



MILLENNIUM

MINERALS LIMITED

ABN 85 003 257 556

4 August 2009

Manager Company Announcements  
Company Announcements Office  
Australian Securities Exchange Limited  
Level 4, 20 Bridge Street  
SYDNEY NSW 2000

*Via Electronic Lodgement*

Dear Sir/Madam,

**Nullagine Gold Project  
Updated Mineral Resource Estimate – Golden Gate Satellite Deposits**

**Highlights**

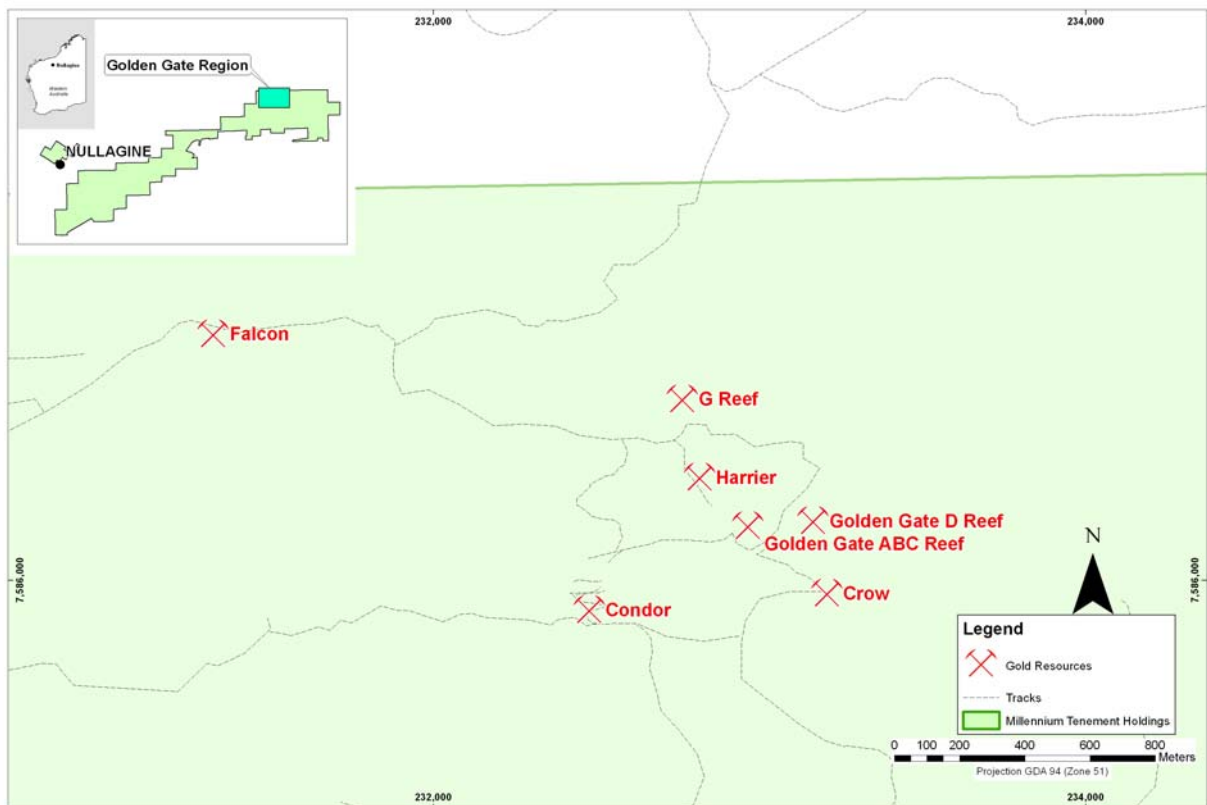
- **Golden Gate satellite deposits add a further 45,400 ounces to the Nullagine Gold Project Mineral Resource estimate.**
- **Total in-situ gold ounces at Golden Gate now estimated at 114,500.**
- **The global Mineral Resource estimate at Nullagine now stands at 28.1 Mt at 1.26 g/t Au for 1.14M ounces.**
- **Optimisation studies to be undertaken immediately to update the feasibility study and confirm operating cost inputs for Ore Reserve definition.**

## Golden Gate Mineral Resource

Millennium Minerals Limited (“Millennium” or “the Company”) is pleased to announce a Mineral Resource estimate for 5 satellite gold deposits located adjacent to Golden Gate at the Nullagine Gold Project in the East Pilbara District of Western Australia. The five gold deposits, namely Falcon, Harrier, Condor, Crow and G-Vein were drilled during 2006 and 2007 but were never considered significant due to their size (Figure 1). However, with the increase in the gold price, these satellite deposits represent a significant grade sweetener to the overall project economics.

The Golden Gate deposit principally comprises the ABCD Reef vein system that contains a Mineral Resource estimate of 680,000 tonnes at 3.12 g/t Au using a 0.5 g/t cut-off for 69,000 ounces contained (ASX Release of 21 July 2009). With the addition of the five satellite deposits, the Mineral Resource for the Golden Gate area is now estimated at 1.15 Mt at 3.12 g/t Au using a 0.5 g/t cut-off for 114,400 ounces contained.

**Figure 1: Golden Gate Satellite Deposits Location Plan**



## Resource Modeling and Grade Estimation

Resource modelling for the Golden Gate satellite deposits was completed by CSA Global Pty Ltd. An Indicated and Inferred Mineral Resource estimate has been generated at a 0.5 g/t lower gold cut off grade, resulting in a Mineral Resource estimate of 0.46 Mt at 3.1 g/t Au for 45,400 ounces contained (Table 1).

The global Mineral Resource estimate for the Nullagine Gold Project is now stated at 28.1 Mt at 1.26 g/t Au for 1.14M ounces. A total of 22.16 Mt at 1.26 g/t Au is contained within the Measured and Indicated Mineral Resource categories (Table 2). This represents approximately 80% of the total Mineral Resource for the Nullagine Gold Project.

The Mineral Resource has been estimated using the Ordinary Kriging methodology for grade estimation, the method considered most suitable for this style of deposit. The results have been checked using a second method, that of Inverse Distance Squared, and produced similar validity results.

Detailed resource modelling has comprised:

- Resource modelling and wireframing
- Variography and statistical analyses
- Block modelling
- Resource estimation

**Table 1: Golden Gate Satellite Mineral Resource Estimates, using 0.5 g/t lower cut-off**

Deposit	Indicated			Inferred			Total TONNES	Total AU g/t	Total Ounces
	TONNES	AU g/t	Ounces	TONNES	AU g/t	Ounces			
Condor	79,000	3.3	8,400	35,000	3.5	3,900	114,000	3.3	12,200
Crow	24,000	4.5	3,500	15,000	4.5	2,100	39,000	4.5	5,600
Falcon	94,000	3.9	11,800	41,000	4.4	5,800	136,000	4.0	17,600
G_Reef	27,000	2.1	1,800	-	-	-	27,000	2.1	1,800
Harrier	104,000	1.8	5,900	39,000	1.8	2,300	144,000	1.8	8,200
<b>Total</b>	<b>329,000</b>	<b>3.0</b>	<b>31,400</b>	<b>130,000</b>	<b>3.4</b>	<b>14,100</b>	<b>459,000</b>	<b>3.1</b>	<b>45,400</b>

*Note: The resource is quoted for blocks with a grade of greater than 0.5g/t. Differences may occur due to rounding.*

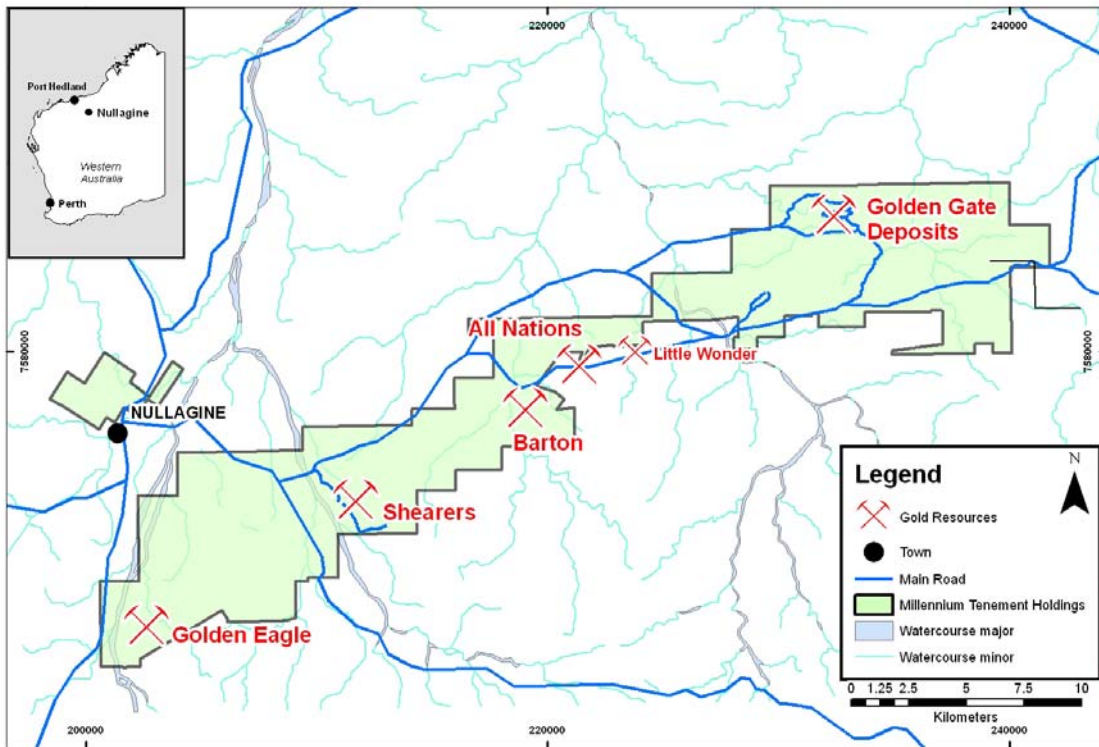
Optimisation of the block models to generate Ore Reserve estimates will be conducted shortly.

The Golden Gate deposits are hosted within east northeast trending, upright sequence of rhythmically interlayered sandstones, siltstones and shales of the Mosquito Creek Formation. Gold mineralisation is associated with a complex array of sub parallel, tabular quartz-carbonate veins and veinlets dipping between 60 degrees and vertical.

## Background

The Company's flagship asset, the Nullagine Gold Project, is located south east of Port Hedland in Western Australia's richly mineralised East Pilbara region, approximately 10 kilometres from the town of Nullagine (Figure 1).

**Figure 2: Nullagine Gold Project Location Plan**



The Nullagine Gold Project has a Mineral Resource estimated at 1.1 million ounce of gold. A detailed feasibility study was completed in early 2006 and revised in early 2007. The Mineral Resource is contained within 5 main deposits on granted mining leases. The largest deposit is Golden Eagle located approximately 10 km south of the township of Nullagine and contains 69% of the total estimated Mineral Resource. Much of the permitting and design work for a 1 million tonne per annum Carbon-In-Leach (CIL) processing facility has been completed providing for an early start to development when a decision to mine is made.

The Company has re-examined the basic economics of the Project in light of the improvement in the Australian dollar denominated gold price. A scoping level assessment of the 2007 base case feasibility study indicated the potential for an 8-10 year operation milling 1 million tonnes annually through a CIL processing plant. The scoping study was based on the following:

- A series of pit optimisations of the five deposits available for practical mine design based on the Measured and Indicated Resources only (22.16 Mt @ 1.26 g/t Au).
- A spot gold price of US\$900/oz.
- Operating cost inputs internally updated from the 2007 feasibility study base numbers with the US\$/A\$ exchange rate set at 0.7.
- Preliminary pit designs and associated material movement scheduling.

Various studies were undertaken to assess the potential for CIL stand alone, heap leach stand alone and a base CIL operation with heap leaching of medium to low grade material that will be mined and otherwise treated as waste. All cases demonstrated favourable technical and economic outcomes sufficient to warrant completion of the feasibility update and final optimisation studies. The study does indicate that depending on the cut-off grade used for the base case CIL option a substantial amount of medium to low grade material would be removed from the pits. Further metallurgical testing on this material is warranted to assess the potential for introducing a stage two development based on heap leaching to maximise the economic return from the deposits.

Outside of the existing deposits, exploration potential is evident, particularly to the South West of the main deposit, Golden Eagle. This potential and other target areas are under review and will be reported on when that work is completed.

The update of the Mineral Resource Estimate paves the way for pit optimisation, mine design and scheduling of the base case CIL option which is now underway with confirmation of operating cost inputs and a view on prevailing economic conditions. It is expected this work will allow Millennium to make a development decision and the results will be reported when this work is completed.

On behalf of the Board of  
Millennium Minerals Limited

Brian Rear  
**Chief Executive Officer**

*ENQUIRIES: Brian Rear*  
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### **Qualifying Statement**

*This release may include forward-looking statements. These forward-looking statements are based on Millennium's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Millennium, which could cause actual results to differ materially from such statements. Millennium makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of this release.*

### **Competent Persons Statements**

*The reported Mineral Resource as it relates to Golden Eagle, Bartons, Shearers, All Nations, Little Wonder and Golden Gate ABCD reefs has been compiled by Mr Nic Johnson. Mr Johnson is a Member of the Australian Institute of Geoscientists and an employee of Hellman & Schofield Pty Ltd. He has sufficient experience, relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking, to qualify as a Competent Person as defined in the 'Australasian Code for Reporting of Mineral Resources and Ore Reserves' of December 2004 ("JORC Code") as prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia. The Competent Persons listed consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.*

*The reported Mineral Resource as it relates to the Golden Gate satellite deposits was completed under the overall supervision and direction of Steven Hodgson, MAIG, of CSA Global who is a Competent Person as defined by the Australasian Code for the Reporting of Exploration Results, Mineral Resources or Ore Reserves (JORC Code 2004 Edition) and who consents to the inclusion in this report of the matters based on the information in the form and context in which it appears. The information in this report that relates to in-situ Mineral Resources based on information provided by Millennium Minerals Limited. The Mineral Resource estimate was compiled by Steven Hodgson, MAIG, of CSA Global. David Williams, MAusIMM, of CSA Global was responsible for the technical review of the Mineral Resource estimate.*

**Table 2: Nullagine Gold Project Mineral Resource Estimate August 2009**

Deposit	Cut-off Grade (g/t Au)	Measured		Indicated		Inferred		Total		Ounces (Au)
		Mt	Grade (g/t Au)	Mt	Grade (g/t Au)	Mt	Grade (g/t Au)	Mt	Grade (g/t Au)	
Golden Eagle <sup>2</sup>	0.5	11.43	1.26	4.60	1.02	4.04	1.00	20.07	1.16	749,000
Shearers <sup>2</sup>	0.5	0.59	1.09	1.04	0.87	0.40	0.90	2.03	0.93	61,000
Bartons <sup>2</sup>	0.5	1.33	1.47	0.85	1.48	0.37	1.70	2.55	1.51	125,000
All Nations <sup>2</sup>	0.5	1.11	1.30	0.19	1.04	0.14	1.10	1.45	1.25	58,000
Golden Gate (ABCD Reef) <sup>2</sup>	0.5			0.58	3.24	0.11	2.6	0.68	3.12	69,000
Golden Gate Satellites <sup>3</sup>	0.5			0.33	3.0	0.13	3.4	0.46	3.10	45,000
Little Wonder <sup>2</sup>	0.5			0.44	1.13	0.40	1.2	0.85	1.17	31,000
<b>Totals</b>	<b>0.5</b>	<b>14.46</b>	<b>1.28</b>	<b>8.03</b>	<b>1.30</b>	<b>5.59</b>	<b>1.14</b>	<b>28.09</b>	<b>1.26</b>	<b>1,138,000</b>

*Notes:*

1. *Figures in Table may not sum due to rounding.*
2. *The Mineral Resources were estimated using Multiple Indicator Kriging methodology for grade estimation by Hellman and Schofield Pty Ltd.*
3. *The Golden Gate satellite deposits namely Falcon, Harrier, Crow, G Vein and Condor were estimated using Ordinary Kriging methodology for grade estimation by CSA Global.*
4. *The table excludes royalties payable to third parties.*