

# Australia's newest 100,000ozpa gold producer

- ▶ Rising grades, rising production
- ▶ +100,000ozpa run-rate achieved
- ► New discoveries driving growth

Peter Cash, CEO

October 2018 Investor Presentation



### Disclaimer & Competent Person's Statement



#### Disclaimer

This presentation contains only a brief overview of Millennium Minerals Limited ("Millennium"). The contents of this presentation, including matters relating to the geology of Millennium's projects, may rely on various assumptions and subjective interpretations which it is not possible to detail in this presentation and which have not been subject to any independent verification.

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Financial values in this presentation have been converted from Australian dollars to US dollars at an exchange rate of 71c

#### **Competent Person's Statement**

The information in this presentation relating to exploration results from the Nullagine Project has been extracted from various Company announcements and are available to view at <a href="https://www.millenniumminerals.com.au">www.millenniumminerals.com.au</a>.

The information in this presentation relating to Mineral Resources or Ore Reserves is extracted from the announcements titled:

- Mineral Resources and Ore Reserve Statement dated 31 July 2018:
- 2 Growth strategy gains momentum with maiden underground Resource dated 7 August 2017;
- Outstanding high-grade intercepts strengthen prospectivity of Bartons open pit and underground dated 2 November 2017;
- New high-grade oxide discovery at Yates as Bartons underground delivers more exceptional intercepts dated 21 November 2017;
- 5. Further high-grade results highlight outstanding growth potential at Nullagine dated 23 November 2017;
- 6. New high-grade intercepts from emerging Redbeard discovery at Nullagine dated 12 December 2017;
- 7. Bartons underground resource upgrade and maiden reserve paves way for development of first underground mine at Nullagine dated 8 January 2018;
- Millennium continues outstanding run of exploration success with impressive drilling results dated 22 January 2018;
- 9. Millennium poised to significantly extend mine life at Nullagine as newly-identified processing option cuts costs dated 5 February 2018;
- 10. Twenty Mile Sandy Exploration update 11 May 2018;
- Golden Gate Exploration Update 29 May 2018;
- Redbeard Reserve announced and Golden Gate high grade drill results 3 July 2018; and
- Millennium delivers 38% interim increase in Ore Reserves to 304,700oz dated 31 July 2018,
  - and are available to view at www.millenniumminerals.com.au

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the results and estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings as presented have not been materially modified from the original market announcement.

#### **Investment** Overview

Operating the Nullagine Gold Project in the world-class Pilbara region of Western Australia

On track to meet production guidance for CY18 of 75-80koz at AISC A\$1280-1350/oz

Recently achieved long-held target of ~100,000ozpa annualized production run-rate

Growing Reserve inventory – current mine life of 3 years; aim to increase to +5 years

Outstanding run of recent exploration success delivering breakthrough discoveries



### Australia's New 100,000ozpa Gold Producer



#### ✓ New mining strategy delivering +100kozpa run-rate

- ► Larger scale, longer life deposits
- ▶ Increased head grade, mining rate, mill throughput
- Production now at +100kozpa, up from historical rate of 75-80kozpa

#### ✓ Processing plant – fully-funded expansion pathway

- Low CAPEX/OPEX addition to current CIL plant to process significant sulphide Resources
- Key plant and equipment ordered commissioning Q1 2019

#### ✓ Moving underground

- First UG mine at Bartons delivering high-grade ore
- UG assessment of Golden Gate now; multiple other targets to follow

#### ✓ Exploration delivering new breakthrough discoveries

- New geological approach unlocking significant new high-grade discoveries at Golden Eagle and beyond
- ▶ Major ongoing exploration commitment initial target +5-year mine life







#### **Corporate** Overview



Shares on Issue

Market Cap (A\$0.23/share)

792.0M

~A\$182M

Cash & Bullion (30 Sep18)

Debt

A\$17.8M

A\$10M

ASX Index

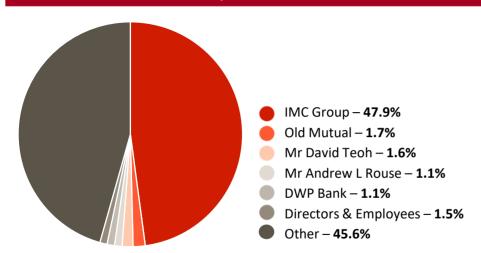
**ASX Code** 

All Ords

MOY



#### Key Shareholders



#### **Board and Management**

Greg Bittar	Non-Executive Chairman					
Peter Lester	Non-Executive Director					
Tim Kennedy	Non-Executive Director					
Bruno Lorenzon	Non-Executive Director					
Peter Cash	Chief Executive Officer					
Dean Will	Chief Operating Officer					
Ray Parry	Chief Financial Officer					
Michael Poepjes	BD and Technical Services					
Jason Robertson	General Manager Operations					

#### Key Consultants and Contractors

Ausenco

**Western Plant Hire** 

**GBF Underground** 

**Redline Drill & Blast** 

**Rivet Mining Services** 

**KPS Power Generation** 

Strike Drilling

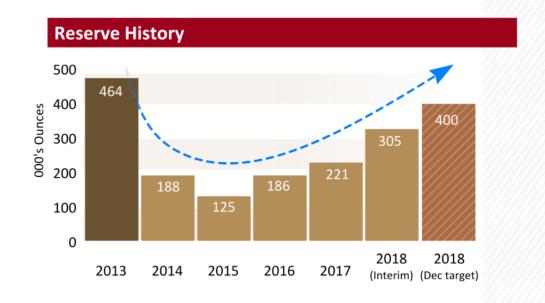
**Castle Drilling** 

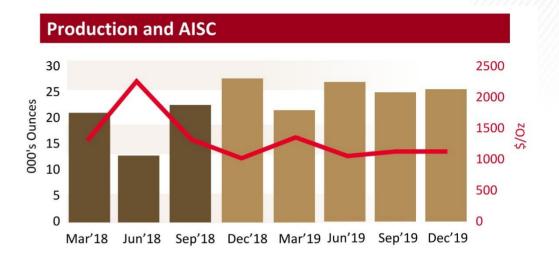


### **Nullagine Operations** – Strong Production and Cash-flows



- ► Significant operational improvements and upgrades completed:
  - Move to more sustainable, lower cost ore sources
  - Mill refurbishment and upgrades completed
  - Improved mine scheduling and stockpile protection
- ▶ 100kozpa run-rate achieved September 2018
- ▶ 2018 production guidance of 75-80koz at AISC A\$1280-1350/oz
- ► Major increase in production in second half underpinned by new high-grade ore sources:
  - ► September Quarter production: 22,414oz, AISC \$1,324/oz ✓
  - ▶ December Quarter guidance: ~25,000oz, AISC ~\$1,150/oz
- ▶ July 2018 Interim Ore Reserve update (305koz) delivers mine life visibility of three years; targeting 400koz by December



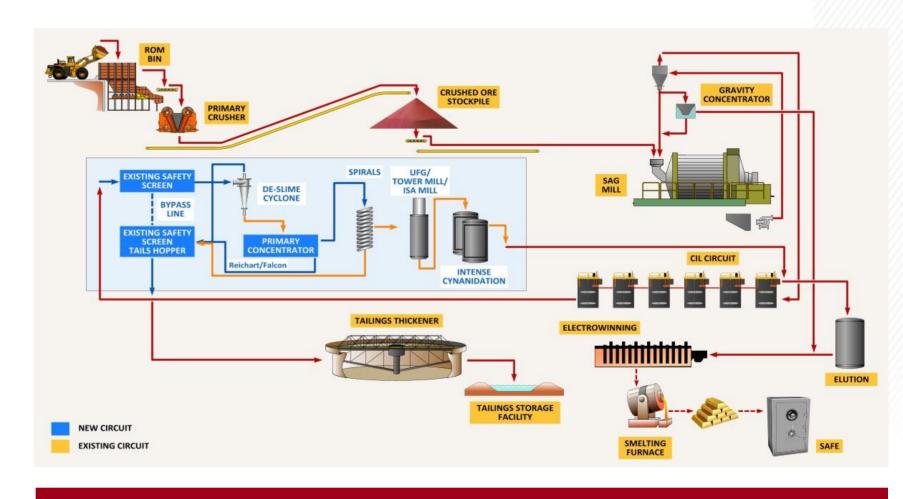




## Sulphide Resources – New Processing Breakthrough



- Large Sulphide Resource inventory
- Processing requires addition of a small modular concentrating circuit to the tail-end of the existing CIL plant
- Well-understood process
- ► Targeting commissioning of plant expansion during Q1 2019
- Re-optimisation of entire
   Mineral Resource inventory
   underway

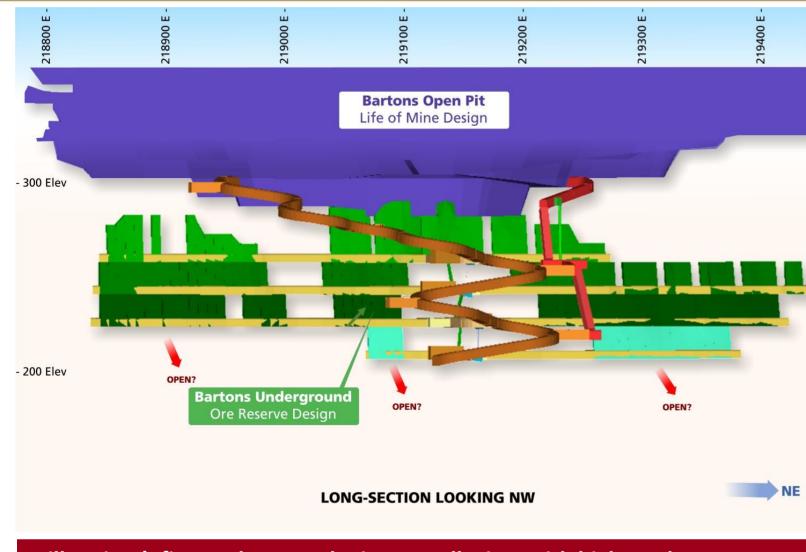


Sulphide Expansion paves the way for Millennium to maintain +100kozpa production rate for at least five years with lower AISC



### **Bartons** – The First Underground Mine at Nullagine





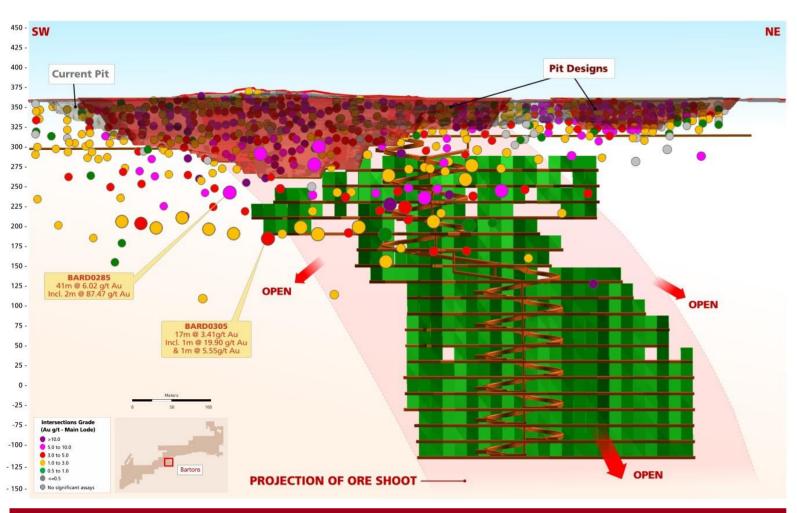
Millennium's first underground mine at Nullagine, with high-grade development ore now being processed

- ► 1,250m of UG development completed to date
- Outstanding ground conditions bodes well for future UG developments
- High-grade development ore now being processed
- ► High-grade stoping ore to commence Q1 2019



#### Bartons – The First Underground Mine at Nullagine





Deeper mineralisation at Bartons is free-milling and can be treated through the existing CIL plant with recoveries of up to 90%

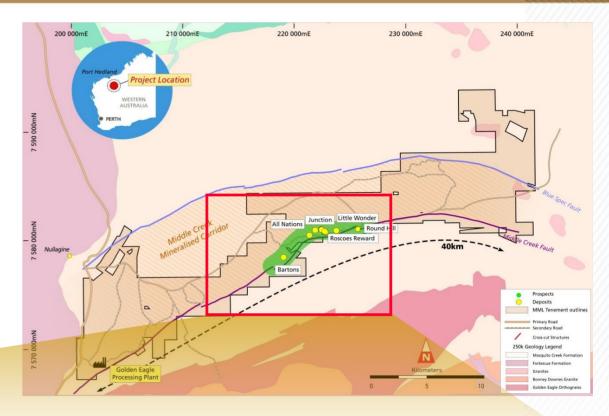
- ▶ Resource of 630,000t @ 4.9g/t Au for 97,900oz
- Reserve of 270,000t @ 4.5g/t Au for 39,000oz
- ▶ Mineralisation open at depth and along strike
- All deeper holes have successfully intersected the main ore zone and continue to define extensions
- Deep intercepts below current Resource area include:
  - ▶ 41m @ 6.02g/t Au from 129m, incl. 2m @ 87.47g/t Au (BARD0285)
- Drilling Q4 targeting depth extensions from UG drill platforms – drilling contract awarded
- Updated Resource / Reserve estimate for Bartons UG to be included in December 2018 update

### Underground Potential at Nullagine - Multiple Targets Identified



# Potential for substantial increases in Mineral Resources beneath all known deposits:

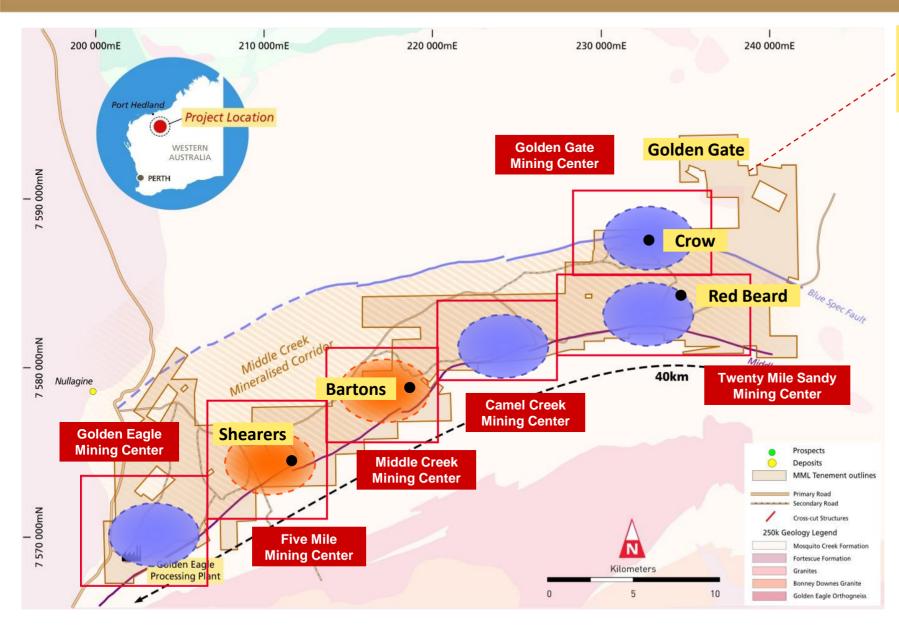
- Minimal deeper drilling only 4 out of 30 deposits tested at depth
- Extensive drilling program to test UG potential
- Work underway on UG Ore Reserve for Golden Gate Mining Centre to underpin second proposed UG mine at Nullagine
- Studies commenced on several additional deposits





### Additional Underground Targets – Pipeline of Organic Growth





#### **Golden Gate Mining Centre**

Work underway on UG Ore Reserve for Golden Gate Mining Centre to underpin second proposed UG mine at Nullagine

Of the 30 deep targets identified at Nullagine, only four have been tested to date – all delivering highly encouraging results



Free milling mineralisation at depth



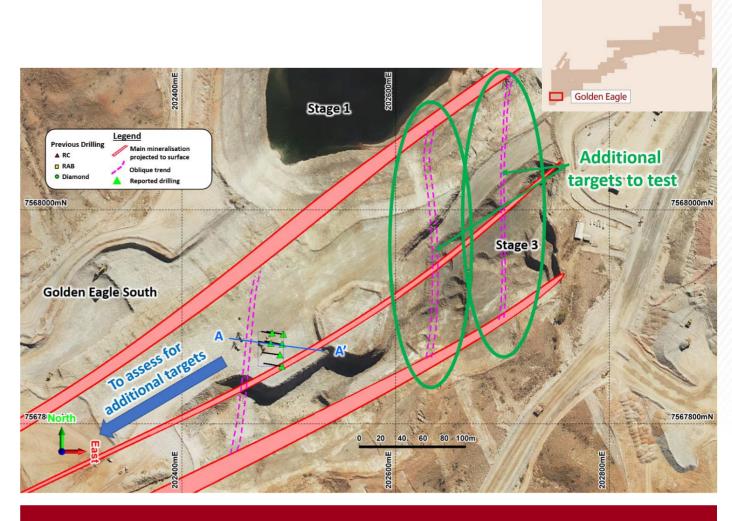
Sulphide mineralisation at depth



### Exploration – Golden Eagle... set to soar?



- ► Largest gold deposit defined at Nullagine to date 334koz Resource
- ► New north-trending mineralised structure identified within existing pit design. Assays include:
  - ▶ 4m @ 15.34g/t from 23m, incl. 1m @ 54.90g/t
  - ▶ 8m @ 18.91g/t from 20m, incl. 7m @ 21.45g/t
  - ▶ 3m @ 18.18g/t from 12m, incl. 2m @ 26.60g/t
- ► Revolutionises geological interpretation multiple high-grade cross-cutting structures may be present
- Potential to significantly expand near-term mining inventory



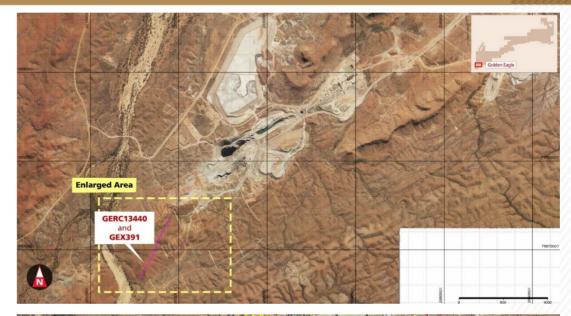
Intensive drilling to continue at Golden Eagle and Golden Eagle South West over remainder of 2018

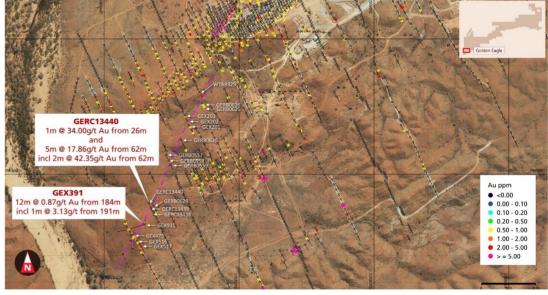
## New Discovery in the Making – Golden Eagle SW



- ► Significant new target 1.8km SW of Golden Eagle with similar style of alteration
- ► Highly prospective shear zone extending over a potential strike extent of 800m:
  - ▶ 1m @ 34.00g/t Au from 26m
  - ▶ 5m @ 17.86g/t Au from 62m, incl. 2m @ 42.35g/t Au
- ► NNE orientation supports theory of high-grade crosscutting mineralised structures at Golden Eagle that run oblique to the main NE trending lodes
- Gravity survey and follow-up drilling underway

Significant new greenfields discovery 1.8km south-west of the 334,000oz Golden Eagle deposit...

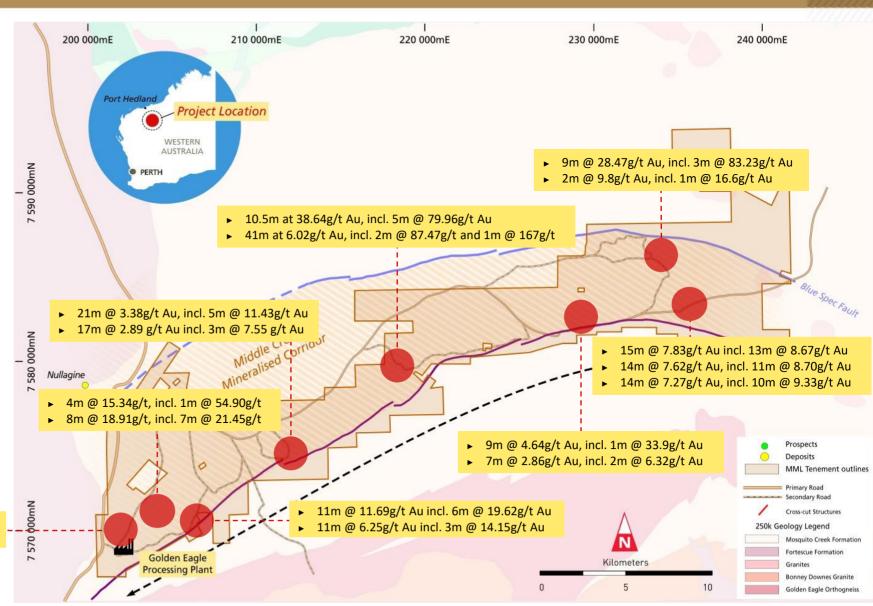




### **Exploration** – A Key Priority

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- Substantial ongoing commitment to exploration
- ▶ 40km mineralised corridor high-grade results spanning entire length
- Reinterpretation of existing exploration datasets delivering new targets



<sup>▶ 5</sup>m @ 17.86g/t Au, incl. 2m @ 42.35g/t Au

<sup>▶ 3</sup>m @ 8.06g/t Au incl. 1m @ 21.1 g/t Au

### Key Investment Takeaways



- Nullagine Gold Project generating consistent production and strong cash-flows
- **Quality-driven mining strategy** focusing on larger, more sustainable ore sources
- Increasing production and mine life 100kozpa run rate; 3-yr mine life growing to +5 yrs
- Sulphide Plant Expansion Commissioning Q1 2019 to unlock large Sulphide Resource
- **Expanding Underground** Bartons UG delivering high-grade ore, more UG deposits to follow
  - Ongoing exploration program continues to deliver high-grade intersections across the entire project

Nullagine now moving rapidly to the next level – unlocking the significant value of all ore types

#### **Resources & Reserves**



Nullagine Gold Project - Mineral Resource Statement										
Deposit	Measured		Indicated		Inferred		Total Remaining			
	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Au Ounces	
Agate <sup>3</sup>		_	0.23	1.2	0.11	1.1	0.34	1.2	12,600	
All Nations <sup>3</sup>	0.11	1.4	0.3	1.4	0.24	1.2	0.65	1.3	27,200	
Anne de Vidia <sup>3</sup>			0.06	1.5	0.07	1.2	0.13	1.3	5,400	
Angela <sup>3</sup>			0.82	1.3	0.29	1.3	1.1	1.3	45,400	
Au81 <sup>2</sup>			0.01	1.4	0.17	1.8	0.18	1.8	9,700	
Au81 West <sup>3</sup>	0.06	1.3	0.66	1.2	0.49	1.4	1.21	1.3	51,400	
Bartons Open Pit <sup>3</sup>	0.07	2.8	0.17	1.5	0.11	1.2	0.35	1.7	18,400	
Bartons UG <sup>5</sup>			0.41	5.6	0.22	3.5	0.63	4.9	97,900	
Billjim South <sup>3</sup>					0.05	3.2	0.05	3.2	5,500	
Buzzard <sup>3</sup>					0.11	1.8	0.11	1.8	6,100	
Condor (including NW) <sup>5</sup>			0.11	4.9	0.02	3.5	0.13	4.7	20,300	
Crossing <sup>3</sup>			0.3	1.2	0.06	1.3	0.36	1.3	14,600	
Crow <sup>5</sup>			0.04	5	0.02	5.3	0.06	5.1	10,000	
Falcon⁴	0.06	3	0.02	2.4	0.02		0.08	2.9	7,300	
Gambols Hill <sup>3</sup>			0.13	1.6	0.17	1.6	0.3	1.6	15,700	
Golden Gate G Reef⁵ UG			0.01	3.6	0	2.4	0.01	3.3	700	
Golden Eagle <sup>3</sup>	2.87	1.3	2.25	1.3	2.57	1.4	7.69	1.4	334,400	
olden Gate ABC Reef + Harrier⁵ UG			0.08	6.4	0.11	4.6	0.19	5.4	32,100	
Golden Gate D Reef⁵ UG			0.04	5.3	0.02	5.8	0.06	5.4	11,100	
Hopetoun-Endeavour <sup>3</sup>			0.17	1.4	0.5	1.4	0.67	1.4	30,100	
Hut <sup>3</sup>			0.29	1.2	0.09	1	0.38	1.1	13,800	
Junction <sup>4</sup>	0.05	1.9	0.06	1.5	0.04	1.5	0.15	1.7	7,800	
Little Annie <sup>3</sup>					0.12	1.4	0.12	1.4	5,200	
Little Wonder⁴	0.06	1.5	0.29	1.5	0.81	1.7	1.16	1.6	60,400	
Majuba <sup>3</sup>			0.31	1.4	0.05	1.5	0.36	1.4	16,100	
Mundalla <sup>3</sup>			0.13	1.4	0.18	1.3	0.31	1.3	13,100	
Mustang <sup>3</sup>			0.16	1.8	0.1	1.4	0.26	1.6	13,000	
Otways <sup>3</sup>	0.48	1.1	0.76	1.1	0.54	1	1.78	1.1	60,700	
Redbeard	0.17	3.6	0.05	1.8	0.06	1.4	0.28	2.8	25,200	
Roscoes Reward <sup>3 4</sup>			0.58	1.4	0.32	1.3	0.9	1.4	40,400	
Round Hill/Bow Bells <sup>3</sup>			0.51	1.8	0.1	2.1	0.61	1.9	36,400	
Shearers <sup>3</sup>			0.62	1.5	0.31	1.3	0.93	1.4	42,400	
Shearers North <sup>3</sup>	0.13	1.4	0.11	1.3	0.18	1.1	0.42	1.2	16,500	
Total	4.04	1.4	9.66	1.7	8.22	1.5	21.92	1.6	1,107,100	

<sup>1.</sup> Figures in Table may not sum due to rounding.

<sup>2.</sup> The Au81 deposit was estimated using ordinary kriging methodology for grade estimation by CSA Global.

<sup>3.</sup> Agate, All Nations, Angela, Anne de Vidia, Au81 West Bartons Open Pit, Bow Bells, Crossing, Condor North-West, Gambols Hill, Golden Eagle, Hopetoun-Endeavour, Hut, Junction, Little Monder, Majuba, Mustang, Otways, Roscoes Reward, Round Hill, Shearers and Shearers North were estimated by ordinary kriging by Millennium Minerals Ltd.

<sup>4.</sup> Golden Gate satellite deposit, Falcon, was estimated using ordinary kriging by Dampier Consulting.



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