# Market Announcement ASX:NTL, NZX:NTL For Immediate Release



## WOODSTOCK RESOURCE UPGRADE

#### Commodity Exposure

GOLD and SILVER

**Board and Management** 

Charbel Nader Chairman/Independent Director

Matthew Hill Chief Executive/Managing Director

Murray McKee Independent Director

Murray Stevens Non executive Director

Tony Haworth Independent Director

Jane Bell Company Secretary

Wayne Chowles Chief Operating Officer

Ash Clarke Chief Financial Officer

#### **Capital Structure**

Ordinary Shares on issue-2,076,995,855

Listed Options – 119,851,516 2 cent – expiring Nov 2017 Market Cap - \$39.4 M NZD

#### **Share Chart**



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## **HIGHLIGHTS**

- WOODSTOCK RESOURCE INCREASE 25%
- WOODSTOCK GRADES INCREASE BY 70%
- BONANZA/TALISMAN RESOURCES MODULES NEAR COMPLETION
- PROGRESS UNDERGROUND PASSES 300M

New Talisman Gold Mines Ltd (ASX:NTL, NZX:NTL) today announced a substantial upgrade to its gold resources after the completion of the second module pertaining to the Talisman Deeps project in the Coromandel region of New Zealand.

As previously announced the deeps modules are near completion with a total of three modules, covering the Dubbo, Woodstock and Talisman/Bonanza Zones of the Maria load due for completion by the by 31 July. Once these are complete work will commence on upgrading the Mystery and Crown vein estimates to achieve JORC 2012 reporting compliance.

Charbel Nader Chairman of New Talisman stated "The work on the New Talisman Deeps resource modules has been an exciting and promising development for the company. As the results are exceeding original expectations the company may potentially review the manner and or timing of the exploitation of these resources. Once all the modules are complete we will review the options available with a view to maximising shareholder value and delivering benefits to all our stakeholders and the broader community. We are very grateful for the continued support of the community, the regulatory authorities and local businesses in the continued development of this world class asset."

This announcement pertains to the second module of the Talisman deeps Resource upgrade and is reported in compliance with the 2012 version of the JORC Code. The remaining Bonanza Module is on target for completionin the coming days.

The Woodstock Zone is the smallest resource with sparse sampling coverage in the deeper areas of the mine. The zone lies within metres of the portal opening and has multiple open faces in the mine and through a second portal. Access to this part of the orebody is thus relatively easy and further work will be undertaken to prospect the area underground



Previous estimates were carried out without application of a cutoff grade. The 2013 Pre-Feasibility study determined that a cutoff grade of 2.5 g/t would be applicable to the Woodstock area. Application of this cutoff grade has seen the average grade of resources in the Woodstock Zone increase from 3.7g/t to 6.3g/t. This makes economic exploitation of the area a possibility and further work will be carried out to ascertain possible mining configurations and economics.



Figure 1 - Work in progress with support upgrades at the Talisman Project

This is the second module of the Talisman deeps Resource upgrade and is reported in compliance with the 2012 version of the JORC Code.

The prospecting phase currently well underway at the Talisman site has established the site and the refurbishment of underground areas is providing access to the Mystery Vein. The underground team are now some 300 Metres inside the mine and are near completion of attachments for water and compressed air hoses to allow specialist equipment needed install robust ground support.

The resource upgrade at Woodstock and the any further resource increases at Talisman Deeps in its entirety will be included in an updated pre-feasibility study and ore reserve statement in due course. Where possible, areas identified will be prospected and tested for inclusion into the body of works during Bulk sampling.





Figure 2 - 90 metres inside the mine looking outward. This area is adjacent to the Woodstock orebody

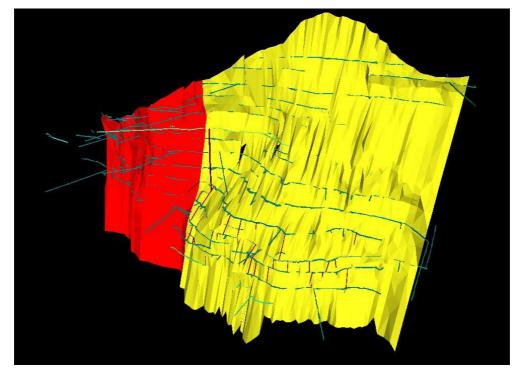


Figure 3 - Graphic of the Maria Vein wireframe with historic drives shown in grey, the Woodstock Zone is shown in red. This is the pre-mined model, historic depletions were subtracted from this model.



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Category	Volume	Tonnes	g/t	Grams	Ounces
Measured	20,064	50,361	5.25	264,265	8,496
indicated	18,577	46,629	3.56	166,205	5,344
inferred	42,276	106,112	8.01	850,055	27,330
Total resources	80,917	203,102	6.30	1,280,524	41,170

The updated resource table for the Woodstock Zone is shown below: Table 1: Woodstock Resources reported in compliance with the reporting standards set out in the 2012 version of the JORC code.

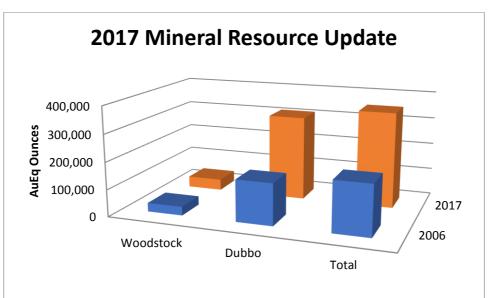


Figure 4a - Comparison between previous Mineral Resource Estimate and 2017 update

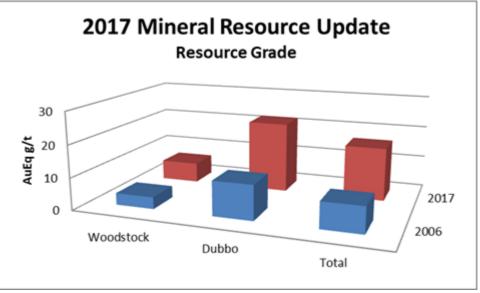


Figure 5b - Comparison between previous Mineral Resource Estimate and 2017 update



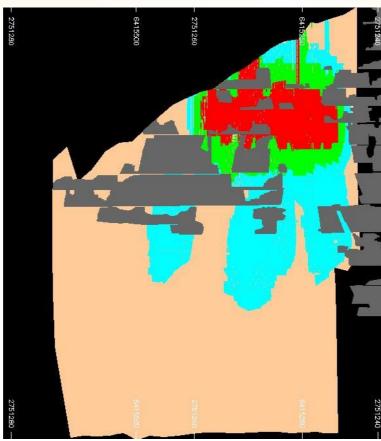


Figure 6 - Section View of the Woodstock Zone showing Measured Resources in red, Indicated in green and Inferred in blue. Areas in grey denote historic stoping.

A lower cut-off grade of 2.5g/t Au Eq (previously 0g/t) was applied to reflect the mine cut-off grade estimated for the financial modelling in the 2013 prefeasibility study. This is 0.5g/t lower than that applied at the Dubbo Zone as the costs of mining this area No top cut to the data was applied.

Gold equivalents have been used due as the historic data is expressed in bullion values. These have been converted to gold equivalents based on the gold price during the main historic mining period to 1919 where gold price was a constant £4.25 or USD20.47. All more recent exploration data has been converted to gold equivalents at the same metal prices for consistency of resource estimation and reporting. A more detailed explanation of the methodology can be found in the technical summary at the end of this announcement.

A further area of 206,000m2 on the plane of the orebody has been identified as a Exploration Target. Information available indicates that this area is likely to yield a vein width of between 1.6m to and 2.4m (827296 to 1,240,944 tonnes) with AuEq grades ranging between 2.70g/t and 5.35g/t. This target constitutes a global Exploration Target as defined in the 2012 JORC Code. The potential quantity and grade is conceptual in nature and there has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.on completion of the current prospecting programme the company will focus on developing an exploration programme to investigate the exploration targets.



#### BONANZA/TALISMAN RESOURCES MODULES NEAR COMPLETION

With modelling of the first two zones now complete the company is now focused on completion of the Talisman/Bonanza estimate where the historic databases acquired in 2015 have shown potential to increase the current resources to JORC 2012 compliance, which would further enhance the overall mineral resource estimate.

It is important to note that the Talisman and Bonanza Zones have not been included in previous resource estimates. However, evaluation of the historic channel sampling and considering recorded production and stope volumes there are a number of areas where there are unmined blocks of potentially economic grades remaining. NTL's engineering team is currently evaluating the ability to access these areas during prospecting and bulk sampling.

The entire Talisman Deeps project including all known data is expected to be finalised by 31 July. It is intended to have results peer reviewed before final release to the market.

Replacing the JORC 2004 Dubbo Resource and Woodstock estimates with the new estimate for both zones, and converting the remaining JORC 2004 resources from Crown and Mystery to gold equivalents gives total measured, indicated, and inferred resources of 396,000 Oz Au\_Eq prior to the resource modelling underway on Talisman/Bonanza.

#### **Technical summary**

#### 1. Regional Geology

The Talisman mining permit is located within the southern part of the Coromandel Volcanic Zone (CVZ), a north-northwest trending zone of Miocene to early Quaternary sub-aerial calcalkaline volcanics (see figure 1). The permit area covers part of the Karangahake gold-silver deposit, one of the major deposits of the Hauraki Goldfield, a 200-km long metallogenic zone of epithermal gold-silver and porphyry copper-gold mineralisation that extends from Great Barrier Island in the north to as far south as Te Aroha and Te Puke.

The volcanic rocks have been grouped into andesite and dacite, with associated intrusive rocks of the Miocene to Pliocene aged Coromandel Group and rhyolite of the late Miocene to Quaternary aged Whitianga Group. A north-northwest trending, block faulted basement of Mesozoic greywacke underlies the volcanic rocks. This basement only crops out in the northern part of the CVZ although reports from early 20th century deep drilling at Karangahake mention intersecting greywacke beneath the No 16 level of the Talisman Mine.

Ash and pumice that erupted from the Taupo Volcanic Zone and Mayor Island over the last 100,000 years blanket much of the permit area to a depth of up to 8m, which is an impediment to exploration.



#### 2. Project Geology

The area is dominated by andesite and dacite of the Miocene aged Waipupu formation, part of the Coromandel Group, and the lithologies that host most of the known mineralisation. They consist of phyric plagioclase two-pyroxene andesites and dacites that are frequently autobrecciated and in places columnar jointed.

At Mt Karangahake, the Coromandel Group rocks are overlain by a 200m thick rhyolite cap, correlated with the Maratoto Rhyolite and the Rahu Formation to the north. These rocks are younger than the andesitic Waipupu Formation, but are correlated with the Waiwawa Subgroup. The local basement is Mesozoic aged greywacke.

At Rahu, which represents the northern strike extent of the Karangahake mineral deposits, Coromandel Group rocks are exposed in the southern and central parts, but much of the prospect is blanketed by rhyolitic volcanics and lake sediments of the Rahu Formation. The elevation of the contact between Coromandel Group andesites and the rhyolitic rocks at Karangahake and Rahu indicates that Rahu may have been relatively downthrown by about 200m by a fault through the Karangahake Gorge. Unaltered flows of the Whakamoehau Andesite of the Omahine Sub-group are exposed in the northeast, where they overlap some of the rhyolitic Rahu Formation.

The project lies within a major north-northeast trending structural corridor that hosts several other epithermal gold deposits including Golden Cross, Komata, Owharoa, Wharekiraponga and Onemana.

The main fault trends, as mapped from crush zones, underground mapping and air photos, are northwest, north-south, north northeast and east-west. The north-south and north-northeast faults and associated quartz veins are earlier than the east-west and northwest faults, with the latter usually displacing the major quartz veins by no more than a few metres (but up to 15 m has been observed). It has been postulated that the northwest structures, where the most recent movement is post mineral, may have been active before and during mineralising events, and provided the structural regime for the north to northeast emplacement of the mineralised quartz veins in dilatant zones.

#### 3. Mineralisation

The Karangahake deposit is an epithermal quartz vein system, hosted mainly in andesite, and comprises two major known (Maria and Welcome/Crown) vein zones and a number of other vein zones, including the Mystery Vein and Rahu Ridge, within a 4km x 3km area of hydrothermal alteration.



The quartz vein system comprises a set of steeply to moderately west dipping, north-south to north-east trending, extensional quartz filled fissures. Mining has largely been confined to the Maria and Welcome/Crown veins, the most persistent of the fissure veins.

There is an extensive quartz vein stockwork developed in the silicified and clay altered rhyolitic cap on Mt Karangahake that predates the main gold mineralising event associated with the quartz fissure veins. The silicified and quartz veined rhyolitic tuff of the Rahu Ridge area to the north is interpreted as the strike extension of the mineralised system and has recently been shown to have significant gold/silver mineralisation.

The veins are reportedly deeply oxidised down to about the level of the Waitawheta River (40m RL) and contain bands and impregnations of limonite and manganese oxides.

The primary quartz sulphide mineralisation occurs in the lower levels of the Maria vein (below 0m RL) and the Welcome vein (below -90m RL) as banded quartz-rhodochroisite-calcite-sulphide vein filling. The sulphide bands are composed of sphalerite, galena, pyrite, chalcopyrite and electrum, and display the typical crustiform textures of epithermal ores.

#### 3.1. Maria Vein

The Maria Vein has the largest recorded production. It has a known strike length of 1300 m, averages 2m to 3m wide and has a depth extent exceeding 700m. Its dip varies from 45oW to near vertical (80o W). In longitudinal section, there are four distinct ore shoots – Woodstock, Talisman, Bonanza and Dubbo. Historically, most of the ore came from the Talisman and Bonanza Shoots.

Further north in Taukani Hill, the Maria vein was worked to a limited extent in the Ivanhoe workings in the near surface oxidised zone. Low grade sections of vein, between and within the ore shoots were not stoped. Some of the ore shoots are bounded by post vein east-west faults.

In the upper levels of the mine (above 120m RL, No10 level), the vein is leached and completely oxidised, consisting of banded quartz with limonite and manganese oxides.

The average Au:Ag ratio of the oxidised ore is 1:4 and the gold and silver occur as electrum associated with goethite. A zone of partly oxidised sulphide ore, with Au:Ag ratios between 1:10 and 1:20, extends over a vertical interval of about 150m from No10 level to No13 level. The ore consists of sphalerite-galena-pyrite-chalcopyrite-electrum, with or without acanthite, as primary sulphides with minor amounts of goethite and manganese oxides. There are patches of very rich secondary ore, especially around No11 level. Silver values are very high in this ore (up to 2.4% Ag). In the primary sulphide ore zone below No13 level (-80m RL), the minerals are sphalerite-galena-pyrite-chalcopyrite-electrum with quartz and



rhodochroisite. No acanthite is seen and this is reflected in higher Au:Ag ratios of between 1:3 and 1:1.

Below No14 level, the quartz sulphide mineralisation appears to decrease in electrum content, and a 1973 drill hole intersected the zone at -190m RL, below the Waitawheta River.

#### 4. Sampling Techniques 4.1. Historic sampling

The historic channel sampling that has been captured off stope plans on the Maria Vein from the Talisman Gold Mining Company all have grades expressed as bullion value in pounds shilling and pence and sample intervals in feet and inches.

These are plotted on long section where stopes are dated as at 1919.

It is not possible to know exactly how these were taken however classical gravimetric fire assay techniques and channel sampling technics were well established by this time and on the balance of probability these are considered valid having been plotted on maps signed by the mine management of the day.

#### 4.2. Pre-2003 sampling

Sampling by NTL predecessor company Heritage Gold was mainly on a reconnaissance basis and included surface and underground channel and continuous chip samples. These have not been used for resource estimation.

Channel sampling by NZ Gold Fields, Cyprus Mines Corp, Freeport, Homestake and Southern Gold have not been used in the resource estimation.

Much of the underground drilling was carried out under the Cyprus/NZ Goldfields joint venture. Cyprus at the time had a well-established sampling protocol with use of standards and duplicates as was used by them at the Golden Cross mine in the nearby Waitekauri Valley.

#### 4.3. Post-2003 sampling

NTL completed a programme of channel sampling of accessible areas to establish resources remaining in the 7, 7A, 8 Level of the Talisman Mine and the 5A level of the Crown Mine. This work was done using handheld electric powered diamond saws and resulted in around 920 channels samples being collected.

Channel samples were taken at a nominal 5m spacing along strike of veins where exposed. Sample widths across veins were determined by the geology of the vein width. Where vein width is less than 1 metre samples were restricted to actual vein width. Where greater than a metre sample widths generally are 1 metre and no more than 1.4 metre sample width.

Channels were cut to nominal dimensions of 5cm by 10cm to resemble half HQ diamond drill core to provide similar sample support for resource estimation purposes.

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Sample size was generally 5kg and collected in bins by chipping out each sample with a small pneumatic drill and by hand with cold chisels. The bins were cleaned between each sample to reduce chance of contamination.

To ensure representivity, care was taken to ensure equal-mass extraction along the entire channel.

Diamond core sampling, based on determination of mineralization from logging, all core halved using diamond saw, mineralized intervals sampled on nominal 1m lengths or to geological boundaries. Remainder of non-mineralised material sampled on 2m intervals.

#### 4.4. Drilling techniques

An underground Longyear LM55 electric wireline rig was used, with a LM75 power pack, to drill 18 holes.

Diamond coring was all triple tube HQTT with a 1.5m core barrel to target depths. In rare instances where ground conditions dictated the drill diameter was reduced to NQ and core size was NQTT.

All core was oriented using plasticine and holes surveyed with Eastman multi or single shot cameras every 25m and at end of hole.

Some 5 holes were drilled using a small conventional Kempe rig in the Woodstock section. Core size was LTK60 core which is larger than NQTT core and slightly less than HQTT drill core. This core was not oriented and only collar positions were surveyed as holes were generally less than 15m.

#### 4.5. Sample recovery

Diamond core was measured by drillers on site on a run by run basis and again by site geologist who recorded run length, measured core recovered and calculated recovery. These data then entered into spreadsheets and the drill database.

Use of triple tube coring maximizes core recovery and ensures maximizing core integrity. In the case of the conventional core from the Kempe rig, core was carefully extracted from the core barrel to maximize core integrity.

No known sample bias is likely to have occurred using the sample techniques employed.

Core recovery for the Kempe rig holes averages 92.8% (55.55m total metres). Core recovery for the 18 wireline holes averages 96.43% (1058.55m total metres)

#### 5. Geological modelling

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There is enough continuity based on drill hole geology, surface and underground mapping, geophysics and geochemistry to have confidence in the continuity of the geology for areas estimated.

Geological interpretation of the Maria Vein and the ore zones within it have been determined by compiling all mapping and drill hole data completed by NTL and by detailed digitizing of georeferenced historic mine plans including vein positions and mapped widths, including faults on a level by level basis.

The geology has formed the basis to create domains to constrain the MRE process.

Vein positions and variability were checked against several of the levels where NTL had its own data to check consistency as a back-up against the historic mapping and more recent mapping by modern explorers.

This was used as the basis for constructing sections at 10m and 20m intervals along strike interpreting the position and vein thickness of the Maria Vein along its known strike length of 1300m.

These were then wireframed to and verified to form enclosed vein models suitable for estimation purposes.

#### 6. Estimation

The wireframe models of the Maria Vein were filled with 10m by 10m by vein width blocks utilizing sub-cell splitting.

Variography determined that that an anisotropic semi variogram model with a range of 12m along strike and 36m on the dip of the vein was appropriate. The search ellipsoid was best oriented at -60 degrees +/- 20 degrees. This corresponds to visually determined trends in the orientation of known high grade shoots.

An overall wireframe model for the Maria Vein was produced but, based on geology, has been subdivided into 3 separate geological domains that correlate with the Dubbo Zone, the Talisman-Bonanza Zone and the Woodstock Zone. These domains were constructed and estimated separately.

The estimation was initially carried out using Ordinary Kriging and then Inverse Distance Squared as a check estimate. This was found to be within 2% of each other in terms of total ounces of gold.



Historic mine plans give a detailed view of areas stoped. Wireframe models of the stopes were produced and the gold content in them interrogated. The estimated gold mined from these stopes was subtracted from the overall resource gold equivalent content.

#### 7. Classification Criteria

Only current sampling and drill hole data where verifiable QA/QC protocols were in place were used for estimation Measured and Indicated Resources, while the entire database, inclusive of historical data was included for the estimation of Inferred Resources.

The following classification criteria were applied:

Measured Resources – 3 samples within 1 variogram range

Indicated Resources – 3 samples within 2 variogram ranges

Inferred Resources – 3 samples within 3 variogram ranges.

#### 8. Cut Off Grades

Cut off grades were based on a preliminary assessment of the likely direct mining costs. A grade/tonnage curve was used to estimate the likely applicable cut-off grade to achieve the required ROM grade. This was determined as a 3g/t Au for the Dubbo and Talisman Zones and 2.5g/t for the Woodstock Zone.

#### 9. Metallurgical Recovery

Detailed metallurgical studies to date show that expected recoveries are likely to equal or exceed 95%.

The deposit is typical of the low sulphidation deposits in the Waihi Gold District which are by and large amenable to direct cyanidation, gravity separation of free gold and/or flotation concentrate

Full details of the methodology and approach taken to the resource modelling can be found in the accompanying Table 1 to this release.

For further information please contact: CEO Matthew Hill on +64 217 95559 or matt@newtalisman.co.nz

#### **Competent Persons Statement**

The information in this report that relates to exploration results, exploration targets and mineral resources is based on information compiled by or supervised by Mr Murray Stevens and Mr Wayne

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Chowles. Mr Stevens is a consulting geologist and director of New Talisman Gold Mines Ltd, who is a corporate member of the AusIMM. Mr Stevens 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 Chowles is a Mining Engineer and member of the AusIMM. Mr Chowles is a full-time employee of New Talisman Gold Mines Limited, he 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".

Both Mr Chowles and Mr Stevens consent to the inclusion in this report of the matters based on his information in the form and context in which it appears.

#### About New Talisman Gold Mines Ltd

New Talisman Gold is a dual listed (NZSX & ASX: NTL) with over 1900 shareholders who are mainly from Australia and New Zealand. It is a leading New Zealand minerals development and exploration company with a mining permit encompassing the Talisman mine, one of New Zealand's historically most productive gold mines. Its gold properties near Paeroa in the Hauraki District of New Zealand are a granted mining permit, including a JORC compliant mineral resource and a JORC compliant reserve statement within the original Talisman underground mine, and a binding Agreement for Newcrest Mining to spend up to \$5M on an adjacent exploration permit along strike from the mine, Rahu. The company is now advancing its plans to develop the mine, and advance the exploration project.

## Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg 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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>and 5A level of the Crown Mine was undertaken using handheld diamond saws.</li> <li>Channel samples were taken at a nominal 5m spacing along strike of veins where exposed. Sample widths across veins were determined by the geology of the vein width. Where vein width is less than 1 metre samples restricted actual vein width. Where greater than a metre sample widths generally are 1 metre and no more than 1.4 metre sample width.</li> <li>Channels were cut to nominal dimensions of 5cm by 10cm to resemble half HQ diamond drill core to provide similar sample support for resource estimation purposes.</li> <li>Sample size was generally 5kg and collected in bins by chipping out each sample with a small pneumatic drill and by hand with cold chisels. The bins were cleaned between each sample to reduce chance of contamination.</li> </ul>
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).	pack.



Criteria	JORC Code explanation	Commentary
		<ul> <li>multi or single shot cameras every 25m and at end of hole.</li> <li>Some 5 holes were drilled using a small conventional Kempe rig in the Woodstock section.</li> <li>Core size was LTK60 core which is larger than NQTT core and slightly less than HQTT drill core.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul> <li>Diamond core was measured by drillers on site on a run by run basis and again by site geologist who recorded run length, measured core recovered and calculated recovery. These data then entered into spreadsheets and the drill database.</li> <li>Use of triple tube coring maximizes core recovery and ensures maximizing core integrity.</li> <li>In the case of the conventional core from the Kempe rig, core was carefully extracted from the core barrel to maximize core integrity.</li> <li>No known sample bias is likely to have occurred using the sample techniques employed.</li> <li>Core recovery for the Kempe rig holes averages 92.8% (55.55m total metres).</li> <li>Core recovery for the 18 wireline holes averages 96.43% (1058.55m total metres).</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>A comprehensive system of logging procedures were used to a level or detail to support appropriate Mineral Resource estimation.</li> <li>Core logging follows detailed regime of geological logging, noting core orientations of structures, lithology, mineralization, structure, core photography, geotechnical logging undertaken by experienced field geologists and senior geologists.</li> <li>All data were entered into spreadsheets using laptops producing descriptive and graphic logs.</li> <li>All ~1,100m of core was logged.</li> </ul>
Sub-sampling	• If core, whether cut or sawn and whether quarter, half or all core taken.	• Core was sawn in half, with one half taken for sampling, one half retained



Criteria	JORC Code explanation	Commentary
techniques and sample preparation	<ul> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>for reference logging, petrology, check logging, check sampling, metallurgy, geotechnical studies.</li> <li>Representivity of sub-sampling was ensured by using a set of QA measures recommended by independent consultants RSG Global who reviewed the procedures.</li> <li>Quality control included field duplicates,(split from first coarse crush) which were taken every alternate 10<sup>th</sup> sample, and a preparation duplicate, (split from fine grind) taken every alternate 10<sup>th</sup> sample.</li> <li>Results show good correlation between core duplicates/originals and coarse crush duplicates/originals.</li> <li>HQ half core is considered to provide a suitable sample support for mineral resource estimation purposes for the type of material. No heterogeneity studies were carried out to investigate the optimal sample size.</li> <li>Underground channel samples were sub-sampled and prepared in the laboratory via industry standard methods (crushing using jaw/Boyd, followed by pulverizing to 75 microns in LM2/5).</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	by certified assay laboratories. NTL used SGS in Waihi, using their standard sample preparation and analytical procedures and internal quality control procedures. All gold assays used a 50g charge fire assay with AAS finish and a detection limit of 0.01ppm. This is a total assay technique and considered appropriate.



Criteria	JORC Code explanation	Commentary
		<ul> <li>showed that there were no issues (e.g. no statistically relevant bias between the two sets of results)</li> <li>No QC was included for historic sample results from the raise sampling programmes of the early 20<sup>th</sup> century, which are recorded as value in pounds, shillings and pence and plotted on mine plans signed by the mine manager of the day.</li> <li>Not possible to know what validation process was used on historic data. However, plans are signed by the mine manager of the day.</li> <li>These samples are from the zones modelled and recorded on the mine plans</li> <li>Grades are consistent with those indicated in the Museum samples that are recorded by the then mine superintendent Mr Stanfield of the Talisman Gold Mining Company Ltd.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	checked and revised using the compositing functions in CAE software product Down Hole Explorer and also within Datamine Studio EM software.

Criteria	JORC Code explanation	Commentary
		<ul> <li>NTL have taken a conservative approach; while the data density of t historic sampling would be sufficient to allow classification as Measur Resources NTL have elected to classify them in the Inferred category.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>A levelling exercise was initially conducted in 8 Level for survey control was a datum established outside No8 Level.</li> <li>All samples were surveyed to ensure proper XYZ control for modelli purposes.</li> <li>All channel samples were surveyed using peg ledgers and offsets. Eas sample recorded collar position, sample length and orientation to creat drill hole data. These data are expected to be accurate to cm resolution.</li> <li>Each drill hole collar was surveyed and downhole surveys recorded at 25 intervals using Eastman single or multi-shot cameras.</li> <li>A full mine survey using a registered mine surveyor was completed and sample point surveys adjusted accordingly on the basis of this survey.</li> <li>Historic samples that have been used in the resource estimate we captured from scanned historic mine plans and checked against existi databases. These were then georeferenced to match the geological moor wireframe. In most cases collar positions were within 1 to 2 metres of t wireframe and were adjusted accordingly.</li> <li>Grid system used historically was Mt Eden Circuit.</li> <li>NTL used NZMG(1949) and converted all earlier data to this grid system.</li> <li>Topographic and survey control is considered adequate for the purpor that the data is being used.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Channel samples were generally taken across the backs of exposed verwere available at 5m intervals. The spacing was determined by comparearlier data taken by the previous mine owners at 2.5m intervals allows trike. It was found that the 5m spacing was adequate and gave comparates results.</li> <li>Where there was no exposure in the roof cut, channels were taken allow the side walls where oblique veins crossed the drives. Where possible box</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>sides of the drives were sampled to give a 5m separation.</li> <li>A 25m grid drill pattern was designed in the Dubbo zone where NTL drilled the majority of its holes. The pattern was designed to extend beyond known assay data points in earlier drill holes and channel samples and to infill where appropriate to get the required density of data for resource estimation.</li> <li>The 2263 historic channel samples are generally close spaced ranging from less than a metre to around 1.5m apart. They are mostly taken up raises with raises generally around 40 to 80m apart.</li> <li>In the Dubbo Zone 767 historic channels range from 0.15m to 3.65m and average 1.03m wide.</li> <li>In the Talisman and Bonanza Zone 1374 historic channels range from 0.15m to 2.44m and average 1.29m wide as single value assay intervals averaging just over a metre and compositing was not deemed appropriate.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the depositype.</li> <li>If the relationship between the drilling orientation and the orientation of ke mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>the west ranging from 45 to 85 degrees. NTL channel samples where possible are oriented to be orthogonal to the strike of the vein being sampled. Where this is not possible the channels orientation is reflected in</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>across the backs of the veins from hanging wall to footwall at right angles to strike and dip. Hence, historic samples are oriented in the databases at an azimuth of 095° and a dip of -20° reflecting the orientation of the main structures.</li> <li>Sampling bias based on the knowledge of the structure is considered unlikely.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>Samples are collected on site by NTL personnel, either senior field technician or site geologist, transported to NTL's core and sample handling facility in Waihi. Here samples are prepared for dispatch to the assay laboratory. At night the facility is locked and during the drill programme security patrols used.</li> <li>Once samples are prepared they are transported the approx. 100m to the SGS assay facility for preparation and analysis.</li> <li>NTL has a system of order and dispatch numbering for sample tracking.</li> <li>Once delivered to SGS their protocols for security apply.</li> <li>Modern drill sampling in the resource areas prior to New Talisman was conducted by reputable mining companies such as Cyprus Mines Corporation, Australian Consolidated Minerals, (Waihi Gold) and Freeport MacRohan and assayed at ALS in Tauranga or SGS in Waihi. There is no evidence from the sample data recorded that there are any issues with data validity or security.</li> </ul>
Audits reviews	or • The results of any audits or reviews of sampling techniques and data.	<ul> <li>RSG Global reviewed the QAQC procedures for the Talisman project in 2005 and these same procedures. These procedures involve survey control, check sampling, use of standards and blanks and umpire sampling at independent laboratories. This is in addition to assay laboratories own internal QAQC.</li> </ul>



### 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	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>The mine area is wholly owned by New Talisman Gold Mines Limited under Minerals Mining Permit 51326 which was granted on 03 December 2009 for a term of 25 years and expires on 02 December 2034. The permit area is 299.2 ha and lies within the Kaimai-Mamaku Forest Park which is Crown land administered by the Department of Conservation.</li> <li>The Company operates under an access arrangement with the Minister of Conservation with an authority to enter and operate.</li> <li>In addition, the Company holds a resource consent issued by the District Council to carry out bulk sampling of up to 20,000 m<sup>3</sup> per annum.</li> <li>Tenure is secure at time of reporting.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Talisman permit area was held as a mining license by NZ Goldfields and predecessors from 1971 to 1992. During this time, they focused on small scale production from 8 level but also completed substantial surface and underground exploration in their own right. They had a number of joint venture partners during the term including, Homestake Mines, Cyprus Mines Corporation, ACM Minerals, and Waihi Gold. Cyprus Mines did the most extensive work driving around 300m further along 8 Level from historic workings and completing 51 drill holes. In 1991 NZ Goldfields went into voluntary liquidation and the mining license was bought by two former directors who formed a private company known as Southern Gold just prior to the mining license expiring.
Geology	• Deposit type, geological setting and style of mineralisation.	<ul> <li>The Karangahake mineral deposit is a low-sulphidation epithermal gold silver vein system with an overall strike length of around 4km of which approx.</li> <li>1.5km lies within the NTL mining permit. The deposit comprises several major veins, the most significant of which are the Maria Vein in which the Talisman Mine is developed and the Welcome-Crown Veins. Historic mining has exploited the deposit for around 1km along strike and up to 700m from surface outcrop to the deepest 16 level. Fluid inclusion studies suggest the</li> </ul>



Criteria	JORC Code explanation	Commentary
		current highest level of exposure has seen 300m of erosion from the paleosurface.
Drill hole nformation	<ul> <li>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:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> </ul> </li> </ul>	New Talisman Gold Mines Ltd has compiled an extensive database geological and geochemical data for the project from historic data an newly acquired data based on geological mapping, geochemical sampli and surveying that has been used in the development of the resour model.
	<ul> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> <li>If the exclusion of this information is justified on the basis that the</li> </ul>	There are a total of 2685 drill hole, recent channel and historic channel collar points in the database and 7117 assay data points. These inclue 109 drill hole collars and 4100 drill assays, 505 recent channel samp collars and 931 channel assays.
	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.	Compiled in the following tables are some of the key drill hole sampling information.
		<ul> <li>Due to the large amount of data it is impractical to tabulate it all in the set of tables. A full list of the database is appended to the technic report entitled "TALISMAN DEEPS PROJECT, MINERAL RESOUR POTENTIAL AND ESTIMATES, MINERALS MINING PERMIT 51326"</li> <li>Key representative drill hole information is tabulated in the following tables</li> </ul>



Criteria	JORC Code explanation	Comn	nentary								
		Hole No	East NZMG	North NZMG	RL (masl)	From (m) To (	n)	Length (m)	Gold g/t	Silver g/t	Gold Equiv Area
		BH07	2751319.2		172.97	0.00	1.55				14.42 Bonanza
		BH08	2751378.4	6414905.3	172.75	6.55	8.00	1.45		7.33	2.35 Bonanza
		BH09	2751341.5	6414939.4	172.97	8.40	11.80	3.40	2.57	19.98	2.86 Bonanza
		BH10	2751341.5	6414939.4	172.97	9.15	10.50	1.35	3.85	55.20	5.59 Bonanza
		BM37	2751299.5	6414703.1	177.30	11.40	13.20	1.80	682.44	2094.00	748.63 Dubbo
		BM38	2751299.7	6414702.1	177.30	10.00	12.00	2.00	12.16	9.10	12.45 Dubbo
		BM38				16.00	17.00	1.00	21.70	718.00	44.40 Dubbo
		BM39	2751299.4	6414704.0	177.30	14.55	15.85	1.30	36.08	467.00	50.84 Dubbo
		BM40A	2751300.8	6414702.1	176.10	16.00	17.00	1.00	3.30	4.10	3.43 Dubbo
		BM40A					23.30	1.05		21.40	5.26 Dubbo
		BM43	2751320.0	6414686.4	179.00	25.50	26.90	1.40		167.00	7.34 Dubbo
		TM002	2751317.6	6414687.9	177.26	46.30	49.10	2.80		91.71	43.76 Dubbo
		TM006	2751310.3	6414686.4	177.19	35.90	36.80	0.90		200.00	10.30 Dubbo
		TM007A	2751324.0		176.55	61.00	62.00	1.00		134.00	8.18 Dubbo
		TM009	2751296.5		177.23	7.00	8.00	1.00		3.90	2.20 Dubbo
		TM010	2751309.1	6414723.0	176.35	32.80	37.05	4.25		18.83	2.22 Dubbo
		TM010					34.55	0.75		26.00	4.75 Dubbo
		TM011	2751309.1	6414723.0	175.65	56.50	58.00	1.50		131.53	13.11 Dubbo
		BH11	2751358.1	6414911.2	172.87	23.65	25.20	1.55		4.80	2.07 Woodstoc
		BH16	2751284.0		165.16	0.00	6.50	6.50		117.90	11.57 Woodstoc
		BH19	2751211.5		196.22	31.50	35.00	3.50		29.39	3.35 Woodstoo
		BH2	2751246.8		164.35		27.15	1.20		12.50	2.71 Woodstoc
		BH20	2751237.2		196.22	12.60	13.40	0.80		5.00	4.01 Woodstoc
		BH26	2751279.8		28.60	26.80	28.60	1.80		20.56	4.91 Woodstoc
		BH4	2751260.2		164.53	11.90	12.85	0.95		10.22	3.40 Woodstoc
		KP001	2751288.7	6415256.6	165.28	6.10	14.70	8.60		8.31	1.65 Woodstoc
		KP002	2751283.7	6415278.7	165.16	4.50	5.10	0.60		74.00	5.54 Woodstoc
		KP002B	2751283.7	6415279.1	165.54	4.95	7.80	2.85		103.75	16.63 Woodstoc
		KP003	2751293.6		166.04	5.90	10.55	4.65		4.45	1.75 Woodstoc
		KP004	2751309.1	6415221.8	166.17	4.00	7.20	3.20	3.19	3.01	3.29 Woodstoc
Data aggregation	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high are des) and out off are des are usually. Material and should be stated</li> </ul>	we	ere length	n weighte	ed dowi	n hole.				-	th drillhole d
methods	grades) and cut-off grades are usually Material and should be stated.				-	-					nine signific
	• 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			ns. Occas It result in							re incorpora



Criteria	JORC Code explanation	Commentary
	<ul> <li>aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>Where high grade samples form part of an overall intersection of lower grade material these also reported separately so as not to misrepresent the overall width of intersection of significant grade.</li> <li>For instance; Hole TM002 assayed 2.22g/t Au_equiv over 4.25m and included 0.75m at 4.75g/t Au_equiv.</li> </ul>
		<ul> <li>It was decided to use gold equivalent grades and apply these to all samples taken in the modern era as well as the historic samples. This was due to the fact that the 2263 historic channel samples are all expressed in bullion values. We know that from production data gold silver ratios vary considerably and it was not possible to assign arbitrary silver grades to the bullion values with any degree of certainty.</li> <li>With respect to the modern samples that record both gold and silver values it was an easy matter to convert these to gold equivalents using the same gold and silver values that applied at the time of mining in the late 19th and early 20th centuries.</li> <li>The gold price remained constant during the period that recorded production data is available at £4-6s-0d, (£4.25)/oz or USD20.47/oz. Silver values ranged from USD0.49 to USD1.03. An average of USD 0.65 as chosen and a ratio of 0.031609 was factored to give gold equivalence based on the formula [Au g/t+(Ag g/t*0.031609).</li> </ul>
Relationship between mineralisatio n widths and intercept	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true</li> </ul>	<ul> <li>Only down hole lengths are reported. While generally holes transect the mineralized zones at right angles the downhole intervals can be slightly oblique.</li> <li>Differences in down hole intervals and true width are factored into the resource estimate based on the estimation methodology.</li> </ul>



Criteria	JORC Code explanation	Commentary
lengths	width not known').	
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations intercepts should be included for any significant discovery be reported These should include, but not be limited to a plan view of a hole collar locations and appropriate sectional views.</li> </ul>	the full Talisman Deeps supporting documentation.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is a practicable, representative reporting of both low and high grad and/or widths should be practiced to avoid misleading reporting Exploration Results.	tables above and in the accompanying Public Report. All results can be found
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be report including (but not limited to): geological observations; geophysis survey results; geochemical survey results; bulk samples – size of method of treatment; metallurgical test results; bulk dens groundwater, geotechnical and rock characteristics; poten deleterious or contaminating substances.</li> </ul>	<ul> <li>cal reviews, geophysics, surface sampling, geological mapping is presented in the accompanying Report.</li> <li>ty, Various metallurgical test work has been carried out that show the ore is</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for late extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, includ the main geological interpretations and future drilling areas, provid this information is not commercially sensitive.</li> </ul>	planned. This will involve underground drilling and sampling drives during the bulk sampling programme. This will be part of the feasibility programme that

## 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.	



Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	<ul> <li>Databases have been peer checked on a number of occasions over the duration of the permit.</li> <li>Data validation processes within Excel and in Datamine Studio EM were used during the estimation process.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Mr Stevens has been involved with the project at several stages since 1992 and is familiar with surface geology, underground geology, historic core and NTL drill core. He managed the underground sampling programmes and geological modelling including the historic geology and sample data and is familiar with all aspects of the mine.</li> <li>Mr Chowles has been the General Manager of operations since 2012 and is the author of the reserves statements and prefeasibility studies He is currently implementing the bulk sampling programme at the mine and is very familiar with all aspects of the project.</li> </ul>
<i>Geological</i> <i>interpretation</i>	<ul> <li>Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	underground mapping, geophysics and geochemistry to have confidence in the continuity of the geology for areas estimated.



Criteria	JORC Code explanation	Commentary
		<ul> <li>Maria Vein along its known strike length.</li> <li>These were then wireframed to and verified to form enclosed vein model suitable for estimation purposes.</li> <li>Historic data points had been previously captured by Ian Brown an associates in the late 1980s. These data were converted to NZMC coordinates and imported into Datamine Studio EM software. The positions were checked against digital stope plans and against historic lon sections of stope plans showing the raise sample positions.</li> <li>Position adjustments were made to ensure data points lay on the rais positions within the model. This included re-projecting channel collar positions onto the vein wireframe</li> <li>The Competent Person has reviewed alternative geological interpretation and these are not considered to have any adverse impact on the MRE</li> <li>The geology has formed the basis to create domains to constrain the MR process</li> </ul>
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.	-
Estimation and modelling techniques	<ul> <li>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.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate take. appropriate account of such data.</li> </ul>	<ul> <li>vein width blocks utilizing sub-cell splitting.</li> <li>Variography determined that that an anisotropic semi variogram mode with a range of 12m along strike and 36m on the dip of the vein wa appropriate.</li> <li>Variography determined that the search ellipsoid was best oriented at -6</li> </ul>



## Criteria JORC Code • The assur

#### JORC Code explanation

#### Commentary

- The assumptions made regarding recovery of by-products.
- Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).
- In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
- Any assumptions behind modelling of selective mining units.
- Any assumptions about correlation between variables.
- Description of how the geological interpretation was used to control the resource estimates.
- Discussion of basis for using or not using grade cutting or capping.
- 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 orientation of known high grade shoots.

- An overall wireframe model for the Maria Vein was produced but, based on geology, has been subdivided into 3 separate geological domains that correlate with the Dubbo Zone, the Talisman-Bonanza Zone and the Woodstock Zone. These domains were constructed and estimated separately.
- These wireframes were then filled with block model cells orientated orthogonally. And the following estimation parameters applied.

Block Model And Estimation Parameters	Model And Estimation Parameter Values
Parent Block Block Cell Size	10m x 10m x vein width
Sub Cell Splitting	Auto fill to maximum of 5m x 5m x vein width
Estimation Method	Ordinary kriging and Inverse Distance Squared
Density	2.53 t/m <sup>3</sup>
Search radii (measured)	12 to 15m on strike, 36m on dip
Search radii (indicated)	2 x measured
Search radii (inferred)	3 x measured



Criteria	JORC Code explanation	Commentary
		Search ellipsoid -60+/-20
		Minimum no of samples (measured) 3
		Search Volume Range
		Minimum no of samples (Inferred) 3
		Maximum no of samples (Indicated and Inferred) 20
		Search radii for geological potential Limits of model
		Top cut None
		<ul> <li>Variography yielded an anisotropic structure with a longer range down than along strike, this is supported by visual inspection of the gradistribution where variability is more apparent along strike.</li> <li>The estimation was initially carried out using Ordinary Kriging and the Inverse Distance Squared as a check estimate This was found to be wit 2% of each other in terms of total ounces of gold.</li> <li>Historic mine plans give a detailed view of areas stoped. Wireframe more of the stopes were produced and the gold content in them interrogat The estimated gold mined from these stopes was subtracted from overall resource gold equivalent content.</li> </ul>
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	<ul> <li>Estimates based on dry tonnages.</li> </ul>
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>Cut off grades were based on a preliminary assessment of the likely direct mining costs.</li> <li>A grade/tonnage curve was used to estimate the likely applicable cut grade to achieve the required ROM grade.</li> </ul>



#### JORC Code explanation

#### Commentary

- This was determined as a 3g/t Au-eq lower cut.
- No upper cut has been applied

Mining factors or assumptions

Criteria

 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.

- Preliminary stope design was carried out in Mine2-4D in the prefeasibility study in 2013 by constructing wireframe strings around the geological block model encompassing the economic portions of the Resource as known at that time. Waste material necessary to the extraction process was included in the wireframes; the resultant wireframe was evaluated against the applicable block model to determine volume and metal content.
- An option analysis identified sub-level stoping as the most appropriate mining method which offers the flexibility to adapt to both mechanised and traditional drill and blast techniques.
- Excavations required to access each zone, appropriate to the intended method, has been designed inclusive of drives, traveling ways and ventilation passes.
- This deposit is a narrow vein gold deposit. Maximum stope span has been limited to 35m. Strike and dip pillars have been designed to a hydraulic radius of 1.4 which is well above the existing HR of 0.9 observed in stable pillars immediately adjacent to the planned stopes.
- The Mineral Resource model is described in the first section of this table.
- Dilution necessary to removal of ore has not been determined for this new resource estimate and will be as part of the feasibility study.
- The resource modelling process includes some dilution as some blocks include wall rock material.
- No minimum mining widths have been applied as all veins modelled are equal to, or exceed 1.0m in width which is acceptable for removal by the envisaged mining method.
- Visual inspection of existing stopes indicates that stope widths of <0.6m are



Commentary

Criteria

attainable within this environment. Metallurgical The basis for assumptions or predictions regarding metallurgical Detailed metallurgical studies to date show that expected recoveries are ٠ amenability. It is always necessary as part of the process of determining likely to equal or exceed 95%. factors or reasonable prospects for eventual economic extraction to consider potential The deposit is typical of the low sulphidation deposits in the Waihi Gold assumptions metallurgical methods, but the assumptions regarding metallurgical District which are by and large amenable to direct cyanidation, gravity treatment processes and parameters made when reporting Mineral separation of free gold and/or flotation concentrate cyanidation. Resources may not always be rigorous. Where this is the case, this should be There is no evidence at this stage of any deleterious minerals that would reported with an explanation of the basis of the metallurgical assumptions impact on processing. made. Environmen-Assumptions made regarding possible waste and process residue disposal The deposit lies on DOC land under MP51326 granted to New Talisman options. It is always necessary as part of the process of determining Gold Mines Ltd. tal factors or reasonable prospects for eventual economic extraction to consider the • Consents for bulk sampling up to 20.000m<sup>3</sup>/annum have been granted for assumptions potential environmental impacts of the mining and processing operation. an initial 2 year period once bulk sampling commences. While at this stage the determination of potential environmental impacts, The local authorities have consented small and large scale mining projects particularly for a greenfields project, may not always be well advanced, the in the District over the last 25 years including NTL's Talisman project in status of early consideration of these potential environmental impacts 2013. should be reported. Where these aspects have not been considered this Provided the Company prepares sufficient environmental data to back up should be reported with an explanation of the environmental assumptions any development proposal it will be dealt with by the authorities on its made. merits. Bulk density • Whether assumed or determined. If assumed, the basis for the assumptions. The bulk dry density used in the estimate is 2.53g.cm<sup>-3</sup>. If determined, the method used, whether wet or dry, the frequency of the • This is based on 211 determinations of vein and wall rock samples. These measurements, the nature, size and representativeness of the samples. were sorted into 41 vein samples that had a dry density of 2.53g.cm<sup>3</sup>. • The bulk density for bulk material must have been measured by methods All densities were determined on a wet, dry and particle density basis by that adequately account for void spaces (vugs, porosity, etc), moisture and the University of Auckland Geology Department and took into account voids differences between rock and alteration zones within the deposit. and porosity. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.

Classification
 The basis for the classification of the Mineral Resources into varying
 The models were run using the search parameters described in the preceding sections.

JORC Code explanation



Criteria	J	ORC Code explanation	Commentary
	•	Whether appropriate account has been taken of all relevant factors (ie 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). Whether the result appropriately reflects the Competent Person's view of the deposit.	<ul> <li>Measured Resources were applied to the first pass search parameters, although it was decided to only apply the Measured and Indicated categories to areas where NTL's data only was used.</li> <li>While the data density for the historic data is sufficiently closely spaced to be considered measured, due to the uncertainty around QAQC it was decided to class this as Inferred.</li> <li>Indicated resources were determined a 2 times the search ellipsoid and Inferred at 3 times.</li> <li>The model was rerun using the extents of the wireframe to determine mineral inventory or geological potential beyond the measured, indicated and inferred resource extents.ie areas within the geological model that with further exploration could be upgraded to fall within an appropriate resource category.</li> <li>This geological potential constitutes an Exploration Target as defined in the JORC code 2012 and any resource potential may not be realized in part or in whole.</li> <li>In the view of the Competent person this fairly represents the data and is considered conservative.</li> </ul>
Audits o reviews	or ∙	The results of any audits or reviews of Mineral Resource estimates.	• The report and data has been peer reviewed by NTL and an independent geological consultancy.
Discussion o relative accuracy/ confidence	of •	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 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	<ul> <li>Primary assessment of the accuracy of this estimate has been quantified through applying the results of the estimate to the historically mined areas. The results indicate historic depletions at an average grade of 28.31 g/t Au which is consistent with results reported from the mines production results of 27.1g/t Au</li> <li>This estimate is a global estimate</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul><li>assumptions made and the procedures used.</li><li>These statements of relative accuracy and confidence of the estimate should</li></ul>	
	be compared with production data, where available.	