MILLENNIUM
MINERALS LIMITED

ASX Code: MOY

24 July 2017

## Corporate Details

**Ordinary Shares:**
780,917,069

**Market Capitalisation:**
~$140 million

**Cash and bullion at 30 June 2017:**
~$27.7 million

**Debt:**
NIL

**ASX Code: MOY**

## Board of Directors

**Greg Bittar**
**Non-Executive Chairman**

**Michael Chye**
**Non-Executive Director**

**Tim Kennedy**
**Non-Executive Director**

**Peter Lester**
**Non-Executive Director**

## Management

**Peter Cash**
**Chief Executive Officer**

**Dean Will**
**Chief Operating Officer**

**Richard Hill**
**Chief Financial Officer**

**Pierre Malherbe**
**Company Secretary**

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# Millennium hits 41m at 6g/t including 2m at 87g/t in latest drilling at Bartons

## Results continue to extend high-grade mineralisation along strike and at depth ahead of maiden underground resource

- **Outstanding new thick, high-grade results from ongoing drilling below the Bartons pit at the Nullagine Gold Project, WA:**
  - **41m @ 6.02g/t Au** from 129m incl. **2m @ 87.47g/t Au**
  - **3m @ 8.48g/t Au** from 213m incl. **2m @ 11.40g/t Au**
  - **3m @ 8.52g/t Au** from 270m incl. **2m @ 11.95g/t Au**
  - **7m @ 3.28g/t Au** from 138m incl. **1m @ 8.18g/t Au**
  - **11m @ 2.00g/t Au** from 158m incl. **1m @ 9.99g/t Au**
- **These latest results come on the back of significant results reported earlier this month including:**
  - **15m @ 8.26g/t** Au from 103m including **6m @ 19.53g/t Au** (BARD0221)
  - **18m @ 2.98g/t** Au from 114m including **1m @ 18.15g/t Au** (BARD0213)
  - **8m @ 5.48g/t** Au from 110m including **2m @ 14.90g/t Au** (BARD0214)
  - **34m @ 1.68g/t** Au from 118m including **2m @ 7.37g/t Au** (BARD0216)
  - **8m @ 3.14g/t** Au from 112m including **1m @ 13.50g/t Au** (BARD0219)
- **All holes in the current program have successfully intersected the main ore zone and continue to define extensions of the mineralization both along strike and down-plunge**
- **Pre-strip of the Bartons cut-back is progressing well and is on track to begin delivering higher grade ore (2.15g/t) to the processing plant during August 2017**
- **Results confirm potential to establish a significant underground mining operation at Bartons, one of many pits which remain open at depth**

**Millennium Minerals Limited** (**Millennium** or **Company** – ASX: MOY) is pleased to report outstanding new results from ongoing drilling below the existing Bartons pit at its Nullagine Gold Project in WA (**Appendix 1**), further strengthening the potential for underground operations and highlighting the exceptional exploration upside below its existing oxide resources.

The latest results, which include a series of impressive high-grade intercepts grading up to 167g/t Au, build on the deep drilling results reported on 3 July (see ASX Announcement "Millennium on track to develop its first underground mine following more strong results") and come ahead of a maiden Underground Mineral Resource for Bartons scheduled for the end of July.

All drill holes in the current program have sucessfully intersected the interpreted position of the Bartons main lode down-plunge as well as defining significant strike extents to the south-west (***Figure 1 and Figure 2***).

Encouragingly, hole BARD0285 intersected both the East and Main lode in close proximity, revealing a very wide zone of mineralisation (**41m @ 6.02 g/t Au**) with higher grade intercepts representing the core of the combined lodes (***Figure 1***).

The latest results include (***Appendix 2***):

- **41m @ 6.02g/t Au** from 129m incl. **2m @ 87.47g/t Au** with **1m @ 167g/t** (BARD0285)
- **3m @ 8.48g/t Au** from 213m including **2m @ 11.40g/t Au** (BARD0227)
- **3m @ 8.52g/t Au** from 270m including **2m @ 11.95g/t Au** (BARD0233)
- **7m @ 3.28g/t Au** from 138m including **1m @ 8.18g/t Au** (BARD0284)
- **11m @ 2.00g/t Au** from 158m including **1m @ 9.99g/t Au** (BARD0268)
- **12m @ 1.70g/t Au** from 268m (BARD0226)

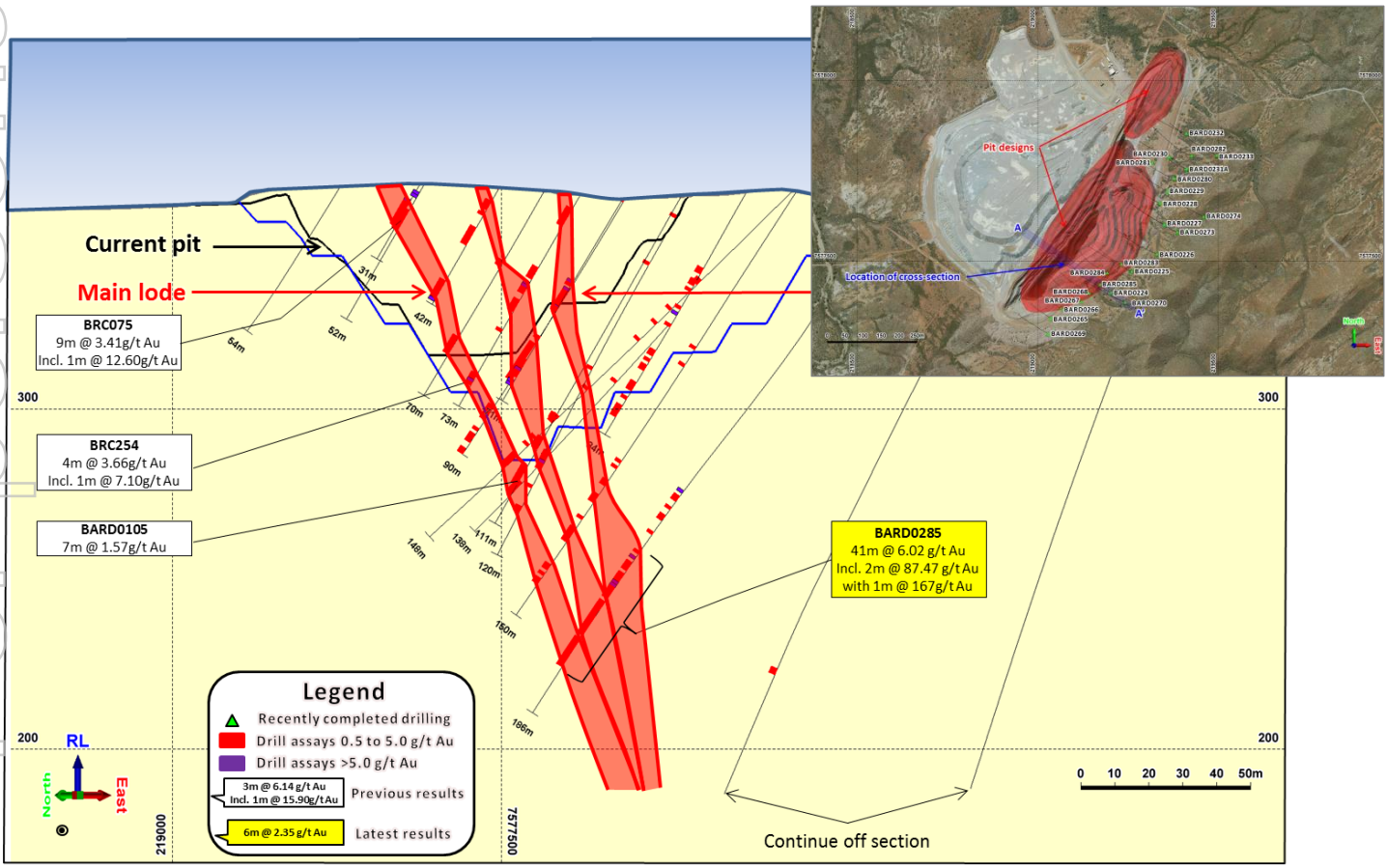


*Figure 1: Bartons cross-section showing latest cut-back design and high grade intercepts*

These latest intercepts follow the outstanding results returned from the first phase of the drill program which included (see ASX Release 3 July 2017):

- 15m @ 8.26g/t Au from 103m including 6m @ 19.53g/t Au (BARD0221)
- 18m @ 2.98g/t Au from 114m including 1m @ 18.15g/t Au (BARD0213)
- 8m @ 5.48g/t Au from 110m including 2m @ 14.90g/t Au (BARD0214)
- 34m @ 1.68g/t Au from 118m including 2m @ 7.37g/t Au (BARD0216)
- 8m @ 3.14g/t Au from 112m including 1m @ 13.50g/t Au (BARD0219)

In-fill drilling will now focus on further defining the full extent of the southern zone, delienating the main ore shoot and as well as testing for potential extensions to the north-east.

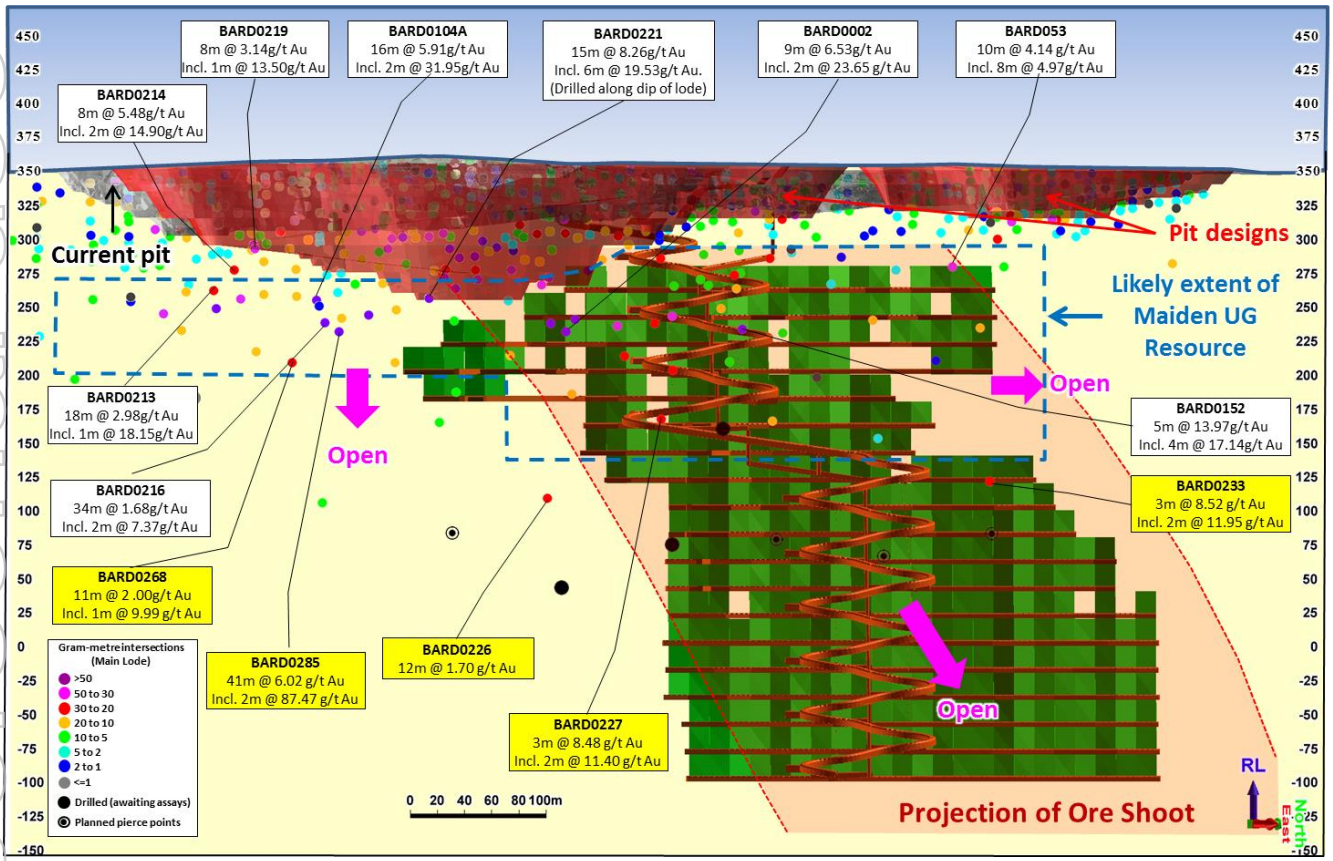


*Figure 2: Bartons drilling pierce points, cut-back, and conceptual underground mine design*

Millennium Chief Executive Peter Cash said the latest drilling provided more strong evidence of the potential for significant underground mining operations at Nullagine.

"Bartons is the first deposit we have now drilled extensively at depth, and the results have exceeded our expectations – demonstrating the presence of thick, high-grade mineralisation which is now projected to extend for a considerable distance down-plunge.

"We are on track to announce our first-ever underground Mineral Resource for Bartons at the end of this month and, with the cut-back on the existing oxide pit now underway, this deposit will become an important part of the Millennium story over the coming months.

"The impressive results from Bartons also clearly demonstrate the huge upside to the many oxide deposits within the field which simply require systematic drilling to unlock their true potential."

"Exploration is continuing on many fronts as part of the Nullagine Expansion Study and, if we are as successful elsewhere as we have been at Bartons, we can see a huge opportunity to grow our inventory, mine life and production," he said.

**ENDS**

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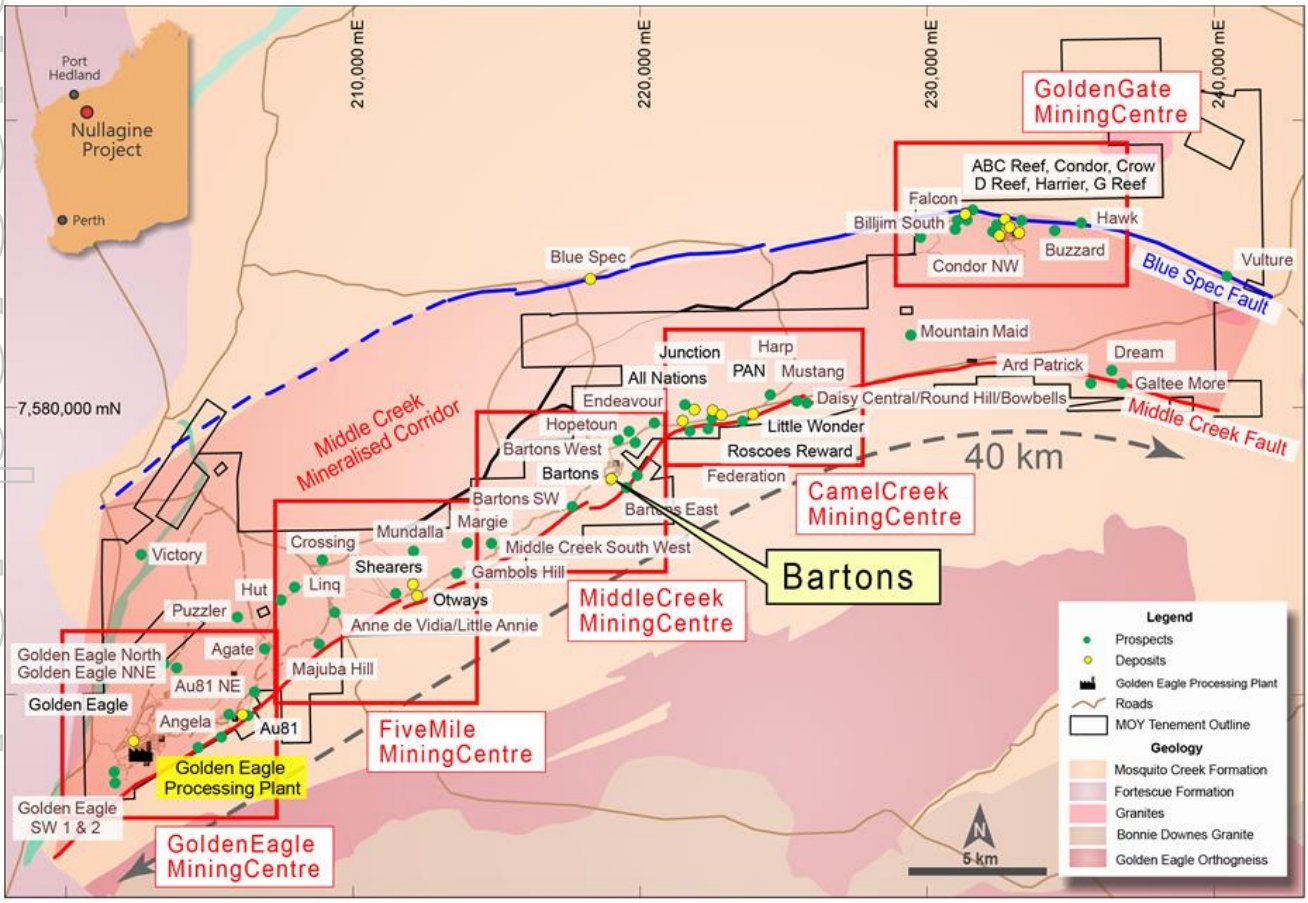
***Competent Persons Statements – Exploration Results***

*Mr Andrew Dunn (MAIG), a geologist employed full-time by Millennium Minerals Limited, compiled the technical aspects of this Report. Mr Dunn is a member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to this style of mineralization and type of deposit under consideration and to the activity that is being reported on 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 Dunn consents to the inclusion in the report of the matters in the form and context in which it appears*

*Appendix 1: Nullagine Gold Project Location Plan over regional geology*



*Appendix 2: Table of significant results for Bartons Underground Drilling*

| Hole_ID | GDA East | GDA North | RL | Azi | Dip | Depth (m) | | From (m) | To (m) | Width (m) | Grade (g/t Au) | Gram-metres |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BARD0224 | 219204 | 7577412 | 364 | 300 | -60 | 312 | | 158 | 160 | 2 | 0.95 | 1.9 |
| | | | | | | | | 264 | 268 | 4 | 0.79 | 3.2 |
| | | | | | | | | 273 | 280 | 7 | 0.88 | 6.2 |
| BARD0224 | 219204 | 7577412 | 364 | 300 | -60 | 312 | | AA | | | | AA |
| BARD0225 | 219260 | 7577471 | 365 | 300 | -61 | 280.4 | | 186 | 188 | 2 | 1.05 | 2.1 |
| | | | | | | | | 202.27 | 202.6 | 0.33 | 21.80 | 7.2 |
| | | | | | | | | 210 | 211 | 1 | 0.72 | 0.7 |
| | | | | | | | | 215 | 223.39 | 8.39 | 1.16 | 9.7 |
| | | | | | | | | 227 | 228 | 1 | 0.57 | 0.6 |
| BARD0226 | 219330 | 7577519 | 364 | 300 | -60 | 300 | | 200 | 204 | 4 | 1.22 | 4.9 |
| | | | | | | | | 221 | 224 | 3 | 1.23 | 3.7 |
| | | | | | | | | 227 | 239 | 12 | 0.68 | 8.2 |
| | | | | | | | | 250 | 251 | 1 | 0.69 | 0.7 |
| | | | | | | | | 256 | 264 | 8 | 1.05 | 8.4 |
| | | | | | | | | 268 | 280 | 12 | 1.70 | 20.4 |
| BARD0227 | 219350 | 7577601 | 363 | 300 | -61 | 276 | | 181 | 182 | 1 | 0.78 | 0.8 |
| | | | | | | | | 213 | 216 | 3 | 8.48 | 25.4 |
| | | | | | | | Incl. | 213 | 215 | 2 | 11.40 | 22.8 |
| | | | | | | | | 222 | 228 | 6 | 0.92 | 5.5 |
| | | | | | | | | 245 | 246 | 1 | 0.62 | 0.6 |
| BARD0228 | 219339 | 7577659 | 362 | 300 | -70 | 260.4 | | AA | | | | AA |
| BARD0229 | 219359 | 7577693 | 361 | 300 | -70 | 264 | | 61 | 64 | 3 | 1.86 | 5.6 |
| | | | | | | | | 137 | 138 | 1 | 1.92 | 1.9 |
| | | | | | | | | 193 | 200 | 7 | 1.56 | 10.9 |
| BARD0230 | 219364 | 7577788 | 360 | 300 | -60 | 180 | | 63 | 64 | 1 | 0.56 | 0.6 |
| | | | | | | | | 68 | 70 | 2 | 1.28 | 2.6 |
| | | | | | | | | 125 | 131 | 6 | 2.55 | 15.3 |
| BARD0231A | 219413 | 7577754 | 361 | 295 | -71 | 300 | | 206 | 208 | 2 | 1.63 | 3.3 |
| | | | | | | | | 251 | 252 | 1 | 0.88 | 0.9 |
| BARD0232 | 219412 | 7577853 | 361 | 301 | -61 | 180 | | 79 | 83 | 4 | 0.79 | 3.2 |
| | | | | | | | | 132 | 137 | 5 | 3.48 | 17.4 |
| | | | | | | | Incl. | 135 | 136 | 1 | 5.18 | 5.2 |
| BARD0233 | 219496 | 7577793 | 362 | 300 | -62 | 300 | | 163 | 166 | 3 | 0.39 | 1.2 |
| | | | | | | | | 182 | 183 | 1 | 1.02 | 1.0 |
| | | | | | | | | 234 | 235 | 1 | 0.52 | 0.5 |
| | | | | | | | | 270 | 273 | 3 | 8.52 | 25.6 |
| | | | | | | | Incl. | 270 | 272 | 2 | 11.95 | 23.9 |
| BARD0265 | 219036 | 7577341 | 362 | 304 | -71 | 200 | | 99 | 102 | 3 | 1.12 | 3.4 |
| | | | | | | | | 118 | 119 | 1 | 0.80 | 0.8 |
| | | | | | | | | 132 | 137 | 5 | 0.80 | 4.0 |
| | | | | | | | | 144 | 145 | 1 | 0.50 | 0.5 |

| Hole_ID | GDA East | GDA North | RL | Azi | Dip | Depth (m) | | From (m) | To (m) | Width (m) | Grade (g/t Au) | Gram-metres |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 177 | 178 | 1 | 0.55 | 0.6 |
| | | | | | | | | 181 | 185 | 4 | 1.02 | 4.1 |
| | | | | | | | | 192 | 194 | 2 | 1.00 | 2.0 |
| BARD0266 | 219065 | 7577368 | 362 | 304 | -72 | 204 | | 43 | 46 | 3 | 1.08 | 3.2 |
| | | | | | | | | 56 | 57 | 1 | 0.97 | 1.0 |
| | | | | | | | | 105 | 106 | 1 | 0.50 | 0.5 |
| | | | | | | | | 185 | 195 | 10 | 0.42 | 4.2 |
| BARD0267 | 219121 | 7577388 | 363 | 297 | -63 | 200 | | 107 | 108 | 1 | 1.62 | 1.6 |
| | | | | | | | | 125 | 126 | 1 | 0.53 | 0.5 |
| | | | | | | | | 138 | 139 | 1 | 1.11 | 1.1 |
| | | | | | | | | 144 | 147 | 3 | 0.53 | 1.6 |
| | | | | | | | | 150 | 156 | 6 | 0.84 | 5.0 |
| | | | | | | | | 159 | 169 | 10 | 1.92 | 19.2 |
| | | | | | | | Incl. | 161 | 162 | 1 | 6.01 | 6.0 |
| BARD0268 | 219143 | 7577411 | 363 | 303 | -63 | 210 | | 127 | 128 | 1 | 0.66 | 0.7 |
| | | | | | | | | 140 | 141 | 1 | 0.95 | 0.9 |
| | | | | | | | | 158 | 169 | 11 | 2.00 | 22.0 |
| | | | | | | | Incl. | 160 | 161 | 1 | 9.99 | 10.0 |
| | | | | | | | Incl. | 166 | 167 | 1 | 5.15 | 5.2 |
| | | | | | | | | 172 | 185 | 13 | 1.43 | 18.6 |
| | | | | | | | | 191 | 192 | 1 | 0.71 | 0.7 |
| BARD0269 | 219029 | 7577298 | 361 | 303 | -63 | 200 | | 137 | 141 | 4 | 0.42 | 1.7 |
| | | | | | | | | 147 | 148 | 1 | 0.74 | 0.7 |
| | | | | | | | | 165 | 166 | 1 | 0.54 | 0.5 |
| | | | | | | | | 174 | 180 | 6 | 1.09 | 6.5 |
| BARD0270 | 219242 | 7577385 | 364 | 294 | -70 | 366 | | NSA | | | | NSA |
| BARD0272A | 219372 | 7577491 | 366 | 310 | -67 | 408 | | AA | | | | AA |
| BARD0273 | 219386 | 7577580 | 364 | 305 | -60 | 360 | | AA | | | | AA |
| BARD0274 | 219459 | 7577623 | 368 | 305 | -60 | 240 | | AA | | | | AA |
| BARD0280 | 219378 | 7577728 | 361 | 305 | -60 | 220 | | 70 | 71 | 1 | 0.53 | 0.5 |
| | | | | | | | | 81 | 82 | 1 | 0.80 | 0.8 |
| | | | | | | | | 172 | 173 | 1 | 0.89 | 0.9 |
| BARD0281 | 219317 | 7577772 | 359 | 305 | -60 | 126 | | 46 | 47 | 1 | 9.04 | 9.0 |
| | | | | | | | Incl. | 46 | 47 | 1 | 9.04 | 9.0 |
| | | | | | | | | 61 | 62 | 1 | 7.05 | 7.1 |
| | | | | | | | Incl. | 61 | 62 | 1 | 7.05 | 7.1 |
| | | | | | | | | 75 | 76 | 1 | 0.77 | 0.8 |
| | | | | | | | | 82 | 83 | 1 | 0.87 | 0.9 |
| | | | | | | | | 89 | 91 | 2 | 0.78 | 1.6 |
| | | | | | | | | 97 | 99 | 2 | 1.16 | 2.3 |
| BARD0282 | 219427 | 7577791 | 361 | 305 | -60 | 240 | | 169 | 170 | 1 | 1.14 | 1.1 |
| | | | | | | | | 132 | 133 | 1 | 0.67 | 0.7 |
| | | | | | | | | 140 | 144 | 4 | 0.50 | 2.0 |
| | | | | | | | | 148 | 151 | 3 | 6.28 | 18.8 |
| | | | | | | | Incl. | 149 | 150 | 1 | 17.25 | 17.3 |

| Hole_ID | GDA East | GDA North | RL | Azi | Dip | Depth (m) | | From (m) | To (m) | Width (m) | Grade (g/t Au) | Gram-metres |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 154 | 162 | 8 | 0.94 | 7.5 |
| | | | | | | | | 176 | 177 | 1 | 0.50 | 0.5 |
| | | | | | | | | 187 | 194 | 7 | 1.15 | 8.1 |
| BARD0284 | 219193 | 7577467 | 365 | 305 | -60 | 198 | | 91 | 98 | 7 | 0.55 | 3.9 |
| | | | | | | | | 116 | 117 | 1 | 0.54 | 0.5 |
| | | | | | | | | 124 | 135 | 11 | 1.22 | 13.4 |
| | | | | | | | | 138 | 145 | 7 | 3.28 | 23.0 |
| | | | | | | | Incl. | 140 | 141 | 1 | 8.18 | 8.2 |
| | | | | | | | | 159 | 175 | 16 | 1.17 | 18.7 |
| BARD0285 | 219173 | 7577434 | 364 | 305 | -60 | 186 | | 107 | 118 | 11 | 0.81 | 8.9 |
| | | | | | | | Incl. | 107 | 108 | 1 | 5.26 | 5.3 |
| | | | | | | | | 122 | 123 | 1 | 0.55 | 0.6 |
| | | | | | | | | 129 | 170 | 41 | 6.02 | 246.8 |
| | | | | | | | Incl. | 131 | 132 | 1 | 15.20 | 15.2 |
| | | | | | | | Incl. | 140 | 142 | 2 | 87.47 | 174.9 |
| | | | | | | | with | 141 | 142 | 1 | 167.00 | 167.0 |

NSA = No Significant assays. Intersections are calculated with 0.5g/t Au lower cut-off and a maximum of 2 consecutive metres of internal dilution. Higher grade intersections are calculated with 5g/t Au lower cut-off and a maximum of 2 consecutive metres of internal dilution.

***JORC 2012 Edition - Table 1***

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.*<br>• *Include reference to measures taken to ensure sample representatively and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *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.* | • *No surface samples were used in any estimation of Mineral Resources or Ore Reserves.*<br>• *Sampling at Bartons was predominately carried out using the Reverse Circulation (RC) drilling.*<br>• *Standard samples were inserted to the sampling stream at a ratio of 1:50.*<br>• *RC drilling was carried out with a 5.5 inch face-sampling bit, 1m samples collected through a cyclone and cone splitter to form a 2-3kg sub-sample. All sub-samples were fully pulverised at the laboratory to >85% passing-75um, to produce a 50g charge for Fire Assay with AAS finish.*<br>• *Diamond HQ3 triple tube drilling has been carried out for the lower portions BARD0225, BARD0228, BARD0273 and BARD0274. Both BARD0225 and BARD0228 have been cut with a core saw with half-core submitted for analysis. These samples were crushed and pulverisation to produce a 50 gram charge for fire assay. BARD0273 and BARD0274 are awaiting sampling.* |
| *Drilling techniques* | • *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | • *Reverse circulation (RC) drilling was carried out with a 5.5 inch face-sampling bit.*<br>• *Diamond HQ3 triple tube drilling is currently been used for the tails of BARD0225, BARD0228, BARD0273 and BARD0274.* |
| *Drill sample recovery* | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | • *A record of the RC sample recovery and moisture content was recorded by on rig geologists. Overall sample weight and quality were good to very good (2 to 3.5 kg).*<br>• *ALS records sample weights on receipt of samples. This was used to help track sample recovery.*<br>• *There is no observed correlation between sample recovery and gold grade.*<br>• *Core recoveries from diamond drilling are generally >98%.* |
| *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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | • *All of the drilling has been captured in chip trays.*<br>• *Geological logging is both qualitative and quantitative in nature. Logging is carried out for lithology, colour, grain size, regolith, alteration, weathering, veining and mineralisation. Sulphide and vein content were logged as a percentage of the interval.*<br>• *RC chip trays are retained at site.* |

| Criteria | JORC Code Explanation | Commentary |
|---|---|---|
| | | • *Half core is being retained on site for the diamond tails.*<br>• *All of the intersections were logged.*<br>• *Structural logging and orientations will be collected from the oriented core.* |
| *Sub-sampling techniques and sample preparation* | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • *The recent 1 metre RC samples were split using a rig mounted cone splitter. The vast majority of the samples were dry with moist and wet samples were recorded.*<br>• *The sample sizes are industry-standard and considered to be appropriate to correctly represent mineralisation at the deposits based on: the style of mineralisation, the thickness and consistency of the intersections, the sampling methodology and assay ranges for gold.*<br>• *Field duplicates were taken from the second aperture of the cone splitter at a rate of 1 in 50 with additional field duplicates taken in the expected mineralised zones.*<br>• *For core samples, the core was split via core saw. ½ core samples assayed; ½core was retained.* |
| *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.*<br>• *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.*<br>• *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.* | • *The industry best practice standard assay method of 50g charge Fire Assay with AAS finish was used to determine total Au content.*<br>• *Commercially prepared, predominantly matrix-matched low, medium & high value certified reference QAQC standards were inserted at a rate of 1:50 into the sample stream.*<br>• *The QAQC results from this protocol were considered to be acceptable.*<br>• *No geophysical tools were used to determine any element concentrations used for these results.*<br>• *Sample preparation checks for fineness were carried out by the laboratory as part of their internal procedures to ensure the grind size of 85% passing 75 micron was being attained. Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in house procedures.*<br>• *Results highlight that sample assay values are accurate.* |
| *Verification of sampling and assaying* | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data* | • *Intersections were checked by alternative company personnel to check they were reported correctly.*<br>• *No twin holes were drilled in the programme. Previous significant intersections were verified with close spaced drilling.* |

| Criteria | JORC Code Explanation | Commentary |
|---|---|---|
| | *verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • *Sampling is directly uploaded to the LogChief software and it is synchronised to the SQL database.*<br>• *Assay results were not 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.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • *Post completion of the drilling the RC collars were surveyed with a Real Time Kinematic (RTK) DGPS device to a ±10mm positional precision. All collars are then validated against planned positions as a cross check. Surveyed collar co-ordinates are uploaded into the Company SQL database.*<br>• *Grid datum is GDA94 51K (East Pilbara).*<br>• *Downhole surveys were completed on all holes at 30m maximum downhole intervals with a preference of an initial survey at ~12m downhole. Surveys were taken using a single shot camera or via electronic multi-shot survey tool (Reflex, Camprodual or Camteq), lithologies have negligible magnetic susceptibility (greywacke). Selected re-surveying was carried out to check the quality of measurements.*<br>• *Aerial Photogrammetry± LIDAR was produced by Fugro Surveys (±0.2m vertical & ±0.1m horizontal). Survey control points were marked out by licensed surveyor for the Fugro Survey. An error was noted in early RC drilling collar RL co-ordinates (ellipsoid not geoid model); these holes were adjusted to the Fugro DTM surface RL and recorded as DTM RL in the SQL database; the original survey RL was retained. Otherwise there was good agreement of surveyed collars and Fugro DTM.* |
| *Data spacing and distribution* | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | • *RC drilling was conducted at nominal 80 to 40m x 40m spacing.*<br>• *Thus far the drill spacing has been sufficient to establish geological and grade continuity.*<br>• *None of the reported sample intervals were composited. In previous resource estimates some >1m RC assay composites were used. A small number of core composites were retained with a length of less than 1m (minimum 0.3m).* |
| *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.*<br>• *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.* | • *Geological mapping and structural measurements have been taken from the Bartons and largely confirms the interpreted orientation of mineralisation as defined by the drilling. Based upon the above information the drilling was largely perpendicular to the mineralisation.*<br>• *No significant orientation bias has been identified in the data at this point.* |
| *Sample security* | • *The measures taken to ensure sample security.* | • *Samples were given an ID, cross checked by field personnel that they corresponded to the assigned interval. Samples were collected on completion of each hole and delivered to the onsite assay laboratory for dispatch to Perth.* |

| Criteria | JORC Code Explanation | Commentary |
|---|---|---|
| | | *Monitoring of sample dispatch is undertaken for samples sent from site and to confirm that samples have arrived in their entirety and intact at their destination.*<br>• *Sample security is managed with dispatch dates noted for each samples by the technician, this is checked and confirmed at the Perth laboratory on receipt of samples and discrepancies are corrected via telephone link up with the on-site and Perth laboratories.* |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data reviews.* | • *Internal lab audits conducted by Millennium have shown no material issues.* |

***Section 2 Reporting of Exploration Results***

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

| Criteria | JORC Code Explanation | Commentary |
|---|---|---|
| *Mineral tenement and land tenure status* | • *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The 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 Bartons deposit lie within fully granted Mining Leases within the Pilbara Gold Field (46), as detailed below. All the tenements are in good standing with no known impediments.*<br>• *Bartons* - M46/3, M46/44$^{+}$ & M46/164 (100% MML);*<br><br>**These tenements are located within the Njamal title claim (WC99/8).* |
| *Exploration done by other parties* | • *Acknowledgment and appraisal of exploration by other parties.* | • *Exploration by other parties has been reviewed and taken into account when exploring. Previous RAB & RC drilling. Millennium has re-drilled in areas that other parties had drilled to gain a greater confidence in those results.* |
| *Geology* | • *Deposit type, geological setting and style of mineralisation.* | • *The Nullagine Project deposits are structurally controlled, sediment hosted, lode Au style of deposit. They are all situated in the Mosquito Creek Basin that consists predominantly of Archean aged, turbidite sequences of sandstones, siltstones and shales.* |

| Criteria | JORC Code Explanation | Commentary |
|---|---|---|
| *Drill hole Information* | • *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*<br>○ *easting and northing of the drill hole collar*<br>○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>○ *dip and azimuth of the hole*<br>○ *down hole length and interception depth*<br>○ *hole length.*<br>• *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.* | • *Provided in a table that relates exploration results to the drill hole information including: hole co-ordinates, RL, dip, azimuth, end of hole depth, downhole length and interception depths.*<br>• *All of the current drilling with results returned has been reported.* |
| *Data aggregation methods* | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • *All of the exploration prospects have their significant intersections reported with a lower cut-off of 0.5g/t Au and maximum of two consecutive metres of internal dilution. Higher grade intersections use a lower cut-off of 5g/t Au and maximum of two consecutive metres internal dilution.*<br>• *All samples reported were one metre in length. Thus no aggregation methods were required to derive intersections.*<br>• *No metal equivalents were used.* |
| *Relationship between mineralisation widths and intercept lengths* | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *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').* | • *Only selected historic exploration data related to the included targets and prospects are presented.*<br>• *Most of the drilling is perpendicular to the mineralisation; however, in early exploration the dip direction is sometimes uncertain and thus holes some holes can be drilled sub-parallel to the mineralisation producing longer and higher grade intersection than the true intercept. Quoted widths are down-hole widths. True-widths are likely to be approximately 70-90% of down-hole widths.*<br>• *The drill hole orientations relative to the ore zones have ensured accurate interpretations and 3D modelling.* |
| *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.* | • *Significant exploration results are tabulated in the release with drill hole plans to show them in context.*<br>• *Representative maps have been included in the report along with documentation.* |

| Criteria | JORC Code Explanation | Commentary |
|---|---|---|
| *Balanced reporting* | • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | • *All of the current drill results have been reported for the project.* |
| *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.* | • *The outcrops of quartz veins have been previously mapped at Bartons. The mineralisation at Bartons is primarily associated with a combination of quartz veining, moderate foliation, strong sericite alteration and strong limonite staining or pyrite content.* |
| *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).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • *These and the remaining results will be incorporated into a maiden Underground MRE. Subsequently, a high level underground stope optimisation will be carried to determine the likely economics. Further RC drilling and diamond tails will be carried to extend and close off open mineralisation, if warranted.* |