralisation was identified and logged by a qualified Geologist. The designated ore zone was generally identifiable visually in RC chips and core. from the core, hanging wall and footwall samples extending over several metres were taken to check for any grade halo and ensure mineralisation boundaries were identified correctly.
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*	Historical

Criteria	JORC Code explanation	Commentary
	tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	RC holes completed using best practice 5 ¾" face sampling RC drilling hammers. Six diamond holes were drilled using a NQ2 size bit. <u>Horizon</u> RC drilling was undertaken with a 142 mm face sampling hammer bit. HQ3 (2.406-inch core) Diamond drilling used triple tube to help core recovery.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Historically Sample recovery at all deposits is generally excellent in weathered and fresh rocks. Poor sample recovery is noted in logs HRZ RC sample recovery and metreage was assessed by comparing drill chip volumes (sample bags) for individual metres. Estimates of sample recoveries were recorded. Routine checks for correct sample depths were undertaken every RC rod (6m). RC samples were visually checked for recovery, moisture and contamination. The cyclone was routinely cleaned ensuring no material build up. DDH recovery was logged over every core run (typically 3m), no significant losses were noted inside the ore zone. No sampling issues were reported for the historical drilling.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Historical drilling has utilised RC rigs of sufficient size and air capacity to maximise recovery and provide dry chip samples. Under normal drilling conditions Horizon believes a good, representative sample is being obtained. Some bias may occur where sample recovery is poor or very wet. These instances are recorded in the geological logging. Only RC and DDH samples were used in the resource estimation.
	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 bias has been identified to date.
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.*	<u>Historical</u> All drill samples were geologically logged on site by Carrick Gold and KalNorth Gold Mines geologists. Details on the host lithologies, deformation, dominant minerals including sulphide species and alteration minerals plus veining are recorded relationally (separately).

Criteria	JORC Code explanation	Commentary
		Drillhole logging of chips or core is qualitative on visual recordings of rock forming minerals and estimates of mineral abundance. Horizon RC drill chips are logged at 1 m intervals. Drill core is logged by geological interval. Logging is done on standard logging forms and transferred to a digital database once back at the office. Drill core was geotechnically logged.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Geological logging was qualitative in nature. Geotechnical logging is both quantitative and qualitative.
	The total length and percentage of the relevant intersections logged.	All RC chip samples and all DDH core intervals have been logged.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Sawn half core was sampled at geological intervals.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Historical RC samples were split through a cone splitter at the rig to produce a 3 kg subsample. Wet samples were dried before splitting and despatch. For the HRZ RC drilling, 1 m samples were taken using a cone splitter. 4 m composite samples of the 1 m intervals were taken with a 450 mm x 50 mm PVC spear thrust to the bottom of the sample bag. If analysis of the 4 m composite returned a grade above a nominal 0.2 g/t Au cut-off, the individual 1 m samples for the composite interval were analysed. HRZ RC samples collected were all predominantly dry. Exceptions were recorded on logs.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Horizon considers the RC and DDH sampling and sample preparation appropriate for the type of mineralisation being investigated.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Historically duplicate samples are collected every 20th sample from the drill chips or core samples. In addition to duplicates a high-grade or low-grade standard is included every 20th sample. Historical samples were prepared and analysed by a variety of Kalgoorlie and Perth laboratories. All samples are pulverized prior to splitting in the laboratory to ensure homogenous samples with 85% passing 75µm. 200gm is extracted by spatula that is used for the 50gm charge on standard fire assays. In HRZ RC drilling duplicate 1 m samples are taken every 20 m. 4 m and 1m samples were analysed by Jinnings Testing and Inspection

Criteria	JORC Code explanation	Commentary
		(Kalgoorlie). The 1 m samples were consistent in size weighing 1.5 kg - 2.0 kg. DDH HQ3 half core was sampled and also sent to Jinnings in Kalgoorlie. Sampling was typically based on 0.5m – 1.0m length intervals. All samples submitted to the laboratory are sorted and reconciled against the submission documents. All laboratories are NATA accredited.
	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 routinely taken by HRZ to monitor laboratory sample preparation precision. HRZ intermittently resubmits samples to a referee laboratory and CRMs are submitted with all samples to monitor laboratory accuracy. Once samples arrived in Kalgoorlie or Perth, further work including replicates and QC was undertaken at the laboratory. Grind size is routinely recorded and monitored.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The quartz rich mineralisation is located in mafic rocks. The sample sizes are considered by Horizon to be appropriate for this material.
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.*	Historical samples were analysed by fire assay method designed to measure the total gold in the sample. A standard 50g charge is fired followed by acid digestion and measurement by AAS. The HRZ 1 m and 4 m RC and DD samples were assayed by Fire Assay (FA50) with ICP finish. These techniques are considered appropriate for this type of mineralisation and produce a near total metal content result.
	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 assay tools were used at Kalpini.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	Horizon routinely use field duplicate, CRMs and blank samples in the QA process. The laboratory uses internal lab standards and replicate samples as part of their QA/QC. QC analysis indicated no bias and accurate results. GTS did not include standards, blanks or field duplicates. The only QAQC samples were lab standard, blanks and duplicates.
	The verification of significant intersections by either independent or alternative company personnel.	All drill logging was supervised by a senior geologist. Senior HRZ geologists reviewed significant intersections.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	*The use of twinned holes.*	Some historical holes test older drillhole intercepts. No twin holes were intentionally drilled by HRZ.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Historically holes were digitally logged in the field and all primary data stored in KalNorth Gold Mines' (formerly Carrick Gold) Logchief database. The project team reviews the data in the database to ensure that it is correct and has merged properly and that all the drill data collected in the field has been captured and entered in to the database correctly. For HRZ drilling original analysis data is stored digitally as PDF and XLS files on the HRZ servers in Perth and Kalgoorlie. Drill hole logs are stored as XLS files on a per hole basis and compiled by project into an Access database. Historical drilling is maintained in a digital database. The data has been validated against historical records where available. File servers are routinely backed up off site.
	Discuss any adjustment to assay data.	No data were adjusted.
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.*	<u>Historical</u> Hole collars are picked up using accurate DGPS survey control. All down hole surveys are collected using downhole electronic single shot or gyro surveying techniques provided by the drilling contractors. Goldfields Technical Services drill programs, collars are picked up using accurate DGPS survey control. <u>Horizon</u> All recent drill collar positions at Kalpini were located by hand-held GPS. The holes were then picked up by a qualified surveyor once drilling operations ceased. Down hole surveys were taken by the drill crew. Historical drilling is reported as having been professionally surveyed., A local grid was used for some historical work.
	Specification of the grid system used.	Historically holes were picked up in MGA94 – Zone 50 grid coordinates and transformed to the local grid. HRZ drilling is surveyed in MGA94 Zone 51. The transformation coordinates from local to MGA grids are known from historical and statutory reporting.
	Quality and adequacy of topographic control.	A high-quality digital terrain model exists for the area.

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drilling is regularly spaced across the deposit at a nominal 25 m x 25 m spacing. Post mining drill hole locations are commonly opportunistic resulting in some irregular spacing. Grade control drillholes were generally planned on a nominal 10m x 7.5m spacing. Hole spacing is contingent on the scale of the anomalism being targeted.
	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 was determined by Horizon to be sufficient when combined with confirmed historic drilling results to define the mineralisation. In addition, information from previous mining supports the interpreted geological and grade continuity. Data density is appropriate for the resource estimation and classification applied.
	Whether sample compositing has been applied.	Samples have been composited over mineralised intervals for the reporting of drilling results. Preliminary RC sampling is done on 4 m composites. For any composite returning Au grade above a threshold, the individual 1 m intervals are assayed and 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.*	At Kalpini, all holes were oriented to intersect the flat dipping lodes at a high angle. The intercept widths are close to true width and provides an acceptable sample 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 drilling is drilled generally local grid east-west, slightly oblique to the interpreted strike of the target horizon. No significant bias has been recognised
The measures taken to ensure sample security	*The measures taken to ensure sample security.*	Historically bagged drill samples are delivered directly from the field to the assay laboratory in Perth or Kalgoorlie, whereupon the laboratory checks the physically received samples against the company's sample submission/dispatch notes. HRZ RC drill samples and drill core were under the control of HRZ personnel at all times. Core trays were usually collected daily by Horizon and photographed before transport to the Nimbus site for processing. The Nimbus mine site is secure, and visitors need permission enter. Once cut, the samples were labelled, bagged and transported to Jinnings Labs in Kalgoorlie by HRZ personnel.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No Audits have been commissioned. Current sample practices are monitored by senior HRZ geologists.

Section 2 Reporting of Exploration Results

(Criteria listed in Section 1 also apply to this section.)

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.*	Kalpini is located on Mining Lease M27/485. A 2.5% NSR royalty for life of mine is payable to the state government. An approximate 0.75% royalty is payable to Landholders and local stakeholders. There are no Native Title issues on M27/485.
	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 no known impediments exist.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Norseman Mining 1970-1971, Pennzoil of Australia 1977, Kennecott 1979-1981, Esso Exploration 1984-1987, City Resources 1987, Geopeko 1988-1991, Moregold Carbon Services 1994, Kurnalp Gold 1996-1999, Man o' War Resources 2004, Carrick Gold 2005-2012, Kalnorth 2012-2016, Goldfield Technical Services 2018-2020. The Atlas and Camelia Prospects have been historically worked however, limited data is available.
Geology	*Deposit type, geological setting and style of mineralisation.*	Kalpini is Archaean mineralisation located within mafic rocks. The mineralisation is typically in thin 1.2m thick flat lying small quartz veins with variable amounts of sulphide mineralisation.
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.*	Drilling details have been published by the previous tenement holders. HRZ ASX announcement of 12 October 2020, 27 July 2021 details the drilling completed by HRZ.
	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 information has been intentionally excluded.
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.*	The reporting of RC and diamond drilling results uses length weighted average grades for mineralised intersections.

	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.	
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent calculations were applied.
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.* *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').*	Drill intercepts and true widths appear to be close to each other, or within reason allowing for the minimum intercept width of 1 m.
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 body of 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.*	No new Exploration Results have been 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.*	Composite RC samples were submitted to Independent Metallurgical Operations for initial metallurgical testwork on the fresh material below the existing open pits. Overall gold recovery was 88% with gravity recovery of 52.4% for the fresh composite with low reagent consumption observed for all gravity/leach tests. Kalpini has previously been mined by open pit. The open pit was mined and toll treated in 2019 and produced 39,000oz at a grade of 2.62g/t Au and a metallurgical recovery of 95.1%. Historical exploration details can be found in previous ASX releases from Carrick Gold and KalNorth.
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).*	Open pit and underground mining economic assessment will be undertaken. Further drilling is being considered to investigate the strike and plunge continuation of the mineralisation.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	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.*	Historical Data The KalNorth Gold Mines drillhole database used the Logchief system. Validation checks were conducted for overlapping intervals, duplicate assays, EOH depth and negative or zero assay values by GTS. GTS used MS Access database(s) to import the historical data and their drilling. Horizon Data In the field, after geological data is entered into MS Excel spreadsheets, it is validated and imported into a MS Access database. Unique sample numbers and pre-numbered calico sample bags are used to identify all samples. Geological metadata is centrally stored in HRZ's Perth office and is managed in Micromine software. The database is continually being updated and will be migrated to Geobank in 2021. Historical data was verified and checked by HRZ geologists and, along with HRZ's recent drilling, will be cross checked by an external third party with expertise in database management.
	Data validation procedures used.	Database checks were completed and included the following: • Checking for duplicate drill hole names and duplicate coordinates in the collar table. • Checking for missing drill holes in the collar, survey, assay and geology tables based on drill hole names. • Checking for survey inconsistencies including dips and azimuths <0˚, dips >90˚, azimuths >360˚, and negative depth values. • Checking for inconsistencies in the "From" and "To" fields of the assay and geology tables. The inconsistency checks included the identification of negative values, overlapping intervals, duplicate intervals, gaps and intervals where the "From" value is greater than the "To" value. Database checks were conducted in MS Excel, MS Access and Surpac™ Mining software. Drillhole data was validated against WAMEX data where available. HRZ has suitable processes and due diligence in place to ensure acceptable integrity of the drill hole data that underpins the Mineral Resource. The drill hole data was considered suitable for underpinning Mineral Resource estimation of global gold ounces and incorporated drilling results available up to and including 01 September 2021.

Criteria	JORC Code explanation	Commentary
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Messrs O'Farrell and Godfrey have visited the Kalpini project multiple times to inspect the drilling, sample collection and the in-pit exposure and stockpiles. No material issues or risks pertaining to the resource were observed during the site 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.*	Confidence in the geological interpretation is high. The interpreted geometry and nature of mineralisation is similar to that seen outcropping at the site. Close spaced grade control drilling has confirmed the interpretations made form wider spaced exploration drilling data.
	Nature of the data used and of any assumptions made.	A total of 108,104.4m of drilling from 1836 drill holes was available for the MRE. Drilling comprised 11 DD drillholes, 520 RC drill holes, 974 RC Grade Control drill holes and 331 RC drill holes with diamond tails. Mineralisation interpretations were informed by 1401 RC drill holes and 7 DD drillholes. RAB drilling was used to guide the geological interpretation. No RAB data was used for the estimation. A total of 55 mineralisation domains were interpreted at the Kalpini deposit.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Alternate interpretation of lode orientations has been considered for some zones, particularly where drilling is sparse. This may produce a more robust geological model but will little, if any, material impact on the global resource.
	The use of geology in guiding and controlling Mineral Resource estimation.	The mineralisation is structurally controlled. This structure although poorly define in the drilling has been observed in-pit. The observed structural orientations have been projected down dip and along strike in the current model.
	The factors affecting continuity both of grade and geology.	Structural continuity can be observed in over several hundred metres in some lodes. Grade tenor is variable. No controlling factor for grade has been identified to date.
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 mineralisation package at Kalpini extends over a 1500 m strike length through Gambia and Camelia. The Atlas deposit, offset from the main Kalpini lodes, has been identified over a 360 m strike length.
Estimation and modeling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and*	Sample data within mineralisation domains were composited to 1 m downhole lengths using 0.3 m minimum threshold on inclusions. The data was sub-domained by the weathering profile.

Criteria	JORC Code explanation	Commentary
	maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Exploratory Data Analysis (EDA) composited gold variable within the mineralised domain groups was undertaken using proprietary software. Analysis for sample bias, domain homogeneity and top-cutting was undertaken. Variography was undertaken on the larger mineralised domains. Robust variogram models with a moderate nugget (~40%) were delineated. These variograms were applied in the estimation of the smaller 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.	No check estimates have been made for the current model. The current model compares favourably against the 2019 GTS model.
	The assumptions made regarding recovery of by-products.	No by-products are expected and have not been considered.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No estimation for deleterious elements or other non-grade variables was made.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Interpolation was undertaken using Ordinary Kriging (OK) in GEOVIA Surpac™ within parent cell blocks. Dimensions for the interpolation were Y: 10mN, X: 5mE, Z: 2.5mRL, with sub-celling to 0.625m. The model was unrotated. A three-pass estimation search strategy was employed, with all domains estimated within a maximum distance of 80m and the neighbourhood composites ranging from a minimum of 4 to a maximum of 32 samples. A fourth pass was run with a widened search ellipse to populate peripheral blocks.
	Any assumptions behind modelling of selective mining units.	No selective mining units were assumed in this estimate.
	Any assumptions about correlation between variables.	The model is only estimated for gold. The drilling database only contains analyses for gold.
	Description of how the geological interpretation was used to control the resource estimates.	Domain boundaries represented hard boundaries, whereby composite samples within that domain were used to estimate blocks within the domain. Global and local validation of the gold variable estimated outcomes was undertaken with statistical analysis, swath plots and visual comparison (cross and long sections) against input data. The 3D block model was coded with density, weathering and Mineral Resource classification prior to evaluation for Mineral Resource reporting.

Criteria	JORC Code explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	Assessment of top-cutting for the estimate was undertaken on the gold variable within individual domains. Top cuts were applied to 30 domains to control the influence of outlier samples.
	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 estimation has been validated against the drilling data and interpretation visually and statistically. HRZ considers the estimate to be a robust representation of the global resource.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	The tonnages were estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The Mineral Resource cut-off grade for reporting of underground global gold resources at Kalpini was 0.8 g/t Au. This was based on consideration of grade-tonnage data, selectivity and a potential open pit mining method, and benchmarking against comparable sized deposits of similar mineralisation style and tenor.
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 MRE extends nominally 200 m below the topographic surface. HRZ will be undertaking open pit and underground optimisation studies to determine the best extraction method for the Kalpini deposit. No dilution or cost factors were applied to the estimate.
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*	Composite RC samples were submitted to Independent Metallurgical Operations for initial metallurgical testwork on the fresh material below the existing open pits. Overall gold recovery was 88% with gravity recovery of 52.4% for the fresh composite with low reagent consumption observed for all gravity/leach tests.

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	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 open pit was mined, and toll treated, in 2019 and produced 39,000 oz at a grade of 2.62 g/t Au and a metallurgical recovery of 95.1%. No metallurgical factors have been included in 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 greenfields 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 factors were applied to the Mineral Resources or resource tabulations. The deposit is located on a granted 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.*	Bulk density values at the Kalpini deposit were derived from 31 'ore' and 245 'waste' sample measurements collected by GTS. • Oxide: 1.75 t/m^3 • Transitional: 2.56 t/m^3 • Fresh: 2.75 t/m^3
	The bulk density for bulk material must have been measured by	Onsite measurements using Archimedes density measurements (weight in air/weight in water method.) were undertaken on oxide, transitional, and fresh drill

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	methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	core. This approach is adequate in accounting for void spaces and moisture within the deposit.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk density is assumed to be relatively consistent across the deposit. The host rock is consistent, so this assumption is valid. The measured bulk density values are consistent with other deposits in the region.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Mineral Resources were classified as Indicated and Inferred to appropriately represent confidence and risk with respect to data quality, drill hole spacing, geological and grade continuity and mineralisation volumes. Previously MRE's have classified material, now mined, as Measured. Additional considerations were the stage of project assessment, amount of RC drilling, the current understanding of mineralisation controls and previous mining. In the competent person's opinion, the drilling, surveying and sampling undertaken, and the analytical methods and quality controls used are appropriate for the style of deposit under consideration. Indicated Mineral Resources were defined where a moderate level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where: • Blocks were well supported by drill hole data with the distance to the nearest sample being within 30 m or less or where drilling was within 30 m of the block estimated. Inferred Mineral Resources were defined where a low to moderate level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where: • Drill spacing was averaging a nominal 50 m or less, or where drilling was within 50 m of the block estimated. The reported Mineral Resource for was constrained at depth by the available drill data. All classified Mineral Resources were reported inside the tenement boundary. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The MRE does not account for selectivity, mining loss and dilution. This MRE update includes Inferred Mineral Resources which are unable to have economic considerations applied to them, nor is there certainty that further sampling will enable them to be converted to Measured or Indicated Mineral Resources.

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	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).	Consideration has been given to all factors material to the Mineral Resource outcomes, including but not limited to confidence in volume and grade delineation, quality of data underpinning Mineral Resources, mineralisation continuity and variability of alternate volume interpretations and grade interpolations (sensitivity analysis). In addition to the above factors, the classification process considered nominal drill hole spacing, estimation quality and reliability of input data, specifically.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The delineation of Indicated and Inferred Mineral Resources appropriately reflects the Competent Person's view on continuity and risk at the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	No Audits have been undertaken or commissioned. Annual resource audits are included in HRZ forward planning.
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.*	Variances to the tonnage, grade and metal tonnes of the Mineral Resource estimate is expected with further definition drilling. It is the opinion of the Competent Person that the classification criteria for Indicated and Inferred Mineral Resources appropriately captures and communicates these variances and risks to all downstream users. The MRE is considered fit for the purpose of underpinning feasibility-level studies.
	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 Resource Statement relates to global tonnage and grade estimates. No formal confidence intervals nor recoverable resources were undertaken or derived.
	These statements of relative accuracy and confidence of the estimate should	

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	be compared with production data, where available.	