

ANGLOGOLD ASHANTI LTD

Form 6-K

April 10, 2014

**UNITED STATES**

**SECURITIES AND EXCHANGE COMMISSION**

**WASHINGTON, DC 20549**

**FORM 6-K**

**REPORT OF FOREIGN PRIVATE ISSUER**

**PURSUANT TO RULE 13a-16 OR 15d-16 OF**

**THE SECURITIES EXCHANGE ACT OF 1934**

Report on Form 6-K dated April 03, 2014

Commission File Number 1-14846

AngloGold Ashanti Limited

(Name of registrant)

76 Jeppe Street

Newtown, 2001

(P.O. Box 62117, Marshalltown, 2107)

South Africa

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

**Form 20-F**  **X** Form 40-F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Yes

**No**  **X**

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

Yes

**No**  **X**

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes  **No**  **X**

Enclosure: **ANGLOGOLD ASHANTI MINERAL RESOURCE AND ORE RESERVE  
STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2013**

MINERAL  
RESOURCE AND  
ORE RESERVE  
REPORT  
2013

ANNUAL  
INTEGRATED  
REPORT  
2013  
MINERAL  
RESOURCE AND  
ORE RESERVE  
REPORT

2013  
NOTICE OF ANNUAL  
GENERAL MEETING  
AND SUMMARISED  
FINANCIAL  
INFORMATION  
2013  
FOR THE YEAR ENDED 31 DECEMBER  
ANNUAL  
INTEGRATED  
REPORT

- CEO's review

- Financial and operating performance and outlook

- Leadership and governance

- Understanding and mitigating risks

MINERAL RESOURCE  
AND ORE RESERVE  
REPORT

- Measured, Indicated and Inferred Mineral Resource\*

- Proved and Probable Ore Reserve\*

\*  
*By group, region, country  
and operation*

NOTICE OF ANNUAL  
GENERAL MEETING  
AND SUMMARISED  
FINANCIAL INFORMATION

- Notice of annual general meeting – timing and resolutions to be voted on

Summarised financial  
information

ANNUAL  
SUSTAINABILITY  
REPORT  
2013

ANNUAL  
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REPORT

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Letter from CEO

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Material sustainability  
issues

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Approach to risk

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Sustainability performance

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Panel feedback

ANNUAL  
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ANNUAL  
FINANCIAL  
STATEMENTS

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Corporate governance

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Directors' report

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Remuneration report

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Financial statements –  
group and company

*Forward-looking statements*

*Certain statements contained in this document, other than statements of historical fact, including, without limitation, those concerning the economic outlook for the gold mining industry, expectations regarding gold prices, production, cash costs, cost savings and other operating results, return on equity, productivity improvements, growth prospects and outlook of AngloGold Ashanti's operations, individually or in the aggregate, including the achievement of project milestones, commencement and completion of commercial operations of certain of AngloGold Ashanti's exploration and production projects and the completion of acquisitions and dispositions, AngloGold Ashanti's liquidity and capital resources and capital expenditures and the outcome and consequence of any potential or pending litigation or regulatory proceedings or environmental, health and safety issues, are*

*forward-looking statements regarding AngloGold Ashanti's operations, economic performance and financial condition. These forward-looking statements or forecasts involve known and unknown risks, uncertainties and other factors that may cause AngloGold Ashanti's actual results, performance or achievements to differ materially from the anticipated results, performance or achievements expressed or implied in these forward-looking statements. Although AngloGold Ashanti believes that the expectations reflected in such forward-looking statements and forecasts are reasonable, no assurance can be given that such expectations will prove to have been correct. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic, social and political and market conditions, the success of business and operating initiatives, changes in the regulatory environment and other government actions, including environmental approvals and requirements, fluctuations in gold prices and exchange rates, the outcome of pending or future litigation proceedings, and business and operational risk management.*

*For a discussion of such risk factors, refer to the prospectus supplement to AngloGold Ashanti's prospectus dated 17 July 2012 that was filed with the United States SEC on 26 July 2013 and to our annual reports on Form 20-F and any prospectus supplement filed with the United States SEC subsequent to the date of this report. These factors are not necessarily all of the important factors that could cause AngloGold Ashanti's actual results to differ materially from those expressed in any forward-looking statements. Other unknown or unpredictable factors could also have material adverse effects on future results. Consequently, readers are cautioned not to place undue reliance on forward-looking statements. AngloGold Ashanti undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this Integrated Report or to reflect the occurrence of unanticipated events, except to the extent required by applicable law. All subsequent written or oral forward-looking statements attributable to AngloGold Ashanti or any person acting on its behalf are qualified by the cautionary statements herein. This communication may contain certain "Non-GAAP" financial measures. AngloGold Ashanti utilises certain Non-GAAP performance measures and ratios in managing its business. Non-GAAP financial measures should be viewed in addition to, and not as an alternative for, the reported operating results or cash flow from operations or any other measures of performance prepared in accordance with IFRS. In addition, the presentation of these measures may not be comparable to similarly titled measures other companies may use. AngloGold Ashanti posts information that is important to investors on the main page of its website at [www.anglogoldashanti.com](http://www.anglogoldashanti.com) and under the "Investors & media" tab on the main page. This information is updated regularly. Investors should visit this website to obtain important information about AngloGold Ashanti.*

**Our primary platform** for reporting is our online report at [www.aga-reports.com](http://www.aga-reports.com)

**MINERAL RESOURCE AND ORE RESERVE REPORT 2013**

## ABOUT THIS REPORT

The Mineral Resource is inclusive of the Ore Reserve component unless otherwise stated. Note also that all Mineral Resources and

Ore Reserves listed in this document are attributable unless otherwise stated.

Information is presented either by operating region, country, mine or project. The following tables and graphs are used to illustrate

developments across AngloGold Ashanti's operations during 2013:

Inclusive Mineral Resource and Ore Reserve comparison by region, country, mine and project; development sampling results; details

of average drill-hole spacing and type; Exclusive Mineral Resource; Mineral Resource below infrastructure; Inclusive Mineral Resource

and Ore Reserve by-products; year-on-year reconciliation of the Mineral Resource and Ore Reserve; Inferred Mineral Resource in

business plan; Ore Reserve modifying factors; grade tonnage information on the Mineral Resource and lists of appointed Competent

Persons. Topics for brief discussion include regional overview; country overview; Mineral Resource estimation; Ore Reserve estimation;

location; geology; exploration and projects.

*Note: Rounding of figures in this document may result in minor computational discrepancies. Throughout this report, the metric system of measurement*

*is used and dollar or \$ represents US dollar unless otherwise stated. All grade tonnage graphs in this document are for Mineral Resources.*

## GUIDE TO REPORTING

AngloGold Ashanti Limited (AngloGold Ashanti) publishes a suite of reports to record its overall performance annually. The Annual

Integrated Report for the 2013 financial year should be read in conjunction with our Notice of Meeting and Summarised Financial

Information 2013, which has been posted to shareholders, our Annual Sustainability Report 2013 and our Annual Financial

Statements 2013.

Other reports available for the financial year are this Mineral Resource and Ore Reserve Report 2013, operational profiles and country fact

sheets. These reports are all available on our annual report portal at [www.aga-reports.com](http://www.aga-reports.com).

For ease of use, a detailed guide on how to use our reports may be found on the inside front cover of this report. For terminology used,

please refer to the glossary of terms on page 187.

## FOR NOTING:

The following key parameters should be noted in respect of our reports:

- Production is expressed on an attributable basis unless otherwise indicated.

- The average workforce, including employees and contractors, is reported for AngloGold Ashanti, its subsidiaries and its joint ventures. The joint ventures are reported on an attributable basis.

- Unless otherwise stated, \$ or dollar refers to US dollars throughout this suite of reports.

- Locations on maps are for indication purposes only.

- Group and company are used interchangeably.

-

‘Statement of financial position’ and ‘balance sheet’ are used interchangeably.

AngloGold Ashanti’s Mineral Resource and Ore Reserve are reported in accordance with the minimum standards described by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 Edition), and also conform to the standards set out in the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code, 2007 edition and amended July 2009).

**1**

**GROUP OVERVIEW**

OUR  
VISION, MISSION AND VALUES

VISION

TO BE THE LEADING MINING COMPANY

To create value for our shareholders, our employees and our business and social partners through safely and responsibly exploring, mining and marketing our products. Our primary focus is gold, but we will pursue value creating opportunities in other minerals where we can leverage our existing assets, skills and experience to enhance the delivery of value.

EXPLORING

MINING

MARKETING

OUR

MISSION

MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

**2**



Safety is our first value.

We place people first and correspondingly put the highest priority on safe and healthy practices and systems of work. We are responsible for seeking out new and innovative ways to ensure that our workplaces are free of occupational injury and illness. We live each day for each other and use our collective commitment, talents, resources and systems to deliver on our most important commitment ... to care.

We treat each other with dignity and respect.

We believe that individuals who are treated with respect and who are entrusted to take responsibility respond by giving their best. We seek to preserve people's dignity, their sense of self-worth in all our interactions, respecting them for who they are and valuing the unique contribution that they can make to our business success. We are honest with ourselves and others, and we deal ethically with all of our business and social partners.

We value diversity

We aim to be a global leader with the right people for the right jobs. We promote inclusion and team work, deriving benefit from the rich diversity of the cultures, ideas, experiences and skills that each employee brings to the business.

We are accountable for our actions and undertake to deliver on our commitments.

We are focused on delivering results and we do what we say we will do. We accept responsibility and hold ourselves accountable for our work, our behaviour, our ethics and our actions. We aim to deliver high performance outcomes and undertake to deliver on our commitments to our colleagues, business and social partners, and our investors.

The communities and societies in which we operate will be better off for AngloGold Ashanti having been there.

We uphold and promote fundamental human rights where we do business. We contribute to building productive, respectful and mutually beneficial partnerships in the communities in which we operate. We aim to leave host communities with a sustainable future.

We respect the environment.

We are committed to continually improving our processes in order to prevent pollution, minimise waste, increase our carbon efficiency and make efficient use of natural resources. We will develop innovative solutions to mitigate environmental and climate risks.

OUR

VALUES

3

OUR VISION, MISSION AND VALUES

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country (inclusive of  
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Mineral Resource by  
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Geita

CA

GOLD MINING AND  
EXPLORATION COMPANIES

ONE OF THE

WORLD'S

FOREMOST

MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

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(CC&V)

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**5**

GROUP OVERVIEW

GROUP OVERVIEW

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P06-17

Headquartered in Johannesburg, South Africa, AngloGold Ashanti has 21 operations and two advanced major exploration projects in 12 countries. Two new mines, Tropicana in Australia and Kibali in the Democratic Republic of the Congo (DRC), came on stream in late 2013.

MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

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GROUP OVERVIEW

Argentina

Cerro Vanguardia (92.5%)

Brazil

Serra Grande

AGA Mineração

Colombia

Gramalote (51%)

La Colosa

United States

Cripple Creek & Victor (CC&V)

Australia

Sunrise Dam

Tropicana (70%)

**Location of AngloGold Ashanti's operations and projects – 2013**

Guinea

Siguiri (85%)

Mali

Morila (40%)\*

Sadiola (41%)

Yatela (40%)

Ghana

Iduapriem

Obuasi

DRC

Kibali (45%)\*

Mongbwalu (86.2%)

Tanzania

Geita

Namibia

Navachab

South Africa

Vaal River operations

Great Noligwa

Kopanang

Moab Khotsong

West Wits operations

Mponeng

TauTona

Surface Operations\*\*

1

1

2

2

3

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SOUTH  
AFRICA  
AMERICAS  
CONTINENTAL  
AUSTRALASIA  
SOUTH  
AFRICA  
AFRICA

**Inclusive Mineral Resources – attributable**

**(Moz)**

South Africa

94.3

Continental Africa

69.1

Australasia

8.6

Americas

61.1

**Ore Reserve – attributable**



**(Moz)**

South Africa

30.9

Continental Africa

24.4

Australasia

3.8

Americas

8.8

Percentages in brackets indicate the ownership interest of AngloGold Ashanti, whether held directly or indirectly. All operations and projects are 100%-owned unless otherwise indicated.

\*

*Both Morila and Kibali are managed and operated by Randgold Resources Limited.*

*\*\* Includes Mine Waste Solutions (MWS).*

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GROUP OVERVIEW

## THE YEAR IN REVIEW

### MINERAL RESOURCE AND ORE RESERVE

The AngloGold Ashanti Mineral Resource and Ore Reserve are reported in accordance with the minimum standards described by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition), and also conform to the standards set out in the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code, 2007 edition and amended July 2009). Mineral Resource is inclusive of the Ore Reserve component unless otherwise stated. In complying with revisions to the JORC code the changes to AngloGold Ashanti's Mineral Resource and Ore Reserve have been reviewed and it was concluded that none of the changes are material to the overall valuation of the company. AngloGold Ashanti has therefore resolved not to provide the detailed reporting as defined in Table 1 of the code. The company will however continue to provide the high level of detail it has in previous years in order to comply with the transparency requirements of the code. AngloGold Ashanti strives to actively create value by growing its major asset – the Mineral Resource and Ore Reserve. This drive is based on an active, well-defined brownfields and greenfields exploration programmes, innovation in both geological modelling and mine planning and continual optimisation of its asset portfolio.

### GOLD PRICE

The following local prices of gold were used as a basis for estimation in the December 2013 declaration:

#### Local prices of gold

##### Gold price

##### South Africa

##### Australia

##### Brazil

##### Argentina

##### US\$/oz

##### ZAR/kg

##### AUD/oz

##### BRL/oz

##### ARS/oz

##### 2013 Ore Reserve

1,100

360,252

1,249

2,551

6,186

##### 2013 Mineral Resource

1,600

434,112

1,606

3,304

8,106

The JORC and SAMREC Codes require the use of reasonable economic assumptions. These include long-range commodity price forecasts which are prepared in-house.

### MINERAL RESOURCE

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The total Mineral Resource decreased from 241.5 million ounces (Moz) in December 2012 to 233.0Moz in December 2013. A gross annual decrease of 2.8Moz occurred before depletion, while the net decrease after allowing for depletion is 8.5Moz. Changes in economic assumptions from December 2012 to December 2013 resulted in a 12.9Moz decrease to the Mineral Resource, whilst exploration and modelling resulted in an increase of 10.7Moz. Depletion from the Mineral Resource for the year totalled 5.8Moz. The Mineral Resource has been estimated at a gold price of US\$1,600/oz (2012: US\$2,000/oz).

Inclusive Mineral Resource

**Moz**

Mineral Resource as at 31 December 2012

241.5

Reductions

Kopanang

Negative exploration results defined a large uneconomic area

(2.5)

Savuka

Depletions and transfers to TauTona and Mponeng

(3.0)

Obuasi

Revised domaining of Mineral Resource models

(2.4)

Geita

Gold price resulted in an increased cut-off

(1.6)

CC&V

Gold price, model grade and recovery factors

(2.1)

Other

Total of non-significant changes

(3.8)

Additions

Mponeng

Transfers from Savuka Mineral Resource

1.7

Kibali

Positive exploration results

2.0

La Colosa

Exploration growth tempered by reduced economics

1.2

Other

Total of non-significant changes

2.6

Disposals

Kibali

An Inferred Mineral Resource was transferred to SOKIMO

(0.6)

Mineral Resource as at 31 December 2013

233.0

*Rounding of figures may result in computational discrepancies.*

**MINERAL RESOURCE AND ORE RESERVE REPORT 2013**

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**ORE RESERVE**

The AngloGold Ashanti Ore Reserve reduced from 74.1Moz in December 2012 to 67.9Moz in December 2013. This gross annual decrease of 6.2Moz includes depletion of 5.0Moz. The balance of 1.2Moz reductions in Ore Reserve, results from changes in economic assumptions between 2012 and 2013 which resulted in a reduction of 3.4Moz to the Ore Reserve, whilst exploration and modelling changes resulted in an increase of 2.2Moz. The Ore Reserve has been calculated using a gold price of US\$1,100/oz (2012: US\$1,300/oz).

Ore Reserve

**Moz**

Ore Reserve as at 31 December 2012

74.1

Reductions

Savuka

Depletions and transfers to TauTona and Mponeng

(0.5)

Moab Khotsong

Model changes and depletions

(0.5)

Sadiola

Model changes, economics and depletions

(0.7)

Geita

Economic changes had a significant negative effect

(1.5)

CC&V

Lower gold price

(1.2)

Other

Total non-significant changes

(3.0)

Additions

Mponeng

Mainly due to net effect of transfer from Savuka

0.8

Other

Total non-significant changes

0.4

Ore Reserve as at 31 December 2013

67.9

*Rounding of figures may result in computational discrepancies.*

**BY-PRODUCTS**

Several by-products are recovered as a result of processing of the gold Ore Reserve. These include 57.9kt of uranium oxide from the

South African operations, 0.38Mt of sulphur from Brazil and 29.6Moz of silver from Argentina.

**COMPETENT PERSONS**

The information in this report relating to exploration results, Mineral Resources and Ore Reserves is based on information compiled

by or under the supervision of the Competent Persons as defined in the JORC or SAMREC Codes. All Competent Persons are

employed by AngloGold Ashanti, unless stated otherwise, and have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking. The Competent Persons consent to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears. The legal tenure of each operation and project has been verified to the satisfaction of the accountable Competent Person. During the past decade, the company has developed and implemented a rigorous system of internal and external reviews aimed at providing assurance in respect of Ore Reserve and Mineral Resource estimates. The following operations were subject to an external review in line with the policy that each operation project will be reviewed by an independent third party on average once every three years:

- Mineral Resource and Ore Reserve at Kopanang and Great Noligwa

- Mineral Resource and Ore Reserve at TauTona

- Ore Reserve at Kibali

- Mineral Resource at Gramalote

The external reviews were conducted by the following companies AMEC (Kopanang, Great Noligwa, TauTona and Gramalote) and Snowden (Kibali Mine). Certificate of competence documentation has been received from all companies conducting the external reviews to state that the Mineral Resource and/or Ore Reserve comply with the JORC Code and the SAMREC Code. Numerous internal Mineral Resource and Ore Reserve process reviews were completed by suitably qualified Competent Persons from within AngloGold Ashanti. A documented chain of responsibility exists from the Competent Persons at the operations to the company's Mineral Resource and Ore Reserve Steering Committee. Accordingly, the Chairman of the Mineral Resource and Ore Reserve Steering Committee, VA Chamberlain, MSc (Mining Engineering), BSc (Hons) (Geology), MGSSA, FAusIMM, assumes responsibility for the Mineral Resource and Ore Reserve processes for AngloGold Ashanti and is satisfied that the Competent Persons have fulfilled their responsibilities.

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GROUP OVERVIEW

MINERAL RESOURCE BY COUNTRY

Inclusive of Ore Reserve (Attributable)

**Tonnes**

**Grade**

**Contained**

**gold**

**as at 31 December 2013**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

South Africa

Measured

164.79

2.48

409.37

13.16

Indicated

949.84

2.07

1,968.70

63.30

Inferred

51.36

10.78

553.96

17.81

Total

1,165.99

2.51

2,932.03

94.27

Democratic Republic of the Congo

Measured

2.47

2.50

6.17

0.20

Indicated

71.63

3.78

270.43

8.69

Inferred

31.56

3.54

111.76

3.59

Total

105.65

3.68  
388.36  
12.49  
Ghana  
Measured  
44.70  
4.67  
208.68  
6.71  
Indicated  
115.10  
3.85  
443.68  
14.26  
Inferred  
139.22  
2.85  
396.84  
12.76  
Total  
299.02  
3.51  
1,049.21  
33.73  
Guinea  
Measured  
33.95  
0.62  
21.15  
0.68  
Indicated  
96.07  
0.76  
73.04  
2.35  
Inferred  
61.17  
0.97  
59.06  
1.90  
Total  
191.19  
0.80  
153.25  
4.93  
Mali  
Measured  
7.19  
0.82  
5.91  
0.19



Indicated

39.30

2.03

79.88

2.57

Inferred

20.34

0.89

18.04

0.58

Total

66.83

1.55

103.83

3.34

Namibia

Measured

22.10

0.65

14.39

0.46

Indicated

75.04

1.31

98.57

3.17

Inferred

6.83

1.26

8.61

0.28

Total

103.96

1.17

121.57

3.91

Tanzania

Measured

—

—

—

—

Indicated

78.48

2.96

232.31

7.47

Inferred

31.38

3.17

99.35

3.19  
Total  
109.87  
3.02  
331.66  
10.66  
Australia  
Measured  
35.57  
1.65  
58.87  
1.89  
Indicated  
70.92  
2.10  
148.71  
4.78  
Inferred  
20.05  
3.04  
60.92  
1.96  
Total  
126.54  
2.12  
268.51  
8.63  
Argentina  
Measured  
12.97  
1.42  
18.44  
0.59  
Indicated  
30.23  
3.15  
95.07  
3.06  
Inferred  
5.66  
2.64  
14.93  
0.48  
Total  
48.86  
2.63  
128.44  
4.13  
Brazil  
Measured  
16.86

5.42  
91.38  
2.94  
Indicated  
21.37  
5.13  
109.70  
3.53  
Inferred  
49.90  
5.29  
263.85  
8.48  
Total  
88.13  
5.28  
464.93  
14.95  
Colombia  
Measured  
14.80  
0.79  
11.62  
0.37  
Indicated  
52.90  
0.59  
31.07  
1.00  
Inferred  
1,161.73  
0.80  
925.92  
29.77  
Total  
1,229.43  
0.79  
968.61  
31.14  
United States  
Measured  
249.25  
0.76  
188.67  
6.07  
Indicated  
173.17  
0.66  
114.06  
3.67  
Inferred

51.24  
0.67  
34.50  
1.11  
Total  
473.66  
0.71  
337.24  
10.84  
Total  
Measured  
604.64  
1.71  
1,034.66  
33.27  
Indicated  
1,774.04  
2.07  
3,665.23  
117.84  
Inferred  
1,630.45  
1.56  
2,547.74  
81.91  
Total  
4,009.13  
1.81  
7,247.63  
233.02

*Rounding of figures may result in computational discrepancies.*

**MINERAL RESOURCE AND ORE RESERVE REPORT 2013**

**10**

MINERAL RESOURCE BY COUNTRY

Exclusive of Ore Reserve (Attributable)

**Tonnes**

**Grade**

**Contained gold**

**as at 31 December 2013**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

South Africa

Measured

15.33

18.11

277.65

8.93

Indicated

230.62

3.71

856.27

27.53

Inferred

17.00

18.74

318.52

10.24

Total

262.95

5.52

1,452.43

46.70

Democratic Republic of the Congo

Measured

0.09

1.63

0.14

0.00

Indicated

32.31

3.35

108.15

3.48

Inferred

30.62

3.59

109.83

3.53

Total

63.02

3.46

218.13  
7.01  
Ghana  
Measured  
9.67  
7.88  
76.17  
2.45  
Indicated  
56.22  
3.54  
199.27  
6.41  
Inferred  
139.22  
2.85  
396.84  
12.76  
Total  
205.10  
3.28  
672.28  
21.61  
Guinea  
Measured  
0.41  
0.61  
0.25  
0.01  
Indicated  
43.36  
0.80  
34.85  
1.12  
Inferred  
61.17  
0.97  
59.06  
1.90  
Total  
104.94  
0.90  
94.15  
3.03  
Mali  
Measured  
5.43  
0.73  
3.96  
0.13  
Indicated

23.21  
1.74  
40.37  
1.30  
Inferred  
20.34  
0.89  
18.04  
0.58  
Total  
48.98  
1.27  
62.36  
2.00  
Namibia  
Measured  
7.29  
0.52  
3.80  
0.12  
Indicated  
40.72  
1.15  
46.72  
1.50  
Inferred  
6.83  
1.26  
8.61  
0.28  
Total  
54.84  
1.08  
59.13  
1.90  
Tanzania  
Measured  
—  
—  
—  
—  
Indicated  
48.23  
2.43  
117.00  
3.76  
Inferred  
31.38  
3.17  
99.35  
3.19

Total  
79.61  
2.72  
216.35  
6.96  
Australia  
Measured  
3.21  
0.87  
2.80  
0.09  
Indicated  
43.29  
1.97  
85.30  
2.74  
Inferred  
20.05  
3.04  
60.92  
1.96  
Total  
66.55  
2.24  
149.02  
4.79  
Argentina  
Measured  
3.62  
2.29  
8.30  
0.27  
Indicated  
26.68  
2.08  
55.58  
1.79  
Inferred  
5.66  
2.64  
14.93  
0.48  
Total  
35.95  
2.19  
78.80  
2.53  
Brazil  
Measured  
6.46  
6.08



39.30  
1.26  
Indicated  
10.94  
5.02  
54.88  
1.76  
Inferred  
47.34  
5.29  
250.63  
8.06  
Total  
64.74  
5.33  
344.81  
11.09  
Colombia  
Measured  
14.80  
0.79  
11.62  
0.37  
Indicated  
52.90  
0.59  
31.07  
1.00  
Inferred  
1,161.73  
0.80  
925.92  
29.77  
Total  
1,229.43  
0.79  
968.61  
31.14  
United States  
Measured  
127.24  
0.67  
85.85  
2.76  
Indicated  
112.52  
0.63  
70.38  
2.26  
Inferred  
51.24

0.67  
34.50  
1.11  
Total  
291.00  
0.66  
190.74  
6.13  
Total  
Measured  
193.55  
2.63  
509.83  
16.39  
Indicated  
720.99  
2.36  
1,699.83  
54.65  
Inferred  
1,592.59  
1.44  
2,297.16  
73.86  
Total  
2,507.13  
1.80  
4,506.82  
144.90

*Rounding of figures may result in computational discrepancies.*

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**11**

GROUP OVERVIEW

ORE RESERVE BY COUNTRY

(Attributable)

**Tonnes**

**Grade**

**Contained gold**

**as at 31 December 2013**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

South Africa

Proved

150.77

0.68

102.05

3.28

Probable

731.97

1.17

859.08

27.62

Total

882.75

1.09

961.13

30.90

Democratic Republic of the Congo

Proved

2.43

2.36

5.71

0.18

Probable

37.23

4.16

154.98

4.98

Total

39.66

4.05

160.70

5.17

Ghana

Proved

31.73

3.90

123.61

3.97

Probable

53.35

3.58  
190.90

6.14

Total

85.08

3.70

314.52

10.11

Guinea

Proved

33.72

0.62

21.03

0.68

Probable

52.51

0.69

36.26

1.17

Total

86.23

0.66

57.28

1.84

Mali

Proved

—

—

—

—

Probable

23.70

1.94

45.91

1.48

Total

23.70

1.94

45.91

1.48

Namibia

Proved

—

—

—

—

Probable

46.34

1.29

59.65

1.92

Total  
 46.34  
 1.29  
 59.65  
 1.92  
 Tanzania  
 Proved  
 –  
 –  
 –  
 –  
 Probable  
 36.92  
 3.28  
 121.29  
 3.90  
 Total  
 36.92  
 3.28  
 121.29  
 3.90  
 Australia  
 Proved  
 32.37  
 1.73  
 56.08  
 1.80  
 Probable  
 27.16  
 2.30  
 62.33  
 2.00  
 Total  
 59.53  
 1.99  
 118.41  
 3.81  
 Argentina  
 Proved  
 10.27  
 1.04  
 10.63  
 0.34  
 Probable  
 7.30  
 5.23  
 38.20  
 1.23  
 Total  
 17.57  
 2.78

48.84  
1.57  
Brazil  
Proved  
8.40  
4.13  
34.71  
1.12  
Probable  
10.30  
4.29  
44.18  
1.42  
Total  
18.71  
4.22  
78.89  
2.54  
United States  
Proved  
122.01  
0.84  
102.83  
3.31  
Probable  
60.65  
0.72  
43.67  
1.40  
Total  
182.65  
0.80  
146.50  
4.71  
Total  
Proved  
391.70  
1.17  
456.65  
14.68  
Probable  
1,087.44  
1.52  
1,656.45  
53.26  
Total  
1,479.14  
1.43  
2,113.11  
67.94

*Rounding of figures may result in computational discrepancies.*

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**12**

GROUP OVERVIEW

**13**

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RECONCILIATION OF INCLUSIVE MINERAL RESOURCE:

2012 – 2013

(Au content Moz)

**Previous**

**year**

**Sources of change**

**as at 31 December 2013**

**Depletion**

**Gold price**

**Cost**

**Exploration      Methodology**

**Acquisition/**

**disposal**

**Other**

South Africa

Great Noligwa

1.036

(0.128)

–

0.777

0.054

–

–

(0.103)

Kopanang

9.248

(0.280)

–

(1.131)

(1.148)

–

–

0.103

Moab Khotsong

20.914

(0.295)

–

(0.372)

(0.045)

–

–

–

Vaal River Surface

4.756

(0.162)

–

–

(0.037)

0.064

–

0.004

Mine Waste Solutions

2.584  
(0.205)

—

—

0.004  
0.006

—

0.018

Mponeng

50.817  
(0.459)

(0.784)  
(0.384)

1.309

—

—

2.052

Savuka

2.978  
(0.052)

—

(0.826)

0.075

0.395

—

(2.570)

TauTona

4.693  
(0.298)

—

(0.004)

0.041

(0.161)

—

0.189

West Wits Surface

1.571  
(0.020)

—

—

0.015

0.023

—

0.005

Total

98.597  
(1.899)

(0.784)

(1.940)

0.268

0.327

—

(0.303)

Continental Africa

Kibali

8.505

(0.048)

(0.171)

0.364

1.871

—

(0.552)

—

Mongbwalu

2.057

—

—

—

0.461

—

—

—

Iduapriem

6.619

(0.288)

(0.312)

—

0.072

0.186

—

0.060

Obuasi

29.825

(0.351)

—

—

0.098

(2.177)

—

—

Siguiri

5.171

(0.248)

(0.557)

(0.333)

0.788

0.167

—

(0.061)

Morila

0.270

(0.054)  
—  
—  
—  
0.013  
—  
0.004  
Sadiola  
3.786  
(0.087)  
(0.549)  
—  
0.019  
(0.065)  
—  
(0.006)  
Yatela  
0.089  
(0.010)  
(0.073)  
—  
—  
—  
—  
Navachab  
4.408  
(0.103)  
(0.074)  
(0.280)  
0.047  
0.069  
—  
(0.158)  
Geita  
12.282  
(0.620)  
(1.608)  
(0.408)  
0.233  
0.816  
—  
(0.031)  
Total  
73.012  
(1.809)  
(3.345)  
(0.658)  
3.590  
(0.991)  
(0.552)

(0.191)  
Australasia  
Sunrise Dam  
2.819  
(0.361)  
(0.103)  
0.113  
0.469  
0.265  
—  
0.024  
Tropicana  
5.524  
(0.234)  
—  
—  
—  
0.116  
—  
—  
Total  
8.343  
(0.596)  
(0.103)  
0.113  
0.469  
0.382  
—  
0.024  
Americas  
Cerro Vanguardia  
4.717  
(0.246)  
(0.607)  
(0.058)  
0.280  
0.042  
—  
—  
AGA Mineração  
11.794  
(0.458)  
(0.108)  
—  
0.639  
(0.059)  
—  
0.150  
Serra Grande  
2.787  
(0.182)

(0.005)  
 -  
 0.310  
 0.079  
 -  
 -  
 Gramalote  
 2.552  
 -  
 (0.113)  
 -  
 0.754  
 (0.104)  
 -  
 -  
 La Colosa  
 26.838  
 -  
 (4.101)  
 -  
 5.316  
 -  
 -  
 -  
 Cripple Creek & Victor  
 12.897  
 (0.577)  
 (0.664)  
 (0.570)  
 0.211  
 (0.780)  
 -  
 0.325  
 Total  
 61.586  
 (1.462)  
 (5.598)  
 (0.628)  
 7.510  
 (0.822)  
 -  
 0.475  
 Grand total  
 241.538  
 (5.766)  
 (9.829)  
 (3.112)  
 11.837  
 (1.104)  
 (0.552)  
 0.005

*Rounding of figures may result in computational discrepancies.*

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**14**

**Current  
year  
Net diff**

<b>%</b>	<b>Comments</b>
1.636	
0.60	
58	Change mainly due to areas of the Vaal Reef and Crystalkop Reef now being considered potentially economic, this was offset by a minor value drop, depletions and transfers.
6.792	
(2.46)	
(27)	Change mainly due to low grade areas becoming uneconomic. Grades are marginally down and expected to drop in the direction of mining with reduced tonnage due to lower stoping width planned.
20.202	
(0.71)	
(3)	Changes mainly due to new sampling data at Top and Lower Mine, depletions, stoping width change and pillars becoming uneconomic.
4.626	
(0.13)	
(3)	Changes mainly due to depletions from waste rock dump material and Sulphur Paydam. Additions were mainly tailings material.
2.406	
(0.18)	
(7)	Changes mainly due to depletions.
52.551	
1.73	
3	Decrease in Ventersdorp Contact Reef due to estimation domain changes on Elsburgs as well as low-grade areas becoming uneconomic, offset by transfers from Savuka and TauTona.
0	
(2.98)	
–	Changes were mainly due depletions and transfers to TauTona and Mponeng as well as low-grade areas becoming uneconomic.
4.461	
(0.23)	
(5)	Decrease was mainly due to depletions and low-grade areas becoming uneconomic offset by an increase due to structure modelling changes and transfers from Savuka.
1.594	
0.02	
1	Growth due to annual tailings additions.
94.267	
(4.33)	
(4)	



9.968

1.46

17

Modelling and re-interpretation of the ore zone due to new exploration drilling information resulted in positive changes. The ground comprising of Kibali South Inferred Mineral Resource was transferred to Sokimo in settlement of the remaining obligations.

2.518

0.46

22

Increase due to new exploration Mineral Resource extension drilling information.

6.338

(0.28)

(4)

Increase due to Mineral Resource model extensions into the Ajopa bridge area which was offset by depletions and gold price changes.

27.395

(2.43)

(8)

Decrease due to updated domaining in the Mineral Resource models, updating of depletion wireframes around the historically mined-out areas and increase in cut-off grade from 1.06 to 1.6 g/t.

4.927

(0.24)

(5)

Decrease due to a drop in gold price, increase in cost and depletion. This was only partially offset by gains from infill drilling and updated models in P1 and P3.

0.233

(0.04)

(14)

Stockpiles continued to be treated during 2013. Main pit tonnages now included in 2013.

3.099

(0.69)

(18)

Decrease due to gold price.

0.006

(0.08)

(93)

Yatela Main Pit Pushback 8 is no longer economic due to reduction in gold price and geotech issues.

Only stockpiles remain.

3.909

(0.50)

(11)

Slight model gains in Anomaly 13 and Anomaly 16 were offset by reductions due to gold price and costs.

10.663

(1.62)

(13)

Reduction due to lower gold price was slightly offset by positive model changes in the lower cutbacks of Nyankanga as the result of new infill exploration drill holes.

69.056

(3.96)

(5)

3.227

0.41

14

Additional Mineral Resource defined from exploration drilling and lower mining costs.

5.406

(0.12)

(2)

Minor changes due to depletion and pit designs – no change to models.

8.633

0.29

3

4.129

(0.59)

(12)

Significant reductions due to increased costs, reduced gold price and depletion.

11.959

0.16

1

Depletions and the effect of economics was balanced by revised modelling and exploration information.

2.989

0.20

7

Increases due to exploration success.

3.088

0.54

21

The main changes were due to exploration addition, classification methodology and revisions to the estimation technique.

28.053

1.22

5

Exploration success.

10.842

(2.05)

(16)

Reductions in: gold price, estimated grade and recovery factors in Cresson resulted in reductions which were in part compensated for by exploration success and a reduced cut-off grade.

61.061

(0.53)

(1)

233.017

(8.52)

(4)

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**15**

GROUP OVERVIEW

RECONCILIATION OF ORE RESERVE:

2012 – 2013

(Au content Moz)

**Sources of change  
as at 31 December 2013**

**Previous**

**year**

**Depletion**

**Model change**

**Changes in  
economics**

**New ounces  
from project**

**Scope  
change**

South Africa

Great Noligwa

0.393

(0.068)

0.163

–

–

(0.009)

Kopanang

1.393

(0.203)

0.182

–

–

0.082

Moab Khotsong

6.606

(0.217)

(0.227)

–

–

(0.073)

Vaal River Surface

4.649

(0.152)

(0.055)

–

–

–

Mine Waste Solutions

2.347

(0.203)

0.003

–

–

0.104

Mponeng	
13.807	
(0.364)	
(0.042)	
—	
—	
1.165	
Savuka	
0.544	
(0.034)	
—	
—	
—	
(0.509)	
TauTona	
1.649	
(0.195)	
(0.266)	
—	
—	
0.200	
West Wits Surface	
0.171	
(0.019)	
0.008	
—	
—	
0.025	
Total	
31.560	
(1.457)	
(0.234)	
—	
—	
0.984	
Continental Africa	
Kibali	
4.921	
(0.048)	
0.294	
—	
—	
—	
Iduapriem	
2.206	
(0.215)	
(0.048)	
—	
—	
0.028	
Obuasi	

8.517  
 (0.215)  
 (0.158)

—

—

—

Siguiri  
 2.202  
 (0.227)

0.024  
 (0.157)  
 0.037

(0.023)  
 Morila  
 0.056

(0.054)  
 —  
 —

—

0.038  
 Sadiola  
 2.138

(0.133)  
 (0.208)  
 (0.276)

—

—

Yatela  
 0.032  
 (0.010)

—  
 (0.022)  
 —

—

Navachab  
 2.099  
 (0.094)

0.062  
 (0.128)  
 —

(0.022)  
 Geita  
 5.421

(0.496)  
 0.464  
 (1.998)

—

0.506  
 Total  
 27.592  
 (1.493)

0.431  
(2.582)  
0.037  
0.527  
Australasia  
Sunrise Dam  
1.184  
(0.371)  
0.037  
—  
—  
0.314  
Tropicana  
2.731  
(0.134)  
0.012  
—  
—  
(0.007)  
Total  
3.914  
(0.505)  
0.049  
—  
—  
0.308  
Americas  
Cerro Vanguardia  
2.032  
(0.282)  
0.094  
(0.329)  
—  
0.055  
AGA Mineração  
2.330  
(0.405)  
0.112  
(0.018)  
0.004  
(0.106)  
Serra Grande  
0.764  
(0.144)  
(0.005)  
(0.013)  
(0.033)  
0.003  
Cripple Creek and Victor  
5.883  
(0.694)

(0.005)

(0.497)

—

0.022

Total

11.011

(1.524)

0.195

(0.857)

(0.028)

(0.025)

Grand total

74.077

(4.979)

0.441

(3.438)

0.008

1.794

*Rounding of figures may result in computational discrepancies.*

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**16**

**Acquisition/  
disposal  
Other  
Current  
year  
Net diff  
%**

**Comments**

–

–

0.478

0.09

22

Selected Crystalkop reef areas included in the Ore Reserve.

–

–

1.455

0.06

4

Increase due to the grade cut-off being reduced based as the result of higher planned volumes.

–

0.033

6.122

(0.48)

(7)

Decrease due to structural modelling changes in Top and Middle mine, and reduction in grade in Lower mine.

–

0.019

4.460

(0.19)

(4)

Decrease mainly as a result of depletions.

–

(0.003)

2.248

(0.10)

(4)

Decrease due to depletions.

–

–

14.567

0.76

5

Ore Reserve increased due to the transfer of Savuka Ore Reserve to Mponeng and mine design changes.

–

–

0

(0.54)



—  
Ore Reserve transferred to TauTona and Mponeng (majority to Mponeng).

—  
—  
1.388  
(0.26)  
(16)

Decrease due to structural interpretation changes and depletions.

—  
(0.001)  
0.184  
0.01  
7

Slight increase due to re-instatement of Savuka R11 waste rock dump.

—  
0.047  
30.901  
(0.66)  
(2)

—  
—  
5.166  
0.25  
5

Converted Inferred Mineral Resource to Indicated Mineral Resource via grade control drilling thereby increasing the Probable Ore Reserve.

—  
—  
1.971  
(0.24)  
(11)

Impact of decreased gold price and depletion.

—  
(0.003)  
8.141  
(0.38)  
(4)

Impact of decreased gold price and depletion.

—  
(0.012)  
1.842  
(0.36)  
(16)

Impact of decreased gold price, total costs increased and depletion reduced Ore Reserve. This was partially offset by Inferred Mineral Resource conversion.

—  
0.004  
0.044  
(0.01)  
(22)

Stockpile depletion and addition of mining cutback.

—  
(0.089)  
1.432  
(0.71)  
(33)  
Reduction due to model changes, gold price change, depletions and write  
down of stockpile material.

—  
0.001  
0  
(0.03)  
—

No Ore Reserve being reported. Mining operations have ceased.

—  
—  
1.918  
(0.18)  
(9)

Impact of decreased gold price and depletion.

—  
0.002  
3.899  
(1.52)  
(28)

Impact of decreased gold price and depletion, negative impact from  
model changes and higher contract costs. Scope changes, include Ore  
Reserve additions from Nyankanga Cut 11.

—  
(0.097)  
24.413  
(3.18)  
(12)

—  
0.013  
1.177  
(0.01)  
(1)

Additional ore tonnages added by lower mining costs, achieved by replacing  
bulk development sampling with RC grade control drilling.

—  
0.028  
2.630  
(0.10)  
(4)

Minor changes due to depletion and pit designs.

—  
0.041  
3.807  
(0.11)  
(3)

—  
—  
1.570  
(0.46)  
(23)  
Significant reductions due to increased costs, reduced gold price and depletion.  
—  
0.052  
1.971  
(0.36)  
(15)  
Changes due to revised planning factors and changes to mining styles.  
—  
(0.006)  
0.566  
(0.20)  
(26)  
The main impacts in the Ore Reserve were due to economics parameters and needed to remove an open pit due to geotechnical revaluation.  
—  
—  
4.710  
(1.17)  
(20)  
Lower gold price had the most substantial impact (aside from depletion) in reducing the 2013 Ore Reserve.  
—  
0.046  
8.817  
(2.19)  
(20)  
—  
0.036  
67.938  
(6.14)  
(8)  
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GROUP OVERVIEW

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SECTION TWO  
P18-57

This section covers AngloGold Ashanti's  
five deep level mines and surface  
operations in the South Africa Region.

ZA

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**18**

As at December 2013, AngloGold Ashanti's operations in South Africa have a total Inclusive Mineral Resource of 94.27Moz (2012: 98.60Moz) and an Ore Reserve of 30.90Moz (2012: 31.56Moz). This is equivalent to around 40% and 45% of the group's Mineral Resource and Ore Reserve respectively. The South African operations produced 1.3Moz of gold in 2013, or 32% of group production, and 1.38Mlb of uranium oxide.

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes  
Grade  
Contained gold  
South Africa  
Category  
million  
g/t  
Tonnes  
Moz**

Measured

164.79

2.48

409.37

13.16

Indicated

949.84

2.07

1,968.70

63.30

Inferred

51.36

10.78

553.96

17.81

Total

1,165.99

2.51

2,932.03

94.27

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes  
Grade  
Contained gold  
South Africa  
Category  
million  
g/t  
Tonnes  
Moz**

Measured

15.33

18.11

277.65

8.93

Indicated

230.62

3.71

856.27

27.53

Inferred

17.00

18.74

318.52

10.24

Total

262.95

5.52

1,452.43

46.70

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**South Africa**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

150.77

0.68

102.05

3.28

Probable

731.97

1.17

859.08

27.62

Total

882.75

1.09

961.13

30.90

OVERVIEW

Moz  
60  
50  
40  
30  
20  
10  
0

December 2012

December 2013

**South Africa**

**Inclusive Mineral Resource – attributable**

**Per operation/project**

Moz  
16  
14  
12  
10  
8  
6  
4  
2  
0

December 2012

December 2013

**South Africa**

**Ore Reserve – attributable**

**Per operation/project**

*\* Savuka has formed part of TauTona operations since 2013.*

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## COUNTRY OVERVIEW

AngloGold Ashanti's South Africa operations comprise five deep-level underground mines and surface processing operations. These operations are all located within the Witwatersrand Basin and are in two mining districts, the Vaal River and West Wits areas.

- The Vaal River operations consist of the Great Nologwa, Kopanang and Moab Khotsong mines and the Vaal River Surface processing operation. Since July 2012, Mine Waste Solutions (MWS) has also formed part of these operations.

- The West Wits operations consist of the Mponeng and TauTona mines (Savuka forms part of TauTona operations) and the West Wits Surface processing operation.

The Vaal River operations are situated near the town of Klerksdorp. The primary reefs mined by these operations are the Vaal Reef (VR), the Ventersdorp Contact Reef (VCR) and the secondary Crystalkop Reef (C Reef).

The West Wits operations are situated near the town of Carletonville. The primary reefs mined by these operations are the Carbon

Leader Reef (CLR) and the Ventersdorp Contact Reef (VCR).

All five underground operations are 100% owned by AngloGold Ashanti. The Vaal River Surface, MWS and West Wits Surface

operations re-work the waste rock dumps and tailings dams which resulted from the mining and processing of the primary and secondary reef horizons.

## MINERAL RESOURCE ESTIMATION

The sampling data used in Mineral Resource estimation includes underground chip samples, underground drill holes and surface drill

holes. All sample locations are reported as a composite over a mineralised width, resulting in a single channel width (cm) and metal

accumulation (cm.g/t) value.

## SOUTH AFRICA

### **continued**

### **Free State**

### **North**

### **West**

### **Province**

### **Northern Cape**

### **Eastern Cape**

## **LESOTHO**

Potchefstroom

Orkney

West Wits

Vaal River

TauTona

Mponeng

Surface Operations

Moab Khotsong

Surface Operations\*

Great Nologwa

Kopanang

Carletonville

**Gauteng**

**Mpumalanga**

**Kwazulu Natal**

**Limpopo**

Johannesburg

*\* Includes Mine Waste Solutions (MWS).*

South Africa

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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AngloGold Ashanti makes use of a Bayesian geostatistical approach where, in the absence of dense sampling data, gold estimations are based on a combination of the observed data and external knowledge relating to the data. A Bayesian geostatistical approach asserts that the area to be evaluated forms part of a larger continuous entity, to which the observed data belongs. Mixed support Co-Kriging is used in the estimation of the Mineral Resource for all South African underground operations. It is a technique that enables the use of data of mixed support, allowing both drill hole and underground sampling data to be used together. Estimation is performed into large block sizes, generally >210m x 210m, which fully capture the within-block variance, allowing the Co-Kriging of data of different support sizes over long ranges. Estimation is done per geological homogeneous zone, in logarithmic space because of the highly skewed gold distribution. The final gold estimates are then calculated by back transforming the estimates, using lognormal four parameter distribution models. Simple Kriging is used for grade control and Measured Mineral Resource at a 30m x 30m block size and constrained by the weight of the mean value. The Mineral Resource is initially reported as inclusive of the Ore Reserve as it forms the basis for the Ore Reserve conversion process.

Mineral Resource cut-off grades are computed for each operation, by reef horizon. These cut-off grades incorporate a profit margin that is relevant to the business plan. Grade tonnage curves are produced for each operation, which show the potential of the deposit at different cut-off grades.

#### ORE RESERVE ESTIMATION

Mine design delineates the mining areas and supporting development for each mining level and section, usually by extrapolating the existing mining design. The *in-situ* Mineral Resource is scheduled monthly for the full Life of Mine (LOM) plan. The value estimates for these schedules are derived from the Mineral Resource model.

Modifying factors are applied to the *in-situ* Mineral Resource to arrive at an Ore Reserve. These factors comprise a dilution factor to accommodate the difference between the milling width and the stoping width, as well as the Mine Call Factor (MCF).

#### *Development sampling results – January to December 2013*

Development values represent actual results of sampling, no allowances having been made for adjustments necessary in estimating the Ore Reserve.

#### **Sampled gold**

#### **Sampled uranium**

#### **Statistics are shown in metric**

#### **units**

#### **Advanced**

#### **metres (total)\***

#### **Sampled**

#### **metres**

#### **Avg. channel**

#### **width (cm)**

#### **Avg. g/t**

#### **Avg. cm.g/t**

#### **Avg. kg/t**

**Avg.**

**cm.kg/t**

**Vaal River**

Great Noligwa

Crystalkop Reef

345.0

50.0

10.2

92.84

947

2.37

36.72

Vaal Reef

911.4

86.0

58.9

45.69

2,691

1.53

76.81

Kopanang

Vaal Reef

14,671.2

1,698.0

22.8

53.68

1,224

3.55

81.95

Moab Khotsong

Vaal Reef

10,587.5

1,270.0

133.4

25.97

3,464

0.95

125.38

**West Wits**

Mponeng

Ventersdorp Contact Reef

13,277.2

1,962.0

69.4

27.84

1,932

–

–

TauTona

Carbon Leader Reef

7,460.3

393.0  
23.2  
122.80  
2,849  
1.54  
31.11

*\* This includes both on-reef and off-reef development.*

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## LOCATION

Great Nologwa is located about 15km southeast of the town of Orkney, in the southern part of the Klerksdorp Goldfield. The Great

Nologwa mining lease area is about 49km

2

and is constrained to the north by China African Precious Metals, to the east by Buffelsfontein mine, to the south by Moab Khotsong and the Jersey and De Hoek faults (downward displacement of 1,000m and 900m respectively),

and to the west by Kopanang Mine.

Great Nologwa Mine commenced production in 1968, making it one of the group's older South African mines. (It was originally Number

8 Shaft of the historic Vaal Reefs Mining Company). The economic horizons are exploited between 1,500m and 2,600m below surface

through a mining method that gains access to the gold-bearing reefs with footwall haulages and return airway development. Cross-

cuts are developed every 180m from the haulages to the reef horizon. Raises are then developed on-reef to the level above and the

reef is mined out on strike.

## GEOLOGY

The Vaal Reef (VR) is the principal economic horizon at Great Nologwa and the Crystalkop Reef (C Reef) is the secondary economic

horizon. Both reefs are part of the Witwatersrand Supergroup and are stratigraphically located near the middle of the Central Rand

Group. The C Reef forms the top of the Johannesburg Subgroup, while the VR lies approximately 265m below the C Reef.

The VR unit can reach a maximum thickness of 2m and consists of a thin basal conglomerate (the C facies) and a thicker sequence

of upper conglomerates (the A facies). These two sedimentary facies are separated by the B facies, which is a layer of barren

orthoquartzite. A facies is the principal economic horizon within the VR, but remnants of the C facies are sporadically preserved below

the A facies. High gold values in the VR are often located at the base of this unit and are associated with high uranium values as well

as with the presence of carbon. Uranium is a very important by-product of Great Nologwa.

## GREAT NOLIGWA

### North West Province

N

### Free State Province

Klerksdorp

Orkney

Village Main Reef

Hartebeestfontein

Stilfontein

Village Main Reef

Buffelsfontein

China African

Precious Metals

4 Shaft

Weltevreden

Vaal River

Village Main Reef

Tau Lekoa  
Village Main Reef  
Border

**Great Noligwa**

**Moab Khotsong**

**Kopanang**

Kilometres

0

1

2

3

4

Locality plan

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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The C Reef has been mined on a limited scale in the central part of Great Nologwa, where a high-grade, north-south orientated sedimentary channel, containing two economic horizons, has been exposed. To the east and the west of this channel the C Reef is poorly developed with relatively small areas of economic interest. As in the case of VR, high uranium values are also often associated with high gold values and the presence of a 5mm to 2cm thick carbon seam at the base of the conglomerate. To the north of the mine the C Reef sub-crops against the Gold Estates Conglomerate Formation and in the extreme south of the mine the C Reef has been eliminated by a deep Kimberley erosion channel and the Jersey fault.

A geological model is employed to delineate variations (either lateral or vertical) in characteristics of the VR. The current geological model thus subdivides the VR at Great Nologwa, Kopanang and Moab Khotsong Mines into homogeneous zones (referred to as geozones, facies or Estimation Domains (ED)) based on geological and grade characteristics.

#### EXPLORATION

Exploration is currently focused on defining smaller structural features of less than 10m that have an influence on the mining activities. With the conclusion of exploration drilling in the Fish Project area no further exploration to increase the Mineral Resource has been planned.

#### PROJECTS

##### Increase in Mineral Resource and Ore Reserve

The Mineral Resource has increased by 58% due to changed assumptions about considerations of reasonable and realistic prospects for eventual economic extraction. This was done as a result of the change in economic and business guidelines for Great Nologwa Mine allowing for an increase in the Mineral Resource (mainly from the C Reef and the Fish Area on the VR) and Ore Reserve.

##### Fish Project (Zuiping A Fault loss)

Drilling was completed within the Zuiping A Fault zone containing remnant blocks of VR. This ground is situated in the eastern part of the mining lease area and is referred to as the Fish Block. The reef blocks are situated in a high-grade zone within the Zuiping A Fault

loss area. The Zuiping faults are early NNW-dipping thrusts and reverse faults. Based on new exploration drilling information the area

has been subject to a significant structural re-interpretation. As a result the geological confidence has been increased for this area and

the block was re-instated into the Mineral Resource. The mining feasibility of this block will be investigated during 2014.

##### C Reef

A large portion of C Reef was re-instated into the Mineral Resource on the basis that it is now potentially economic. This was due to

economic considerations resulting in C reef being included into the Planning Resource (Reserve). 96% of the C Reef Mineral Resource

falls within the Measured and Indicated Mineral Resource categories. Exploration drilling is currently focused on delineating smaller

faults with throws of less than 10m and the edges of the erosional Kimberley channels.

AngloGold Ashanti Technology and Innovation Consortium (ATIC) Project



A C Reef block of ground was identified on 64 Level, where the ATIC Project will focus on improving the mining method that can better extract lower-value reef. This should increase productivity, improve gold recovery, reduce development costs and improve safety.

Currently access development is taking place and reef boring is expected to start during the latter part of 2014.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole**

**Channel**

**Other**

**Comments**

Great Noligwa

Measured

5 x 5

–

–

–

–

Underground chip sampling

Indicated

100 x 100

–

–

–

–

Underground drilling

Inferred

1,000 x 1,000

–

–

–

–

Surface drilling

Grade/Ore Control

–

–

–

–

See Measured category

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1.04  
 -0.13  
 0.00  
 0.78  
 0.05  
 0.00  
 -0.10  
 0.00  
 1.64  
 Ounces  
 (millions)  
 1.8  
 1.7  
 1.6  
 1.5  
 1.4  
 1.3  
 1.2  
 1.1  
 1.0  
 0.9  
 0.8  
 2012  
 Deple-  
 tion  
 Gold  
 price  
 Cost  
 Explo-  
 ration  
 Metho-  
 dology  
 Other  
 Acquisition/  
 Disposal  
 2013  
**Great Noligwa**  
**Mineral Resource reconciliation: 2012 to 2013**  
 0.39  
 -0.07  
 0.16  
 0.00  
 0.00  
 -0.01  
 0.00  
 0.00  
 0.48  
 Ounces  
 (millions)  
 0.50  
 0.48

0.46  
0.44  
0.42  
0.40  
0.38  
0.36  
0.34  
0.32  
0.30  
2012  
Other  
2013

**Great Noligwa**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion

Model  
change

Economics

New

ounces

from

Projects

Scope

Change

Acquisition/

Disposal

**GREAT NOLIGWA**

**continued**

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Great Noligwa**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Crystalkop Reef

Measured

0.50

13.05

6.54

0.21

Indicated

0.19

15.61

3.01

0.10

Inferred

0.00

23.10

0.05

0.00

Total

0.70

13.79

9.60

0.31

Vaal Reef

Measured

1.99

18.29

36.38

1.17

Indicated

0.20

17.63

3.59

0.12

Inferred

0.05

24.57

1.30

0.04

Total

2.25

18.38

41.27

1.33

Great Noligwa

Total

2.94

17.29

50.87

1.64

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**South Africa**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Great Noligwa

Measured

1.05

20.57

21.67

0.70

Indicated

0.07

29.61

2.20

0.07

Inferred

0.05

24.51

1.35

0.04

Great Noligwa

Total

1.18

21.32

25.22

0.81

The majority of the Exclusive Mineral Resource is due to design and schedule losses planned in the structurally complex mineralised deposit.

*Mineral Resource below infrastructure*

There is no Mineral Resource below infrastructure.

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Great Noligwa**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Crystalkop Reef

Proved

0.39

5.68

2.21

0.07

Probable

0.15

5.81

0.86

0.03

Total

0.54

5.72

3.07

0.10

Vaal Reef

Proved

1.09

9.24

10.11

0.33

Probable

0.20

8.49

1.70

0.05

Total

1.29

9.12

11.81

0.38

Great Noligwa

Total

1.83

8.12

14.88

0.48

*Ore Reserve modifying factors*

as at  
31 December 2013

Great Noligwa

Gold

price

ZAR/kg

Cut-off

value

g/t Au

Cut-off

value

cm.g/t

Au

Stoping

width

cm

Dilution

%

Diluted

grade

MCF

%

MetRF

%

Crystalkop Reef

360,252

11.24

1,600

142.3

59.8

8.52

58.0

94.5

Vaal Reef

360,252

9.13

1,600

175.2

50.6

9.34

58.0

94.5

*Inferred Mineral Resource in business plan*

No planning or scheduling took place in areas classified as Inferred Mineral Resource.

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

0

2

4

6

8



10  
12  
14  
16  
18  
20  
Tonnes above  
cut-off (millions)  
Average  
grade  
above  
cut-off (g/t)  
Cut-off grade (g/t)  
27  
26  
25  
24  
23  
22  
21  
20  
19  
18  
17  
16  
3.0  
2.8  
2.6  
2.4  
2.2  
2.0  
1.8  
1.6  
1.4  
1.2  
1.0  
0.8

Tonnes above cut-off  
Ave grade above cut-off

**Great Noligwa  
Grade tonnage curve – Underground (metric)**

**COMPETENT PERSONS**

**Category  
Competent Person  
Professional  
organisation  
Membership  
number  
Relevant  
experience  
Qualification**

Mineral Resource

Brenda Freese

GSSA

966 602

16 years

BSc Hons (Geology)

GDE (Mineral Economics) WITS

Ore Reserve

Willie Olivier

PLATO

MS 0136

23 years

Government Certificate of Competency

in Mine Survey

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## LOCATION

Kopanang is one of three AngloGold Ashanti mines located in the Vaal River district, the other two being Great Nologwa and Moab

Khotsong. Kopanang is located in the Free State province, approximately 170km southwest of Johannesburg and 10km southeast

of the town of Orkney. The current mining lease encompasses an area of 35km

2

and is bound by Great Nologwa to the east, China

African Precious Metals Number 3 Shaft to the north and the Jersey fault (1,000m displacement) to the south. The natural extension

of the mine is to the southwest.

The mine has been in production since 1984. The shaft was sunk based on geological information provided by 14 surface drill holes

(of which only eight had intersected Vaal Reef (VR)), shaft sinking initiated in 1977 and was completed by 1981 with production

commencing in 1984. The gold-bearing reef horizons are accessed via a twin shaft system which descends to a maximum depth of

2,334m, while the main working levels are situated between 1,300m and 2,024m below surface. A sequential grid mining layout is

used from which scattered mining takes place.

## GEOLOGY

Kopanang is situated in a structurally complex area of the Witwatersrand Basin, which has been subjected to numerous tectonic

events. Two tabular gold- and uranium-mineralised reef horizons, the VR and Crystalkop Reef (C Reef), have been mined historically

at Kopanang. Currently only the VR is being mined, with limited C Reef mining planned during the LOM. The C Reef is situated

stratigraphically about 250m above the VR at Kopanang and is accessible through the VR infrastructure. These conglomerate units

dip at an average of 21° towards the south and occur in a 2,100m thick sedimentary sequence comprising the Central Rand Group.

Mining is complicated by the presence of an assortment of steep (85°– 50°) north-dipping and younger low-angle (50°–15°) south-

dipping faults. The interplay of these main fault regimes, along with abundant pre- and post-dating dykes, makes for a complex and

geologically challenging deposit.

A geological model is employed to delineate variations (either lateral or vertical) in characteristics of the VR. The current geological

model thus subdivides the VR at Great Nologwa, Kopanang and Moab Khotsong Mines into homogeneous zones (referred to as

geozones, facies or Estimation Domains (ED)) based on geological and grade characteristics.

## KOPANANG

### MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## EXPLORATION

Brownfields exploration targeting VR on Gencor 1 E and De Pont Landing was completed during 2013. The exploration encompassed the drilling of six exploration holes from surface and three long inclined drill holes from underground over a period of five years.

The new information acquired, in conjunction with historical drill hole information, alteration mineralogy studies, underground chip sampling data and analysis, resulted in the re-introduction of the 520 Estimation Domain (ED) to the west of the current mining front. The 520 ED was believed to be unnecessary because the reef was interpreted as having the same lithological characteristics as the 460 and 430 geozones and was removed during 2007. Mining progressed well into the historic 520 ED and returned values significantly above the low values (< 200cm.g/t) associated with the 520 ED. The exploration programme from 2009 to 2013 was designed to test the gold value to the west.

The 520 ED has been used for the estimation of the 2013 Mineral Resource. The result of this facies change was that values in the 520 ED decreased to an average estimate of 193cm.g/t and the contained ounces were no longer considered as reasonable and realistic prospects for eventual economic extraction. The value for the 520 ED was estimated by a global estimate using the surface drill holes in the 520 ED.

Exploration drilling in the area below 68 Level, that is beneath current mine infrastructure, was completed during 2013. The target

blocks consist of VR Inferred and Indicated Mineral Resource and also projected target blocks towards the Jersey fault. This drilling

has increased confidence in the Mineral Resource. However there was no increase in contained ounces.

Exploration on the Ventersdorp Contact Reef (VCR) was re-started during 2011 through surface drilling operations.

This reef is situated

approximately 500m stratigraphically above the VR on Kopanang. After the promising results that were returned from KGD8 whereby

the targeted facies was intersected at a value of 3,633cm.g/t over a channel width of 282cm, two exploration holes from underground

and an additional surface hole were drilled during 2013. This was to test the lateral and distal extent of the economic VCR facies

within reach of the current infrastructure. KGD12 was drilled from surface and intersected the oligomictic channel superimposed on an

underlying polymictic channel. Values were returned of 929cm.g/t for the two acceptable and representative intersections (Deflections

3 and 4) over a channel width of 186cm.

In addition to this surface drill hole, LIBB15 and K7865 were drilled from underground platforms. Both these holes were stopped

short of the VCR due to the holes extending well past the original anticipated VCR positions and placing the blocks above the current

infrastructure. K7865, drilling from 53 BW RAW was stopped in the Mondeor Formation at 293m due to safety concerns. This was a

steeply-inclined hole and the depth penetration limit of the rig was reached. LIBB15 drilling from 50 BW Access Crosscut was stopped

at 324m in the GE4s approximately 80 – 100m short of the VCR. This information allowed for the structure model to be updated. A

much larger exploration plan is required to confirm the VCR high-grade channel extension and the structure. This will be dependent on the feasibility of mining the VCR profitably. No VCR is included in the Mineral Resource.

**PROJECTS**

AngloGold Ashanti Technology and Innovation Consortium (ATIC) Reef Boring Project

A VR block of ground was identified on 42 Level, where the ATIC Project will focus on improving the mining method that can better

extract lower-value reef. This should increase productivity, improve gold recovery, reduce development costs and improve safety.

Access development was completed during 2013 and reef boring is planned to begin during the first half of 2014.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole**

**Channel**

**Other**

**Comments**

Kopanang

Measured

5 x 5

–

–

–

–

Underground chip sampling

Indicated

100 x 100

–

–

–

–

Underground drilling

Inferred

1,000 x 1,000

–

–

–

–

Surface drilling

Grade/Ore Control

–

–

–

–

See Measured category

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SECTION THREE  
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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kopanang**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Crystalkop Reef

Measured

0.07

11.92

0.86

0.03

Indicated

0.41

12.87

5.34

0.17

Inferred

0.39

13.46

5.29

0.17

Total

0.88

13.06

11.49

0.37

Vaal Reef EDOM

Measured

0.16

12.96

2.11

0.07

Indicated

0.37

7.05

2.63

0.08

Inferred

0.05

51.28

2.37

0.08

Total

0.58

12.22

7.11  
0.23  
Vaal Reef Base  
Measured  
4.48  
14.36  
64.28  
2.07  
Indicated  
6.42  
13.29  
85.32  
2.74  
Inferred  
0.23  
71.99  
16.61  
0.53  
Total  
11.13  
14.94  
166.22  
5.34  
Vaal Reef Above Infrastructure  
Measured  
0.06  
14.84  
0.83  
0.03  
Indicated  
1.99  
11.73  
23.31  
0.75  
Inferred  
0.12  
18.99  
2.29  
0.07  
Total  
2.16  
12.22  
26.43  
0.85  
Kopanang  
Total  
14.75  
14.32  
211.24  
6.79



42% of the Exclusive Mineral Resource is expected to be taken up by the shaft pillar and Mineral Resource beyond the current infrastructure. 43% can be attributed to design and schedule losses in structurally complex areas and areas with marginal gold mineralisation. 15% of the Exclusive Mineral Resource has been identified as areas for investigation with potential for inclusion in the Planning Resource.

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Kopanang**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**

Measured

2.58

18.64

48.01

1.54

Indicated

2.41

21.74

52.42

1.69

Inferred

0.56

30.96

17.39

0.56

Kopanang

Total

5.55

21.23

117.82

3.79

*Mineral Resource below infrastructure*

**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Kopanang**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**

Measured

0.04

17.51

0.67

0.02

Indicated

0.33

13.57

4.42

0.14

Inferred

0.28

16.55

4.70

0.15

Kopanang

Total

0.65

15.11

9.78

0.31

KOPANANG

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kopanang**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Crystalkop Reef

Proved

0.02

5.31

0.09

0.00

Probable

0.35

6.60

2.28

0.07

Total

0.36

6.54

2.36

0.08

Vaal Reef EDOM

Proved

0.16

4.63

0.72

0.02

Probable

0.21

4.52

0.97

0.03

Total

0.37

4.57

1.70

0.05

Vaal Reef Base

Proved

2.02

6.61

13.34

0.43

Probable

4.03  
6.90  
27.84

0.90  
Total

6.05  
6.81  
41.18

1.32  
Kopanang

Total  
6.78

6.67  
45.24

1.45

*Ore Reserve modifying factors*  
**as at 31 December 2013**

**Kopanang**

**Gold**

**price**

**ZAR/kg**

**Cut-off**  
**value**

**g/t Au**

**Cut-off**  
**value**

**cm.g/t**

**Au**

**Stoping**  
**width**

**cm**

**Dilution**

**%**

**Diluted**  
**grade**

**MCF**

**%**

**MetRF**

**%**

Crystalkop Reef

360,252

9.43

1,000

106.0

53.5

7.51

70.5

95.5

Vaal Reef Base

360,252

9.43

1,000  
 106.0  
 51.3  
 7.18  
 70.5  
 95.5  
 Vaal Reef EDOM  
 360,252  
 9.43  
 1,000  
 106.0  
 51.4  
 4.83  
 70.5  
 95.5

*Inferred Mineral Resource in business plan  
 as at 31 December 2013*

**Tonnes  
 million  
 Grade  
 g/t  
 Contained gold  
 Kopanang  
 Tonnes Moz  
 Comment**

Crystalkop Reef  
 0.09  
 15.60  
 1.47  
 0.05  
*In situ* content  
 Vaal Reef Base  
 0.06  
 12.14  
 0.77  
 0.02  
*In situ* content  
 Total  
 0.16  
 14.21  
 2.24  
 0.07

With appropriate caution, some Inferred Mineral Resource was included in the business plan during the optimisation process. This accounts for 3% of the business plan.

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

9.25  
 -0.28  
 0.00  
 -1.13

-1.15

0.00

0.10

0.00

6.79

Ounces

(millions)

9.5

9.0

8.5

8.0

7.5

7.0

6.5

6.0

2012

Deple-

tion

Gold

price

Cost

Explo-

ration

Metho-

dology

Other

Acquisition/

Disposal

2013

**Kopanang**

**Mineral Resource reconciliation: 2012 to 2013**

1.39

-0.20

0.18

0.00

0.00

0.08

0.00

0.00

1.45

Ounces

(millions)

1.50

1.45

1.40

1.35

1.30

1.25

1.20

1.15

1.10

2012  
Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Other  
Acquisition/  
Disposal  
2013

**Kopanang**

**Ore Reserve reconciliation: 2012 to 2013**

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0  
2  
4  
6  
8  
10  
12  
14  
16  
18  
20  
Tonnes above  
cut-off (millions)  
Average  
grade  
above  
cut-off (g/t)  
Cut-off grade (g/t)

30  
28  
26  
24  
22  
20  
18  
16  
14  
12  
16  
14  
12  
10  
8  
6  
4  
2  
0

Tonnes above cut-off  
Ave grade above cut-off

**Kopanang  
Grade tonnage curve – Underground (metric)**

KOPANANG  
**continued**  
COMPETENT PERSONS

**Category  
Competent Person  
Professional  
organisation  
Membership  
number  
Relevant**



**experience**

**Qualification**

Mineral Resource

Brenda Freese

GSSA

966 602

16 years

BSc Hons (Geology)

GDE (Mineral Economics) WITS

Ore Reserve

Willie Olivier

PLATO

MS 0136

23 years

Government Certificate of Competency

in Mine Survey

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## MOAB KHOTSONG

### LOCATION

Moab Khotsong is situated near the towns of Orkney and Klerksdorp, about 180km southwest of Johannesburg. The mining lease area lies to the south of Great Nologwa and Kopanang mines. Moab Khotsong is a relatively new mine and the first gold was produced in 2003.

The original plan was to exploit two distinct portions of the Moab Khotsong lease area, namely the Middle Mine (85 to 101 Level)

and the Lower Mine (101 to 118 Level). The Middle Mine exploits the Vaal Reef (VR) to depths of between 2,600m and 3,054m

below surface on the down-thrown side of the De Hoek and Jersey fault complex. In 2008 the SV4 section of Great Nologwa was

incorporated into Moab Khotsong and this section is now termed the Top Mine.

The extension of Moab Khotsong mine to the down-thrown side of the fault complex is strategic because the life of the Vaal River

operations could be increased significantly. The initial development of Moab Khotsong was taken with a view that the new mine would

be well positioned to exploit additional surrounding ore blocks. The most important of these blocks will be the Zaaiplaats blocks,

positioned to the southwest of the current Moab Khotsong infrastructure and extending some 400m deeper than the existing mine.

Mining is based on a scattered mining method with an integrated backfill support system combined with bracket pillars.

### GEOLOGY

The VR is the only economic horizon that is exploited at Moab Khotsong mine (refer to the description of the VR under the Great

Nologwa section on page 18). The Crystalkop Reef (C Reef) is preserved in the northern part of the mine where the reef has been

intersected by a number of drill holes. No development or stoping has taken place on the C Reef at Moab Khotsong to date.

The geology at Moab Khotsong is structurally complex with large fault-loss areas, but the main block at Zaaiplaats appears to be

comparatively undeformed and only faults of less than 30m displacement are expected. The geological setting is one of crustal

extension, bounded in the northwest and southeast by major south-dipping fault systems with north-dipping Zuiping faults sandwiched

between them. The De Hoek and Buffels East faults structurally bound the reef blocks of the Middle Mine to the northwest and

southeast respectively and the northern boundary is a north-dipping fault. The southern boundary fault of the Middle Mine is currently

not defined. Drilling is currently taking place in the Middle Mine area to obtain structural information below 101 Level.

Due to the magnitude of the displacement across the De Hoek fault (more than 700m down to the south), geological structures

encountered on the up-thrown side of the De Hoek fault cannot be locally projected to the down-thrown side and vice versa. It is only

once the development is through the De Hoek fault that geological mapping information has any bearing on the reef blocks, and a

considerable amount of exploration drilling is required to accurately delineate these blocks in this structurally complex area.

Occurrences of gold

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## EXPLORATION

Brownfields exploration is currently focused on improving confidence in the geological model. Five surface drilling machines and nineteen underground drilling machines were in operation during 2013 and reduced to one and seven respectively by end of 2013.

The surface drill hole MHH2 was drilled on the Hormah Prospecting Right area adjacent to the current Lower Mine Area C. MHH2 intersected an unusual development of poor VR at 31,43.98m beneath a large fault, interpreted to significantly reduce the size of the target block. Plans to drill MHH3 were subsequently cancelled and the Hormah Prospecting Right was allowed to lapse.

Two rigs (MGR6 and MGR8) targeted the periphery of the Zaaiplaats project area, where multiple structures define the ore block margins. The deflection drilling programme at drill hole MGR8 was further delayed by technical issues and subsequently abandoned due to cost reductions implemented during 2013. The long deflection of MGR6 progressed drilling in order to increase the structural confidence along the southern margin of Zaaiplaats. The deflection was stopped at a depth of 2,416.87m as a result of the capital budget cuts.

Two rigs (MMB6 and MMB7) targeted the core of the Zaaiplaats project area, where dip changes and increased grade variability could impact on the Ore Reserve. Surface drill hole MMB6 obtained the target reef horizon after one year of diamond drilling. The VR was intersected at a depth of 3,309.73m, only 11.3m above the current structural model. Drill hole MMB7 similarly achieved the VR intersection after one year of diamond drilling. The intersected depth of 3,335.11m was 29m below the current modelled position.

A third surface drill hole, MZA10, is planned to drill for additional structural certainty in the early gold portion of Zaaiplaats and is scheduled to commence drilling in early 2014.

Surface drill hole MCY6, which was drilled to upgrade target blocks east of Moab Middle Mine, intersected substantial faulting.

Stratigraphic reconciliation with the model indicated that the target blocks are both smaller and at far greater depths than originally modelled. Hence subsequent planned surface holes MCY7 and MCY8 have been abandoned.

Nineteen underground diamond drilling machines were deployed to carry out capital drilling on the Top, Middle and Lower Mines at

the beginning of the year and later reduced to seven machines during the year. This drilling is primarily used to obtain structural and

grade information aimed at increasing the Mineral Resource base of Moab Khotsong Mine. Two drilling rigs are currently deployed in

the Top Mine to obtain structural information on the VR blocks below 76 Level. Three drilling rigs were deployed in the Middle Mine to

obtain structural information on the Level 3 VR blocks below 101 Level while five drill rigs located in the Middle Mine to obtain structural

information on both the VR and C Reef horizons in the eastern area of the mine were removed.

Four drilling rigs were initially deployed to carry out capital drilling associated with the Zaaiplaats project where two hydraulics were

drilling for cover and two Long Inclined Boreholes (LIB) for exploration. The primary purpose of the current drilling is to improve

confidence in both geological and grade distribution in the Zaaiplaats block. During November two mother holes (LIB78 and LIB79) intersected VR, becoming the first underground exploration reef Intersections in the Zaaiplaats block. The drill rigs are currently busy with short deflections to obtain additional evaluation compliant VR intersections.

#### PROJECTS

The initial development of Moab Khotsong was taken with a view that the new mine would be well positioned to exploit additional surrounding ore blocks adjacent and contiguous to current mining areas. The most important of these blocks will be the Zaaiplaats blocks, positioned to the southwest of the current Moab Khotsong infrastructure and extending below the existing mine. The Moab Khotsong Level 1 business plan is expected to produce some 2.0Moz of gold. Zaaiplaats will provide an additional 5.2Moz, of gold, extending the mine's life to approximately 2040 and serving as a gateway for opportunities beyond the initial target blocks. Phase 1 of Project Zaaiplaats was approved in July 2010 and was concluded during April 2013 with the commissioning of the second rock silo. No gold will be produced during this phase which will be used to establish infrastructure required for phase 2. Phase 2 will create a drilling platform and exploit early opportunities to produce gold. Phase 2 aims to produce 0.5Moz of gold which will supplement the current business plan. The Phase 2 project has been deferred by two years, providing time to investigate alternatives, following gold price drop and variation from initial project assumptions. The phase 3 study concluded a pre-feasibility study in March 2013. The pre-feasibility study explored various conventional mining options of accessing the mineralised deposit through either Moab Khotsong or Kopanang, while accessing other mining blocks adjacent and contiguous to the Zaaiplaats mineralised deposit. The South African Region ATIC study team is conducting concept studies applying technology mine design concepts to the Zaaiplaats blocks.

#### MOAB KHOTSONG

#### **continued**

#### MINERAL RESOURCE AND ORE RESERVE REPORT

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MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole**

**Channel**

**Other**

**Comments**

Moab Khotsong

Measured

5 x 5

–

–

–

–

Underground chip sampling

Indicated

100 x 100,

800 x 800

–

–

–

–

Underground drilling

Inferred

1,000 x 1,000

–

–

–

–

Surface drilling

Grade/Ore Control

–

–

–

–

See Measured category

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Moab Khotsong**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Vaal Reef Lower Mine – Area A

Measured

–  
–  
–  
–

Indicated

0.16  
22.86  
3.74  
0.12

Inferred

1.08  
19.28  
20.84  
0.67

Total

1.25  
19.75  
24.59  
0.79

Vaal Reef Lower Mine – Area B

Measured

–  
–  
–  
–

Indicated

3.99  
9.64  
38.41  
1.24

Inferred

1.39  
9.49  
13.16  
0.42

Total

5.37  
9.60  
51.58  
1.66

Vaal Reef Lower Mine – Area C

Measured

–  
–  
–  
–

Indicated

1.00  
21.26  
21.19  
0.68  
Inferred  
1.45  
22.70  
32.99  
1.06  
Total  
2.45  
22.11  
54.18  
1.74  
Vaal Reef Lower Mine – Area PZ 2  
Measured  
–  
–  
–  
–  
Indicated  
8.96  
20.78  
186.13  
5.98  
Inferred  
2.93  
20.87  
61.23  
1.97  
Total  
11.89  
20.81  
247.37  
7.95  
Crystalkop Reef – Middle Mine Area  
Measured  
–  
–  
–  
–  
Indicated  
–  
–  
–  
–  
Inferred  
1.28  
9.58  
12.22  
0.39



Total

1.28

9.58

12.22

0.39

Vaal Reef – Middle Mine

Measured

1.55

23.56

36.49

1.17

Indicated

5.29

22.63

119.75

3.85

Inferred

1.91

18.40

35.12

1.13

Total

8.75

21.87

191.35

6.15

Vaal Reef – Top Mine

Measured

0.72

18.89

13.60

0.44

Indicated

0.32

17.66

5.62

0.18

Inferred

0.03

29.01

0.97

0.03

Total

1.07

18.84

20.19

0.65

Vaal Reef – Great Nologwa Shaft Pillar

Measured

0.11

16.95

1.83  
0.06  
Indicated  
1.53  
16.42  
25.06  
0.81  
Inferred

—  
—  
—  
—

Total  
1.63  
16.45  
26.89  
0.86

Moab Khotsong

Total  
33.69  
18.65  
628.36  
20.20

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*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Moab Khotsong**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**

Measured  
 1.13  
 29.62  
 33.54  
 1.08

Indicated  
 8.52  
 21.05  
 179.30  
 5.76

Inferred  
 10.07  
 17.53  
 176.54  
 5.68

Moab Khotsong  
 Total  
 19.72  
 19.74  
 389.38  
 12.52

The Exclusive Mineral Resource consists of designed rock engineering bracket pillars, designed dip pillars and the Great Nologwa shaft pillar on the VR. The major portion of this Exclusive Mineral Resource is located in the Lower Mine area, with minor amounts in the Top and Middle Mines, C Reef and shaft pillar areas. The bracket pillars are designed for safety reasons and will therefore not be mined, whereas the shaft pillar can only be safely extracted at the end of the mine life.

*Mineral Resource below infrastructure*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Moab Khotsong**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**  
 Measured

0.37  
23.80  
8.73  
0.28  
Indicated  
13.48  
20.07  
270.57  
8.70  
Inferred  
7.62  
20.41  
155.49  
5.00  
Moab Khotsong  
Total  
21.47  
20.25  
434.79  
13.98  
20.91  
-0.29  
0.00  
-0.37  
-0.05  
0.00  
0.00  
0.00  
20.20  
Ounces (millions)  
21.0  
20.9  
20.8  
20.7  
20.6  
20.5  
20.4  
20.3  
20.2  
20.1  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other

Acquisition/  
Disposal  
2013

**Moab Khotsong**

**Mineral Resource reconciliation: 2012 to 2013**

6.61  
-0.22  
-0.23  
0.00  
0.00  
-0.07  
0.03  
0.00  
6.12  
Ounces (millions)

6.7  
6.6  
6.5  
6.4  
6.3  
6.2  
6.1  
6.0  
5.9

2012  
Other  
2013

**Moab Khotsong**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change

Acquisition/  
Disposal

MOAB KHOTSONG

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Moab Khotsong**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Vaal Reef Lower Mine – Area PZ 2

Proved

–

–

–

–

Probable

14.03

9.18

128.75

4.14

Total

14.03

9.18

128.75

4.14

Vaal Reef – Middle Mine

Proved

0.74

12.73

9.39

0.30

Probable

3.48

12.91

44.95

1.45

Total

4.22

12.88

54.34

1.75

Vaal Reef – Top Mine

Proved

0.51

9.33

4.72

0.15

Probable

0.29  
 9.11  
 2.60  
 0.08  
 Total  
 0.79  
 9.25  
 7.32  
 0.24

Moab Khotsong

Total  
 19.04  
 10.00  
 190.41  
 6.12

*Ore Reserve modifying factors*

**as at  
 31 December 2013**

**Moab Khotsong**

**Gold  
 price  
 ZAR/kg  
 Cut-off  
 value  
 g/t Au  
 Cut-off  
 value  
 cm.g/t  
 Au  
 Stoping  
 width  
 cm  
 Dilution  
 %  
 Diluted  
 grade  
 MCF  
 %  
 MetRF  
 %**

Vaal Reef – Lower Mine – Area

PZ 2  
 360,252  
 3.94  
 500  
 127.0  
 56.5  
 11.90  
 81.0  
 96.0

Vaal Reef – Middle Mine

360,252

3.21

500

155.6

45.1

10.56

77.2

95.6

Vaal Reef – Top Mine

360,252

3.05

500

164.0

48.5

17.47

76.1

95.1

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Moab Khotsong**

**Tonnes**

**Moz**

**Comment**

Vaal Reef Lower Mine – Area

PZ 2

2.34

21.01

49.23

1.58

–

Vaal Reef – Middle Mine

0.24

9.29

2.23

0.07

–

Vaal Reef – Top Mine

0.01

30.19

0.43

0.01

–

Total

2.60

19.98

51.89



1.67  
—  
The Inferred Mineral Resource was used for optimisation purposes as it forms part of the business plan, but it was not included in the Ore Reserve.

*Ore Reserve below infrastructure*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Moab Khotsong**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

—

—

—

—

Probable

14.03

9.18

128.75

4.14

Moab Khotsong

Total

14.03

9.18

128.75

4.14

**35**

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Francis Rebaone

Gaelejwe

GSSA

965 326

13 years

BSc Hons (Geology)

Ore Reserve

Andre Johnson

SACNASP

400011/06

23 years

Government Certificate of Competency  
in Mine Survey

HND (Mineral Resource Management)

MEng (Mining Engineering)

MOAB KHOTSONG

**continued**

0

2

4

6

8

10

12

14

16

18

Tonnes above  
cut-off (millions)

Average  
grade

above

cut-off (g/t)

Cut-off grade (g/t)

27

25

23

21

19

17

34

30

26

22

18

14

10

Tonnes above cut-off

Ave grade above cut-off

**Moab Khotsong**

**Grade tonnage curve – Underground (metric)**

MINERAL RESOURCE AND ORE RESERVE REPORT

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## LOCATION

Along with TauTona and Savuka, Mponeng comprises the West Wits Operations. Situated south of the TauTona and Savuka mines,

Mponeng is near the town of Carletonville and approximately 65km west of Johannesburg. Mponeng was previously named Western

Deep Levels South.

The original twin shaft sinking from surface commenced in 1981 and was commissioned along with the gold plant complex in

1986 when production began. Through the use of two hoisting shafts, a sub-shaft and two service shafts, Mponeng exploits the

Ventersdorp Contact Reef (VCR) between depths of 2,800m and 3,400m below surface.

South of the Mponeng lease area lies the Western Ultra Deep Levels (WUDLS) area. This area is currently being explored through a

surface drilling programme and from underground drilling platforms.

## GEOLOGY

The VCR is the main reef horizon being mined at Mponeng. The VCR forms the base of the Ventersdorp Supergroup which caps

the Witwatersrand Supergroup through an angular unconformity. The overlying Ventersdorp Lavas halted the deposition of the VCR

preserving it in its current state. The VCR consists of a quartz pebble conglomerate, which can be up to 3m thick in places. The

footwall stratigraphy, following a period of uplift and erosion, controlled the development and preservation of the VCR. The footwall

consists of series of sedimentary layers from the Central Rand Group of the Witwatersrand Supergroup which, due to its erosional

nature, exposes VCR from the youngest layers in the west to the oldest in the east.

## MPONENG

N

Kilometres

0

1

2

3

4

Carletonville

Fochville

**Mponeng**

**TauTona**

**Savuka**

Wolverdind

Sibanye Gold Limited

Driefontein Gold Mine

Blyvooruitzicht

Harmony

Kusasaletu

**Gauteng Province**

Locality plan

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## MPONENG

### **continued**

The relatively argillaceous protoquartzites of the Kimberley Formation are covered by the best-preserved VCR conglomerates.

The VCR is characterised by a series of channel terraces preserved at different relative elevations, and the highest gold values are preserved in these channel deposits. The different channel terraces are divided by zones of thinner 'slope' reef, which is of lower value

and becomes more prevalent on the higher terraces and on the harder footwall units. The Elsburg Formation lies to the west and is

relatively more durable, while the eastern side of the mine is dominated by shales and siltstones of the Booyens Formation and due

to the erosional nature of the system, preserved both thick and thinner VCR conglomerates. No VCR is preserved on the Krugersdorp

Formation on the far eastern side of Mponeng.

The other gold-bearing reef with reported Mineral Resource for Mponeng is the Carbon Leader Reef (CLR). This reef has been mined at

the adjacent Savuka and TauTona mines, and plans are being made at Mponeng to mine the CLR in the future. The CLR at Mponeng

consists of (on average) a 20cm thick, tabular, auriferous quartz pebble conglomerate formed near the base of the Central Rand

Group. The CLR is approximately 900m deeper than the VCR. The CLR is divided into three sedimentary units, Unit 1, Unit 2 and

Unit 3. The Mponeng CLR Project area is dominated by Unit 3 with a smaller portion of Unit 2 towards the east. Unit 2 is a complex

channel deposit, and Unit 3 is the oldest of the CLR channel deposits and preserves the relatively lower values that can be contained

in the CLR.

Both the VCR and the CLR reefs have been subjected to faulting and are intruded by a series of igneous dykes and sills of various

ages that cross-cut the reefs. There is an inherent risk in mining through these faults and intrusives and a key objective of AngloGold

Ashanti mine geologists is to identify these geological features ahead of the working face to assist with deciding on the best practice

when approaching or mining through these structures.

Mining currently is focused on the eastern and western edges of the lease area above 120 Level. The risk to maintaining higher values

is increasing due to the erratic nature and poor preservation of VCR on the Elsburg and Booyens Footwall zones. The goal for the next

two years is to successfully predict and model the higher value trends where they exist in order to meet the demand of the business

plan. The below 120 Level ground is scheduled to mine the VCR on Kimberly footwall, which is better mineralised and of higher value

where VCR is preserved, however this will only start contributing to Mponeng production in two years' time.

## EXPLORATION

Underground exploration targets are located within the current mining lease and the adjacent WUDLS area, which is a natural extension

to the current mining fronts accessing the deeper portions of the VCR and CLR mineral deposits.

The majority of the Mineral Resource within WUDLS lease area is classified as an Inferred Mineral Resource. The upgrading of this

ground was not possible in 2013 due to the poor drilling progress of the underground exploration holes. Below 120 Level drilling platforms were delayed continually due to flooding and power supply problems. The surface drilling was partially successful with one drill hole, UD51, intersecting the VCR at a depth of 3,837m below surface. This is the first VCR intersection in the central portion of the WUDLS area and returned a grade of 3.65g/t over 20.7cm channel width. For the exploration on the upper west side of the mine, the LIB intersected high volumes of flammable gas and underground fissure water. The holes were delayed from progressing further and were stopped. The planned targets are to be re-accessed from different platforms starting in early 2014. Exploration of VCR on the south west portion of the lease ahead of the Phase 1 project in the west completed 3 new reef Intersections. Drilling continues and will further confirm the geological model and current value trends on the Elsburg footwall zone. The CLR exploration programme was successful in 2013. Planned targets were intersected in the first half of 2013. The rest of the platforms on 126 Level and on TauTona were not going to be ready in time so the targets schedule for CLR phase 2 was deferred to 2014. The planned extension of Mponeng, through the phased deepening projects, will provide greater mining access to the CLR and the VCR Mineral Resource. Exploration drilling from these newly-developed platforms will meet the demands for the project start-up dates. Exploration drilling on both the CLR and the VCR will continue until the results have provided sufficient confidence in the geological models.

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MPONENG

**continued**

PROJECTS

The planned project phases will extract that portion of the Mineral Resource currently below infrastructure. The Phase 1 VCR project has

successfully accessed ground to 126 Level. In September 2013 phase 1 intersected the VCR reef on the 123 – 42 line approximately

3,405m below surface, the deepest at which VCR has ever been intersected. The phase 1 project is planned to be in full production

in January 2015. VCR will be mined at an average planned area of 20,000m<sup>2</sup> per month in phase 1 and will extend Mponeng’s LOM

to 2032.

The Carbon Leader project Phase 2 will extract CLR south of the TauTona and Savuka mines from 123 and 126 Levels. During

2013 preparations for the shaft infrastructure was being done with the development of ramp design and the supporting on-level

infrastructure.

Future phases on VCR (Phase 3 and 5) and CLR (Phase 4 and 6) are being considered for economic studies and are dependent on

the progress from continued exploration work and design options considerations.

MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole**

**Channel**

**Other**

**Comments**

Mponeng

Measured

5 x 5

–

–

–

–

Underground chip sampling

Indicated

100 x 100

–

–

–

–

Underground drilling

Inferred

1,000 x 1,000

–

–  
 –  
 –  
 Surface and underground drilling  
 Grade/Ore Control  
 –  
 –  
 –  
 –  
 See Measured category  
*Inclusive Mineral Resource*  
**as at 31 December 2013**  
**Tonnes**  
**Grade**  
**Contained gold**  
**Mponeng**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 TauTona Ventersdorp Contact Reef Shaft Pillar  
 Measured  
 0.49  
 17.40  
 8.47  
 0.27  
 Indicated  
 1.25  
 20.21  
 25.22  
 0.81  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 1.73  
 19.42  
 33.69  
 1.08  
 Ventersdorp Contact Reef Above 109 Level  
 Measured  
 5.53  
 10.97  
 60.68  
 1.95  
 Indicated  
 4.51  
 7.05

31.75  
 1.02  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 10.04  
 9.21  
 92.43  
 2.97  
 Ventersdorp Contact Reef 109 to 120 Level  
 Measured  
 3.48  
 20.51  
 71.43  
 2.30  
 Indicated  
 5.74  
 11.86  
 68.01  
 2.19  
 Inferred  
 0.66  
 3.84  
 2.54  
 0.08  
 Total  
 9.88  
 14.37  
 141.99  
 4.57  
 Ventersdorp Contact Reef Below 120 Level  
 Measured  
 0.23  
 21.29  
 4.88  
 0.16  
 Indicated  
 10.45  
 15.78  
 164.94  
 5.30  
 Inferred  
 0.09  
 3.84  
 0.34  
 0.01  
 Total  
 10.77

15.80

170.17

5.47

Ventersdorp Contact Reef WUDLS

Measured

—

—

—

—

Indicated

2.53

15.67

39.67

1.28

Inferred

11.76

14.99

176.34

5.67

Total

14.29

15.11

216.01

6.94

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**40**

as at 31 December 2013

**Tonnes**

**Grade**

**Contained gold**

**Mponeng**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Ventersdorp Contact Reef Block 1

Measured

0.07

4.28

0.29

0.01

Indicated

2.99

4.18

12.52

0.40

Inferred

—

—

—

—

Total

3.06

4.19

12.81

0.41

Ventersdorp Contact Reef Block 3

Measured

0.01

6.52

0.10

0.00

Indicated

5.00

5.97

29.85

0.96

Inferred

—

—

—

—

Total

5.01

5.97

29.95

0.96
Ventersdorp Contact Reef Block 5
Measured
0.05
3.38
0.18
0.01
Indicated
1.60
6.17
9.85
0.32
Inferred
—
—
—
—
Total
1.65
6.08
10.03
0.32
Ventersdorp Contact Reef Outside Project areas Measured
0.24
4.95
1.18
0.04
Indicated
7.36
3.96
29.13
0.94
Inferred
—
—
—
—
Total
7.60
3.99
30.32
0.97
TauTona Carbon Leader Reef Shaft Pillar
Measured
0.32
41.72
13.27
0.43
Indicated
1.10
41.48

45.61

1.47

Inferred

—

—

—

—

Total

1.42

41.54

58.88

1.89

TauTona Carbon Leader Reef Eastern Block

Measured

—

—

—

—

Indicated

0.66

23.08

15.20

0.49

Inferred

—

—

—

—

Total

0.66

23.08

15.20

0.49

Carbon Leader Reef Below 120 Level

Measured

—

—

—

—

Indicated

27.79

22.19

616.68

19.83

Inferred

7.97

20.39

162.60

5.23

Total

35.76

21.79  
 779.28  
 25.05  
 Carbon Leader Reef Savuka  
 Measured  
 0.15  
 15.59  
 2.30  
 0.07  
 Indicated  
 2.40  
 17.29  
 41.45  
 1.33  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 2.54  
 17.19  
 43.76  
 1.41  
 Mponeng  
 Total  
 104.42  
 15.65  
 1,634.52  
 52.55  
*Exclusive Mineral Resource*  
**as at 31 December 2013**  
**Tonnes**  
**Grade**  
**Contained gold**  
**Mponeng**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Measured  
 8.83  
 15.05  
 132.83  
 4.27  
 Indicated  
 38.38  
 14.02  
 537.96  
 17.30



Inferred

5.97

20.62

123.15

3.96

Mponeng

Total

53.18

14.93

793.93

25.53

The current mining practice in the West Wits is to leave behind 35% to 50% of the Mineral Resource as stability pillars. This is done to minimise the effects of seismicity on underground workings. Bracket pillars are also placed around igneous intrusives and other geological structures to improve stability and to minimise risks associated with seismicity around these structures. All these pillars and areas that mining cannot access are included in the Exclusive Mineral Resource.

Other areas of the Mineral Resource that do not form part of LOM fall under categories considered to be beyond infrastructure and below the economic cut-off for the mine.

*Inclusive Mineral Resource continued*

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MPONENG

**continued**

*Mineral Resource below infrastructure*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Mponeng**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

–

–

–

–

Indicated

30.32

21.65

656.35

21.10

Inferred

19.74

17.17

338.94

10.90

Mponeng

Total

50.06

19.88

995.29

32.00

50.82

-0.46

-0.78

-0.38

1.31

0.00

2.05

0.00

52.55

Ounces

(millions)

53.0

52.5

52.0

51.5

51.0

50.5

50.0  
49.5  
49.0  
48.5  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Mponeng**

**Mineral Resource reconciliation: 2012 to 2013**

13.81  
-0.36  
-0.04  
0.00  
0.00  
1.17  
0.00  
0.00  
14.57  
Ounces  
(millions)  
14.6  
14.4  
14.2  
14.0  
13.8  
13.6  
13.4  
13.2  
2012  
Other  
2013

**Mponeng**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces

from  
Projects  
Scope  
Change  
Acquisition/  
Disposal  
Dykes  
Ventersdorp Lava  
VCR Reef  
Elsburgs Quartzites  
Dennys Quartzites  
Kimberley Quartzites  
Booyens Shales  
Krugersdorp Quartzites  
Luipaardsvlei Quartzites  
Randfontein Quartzites  
-3,700  
-3,750  
-3,800  
0  
500  
1,000  
1,500

SECTION THROUGH 123 LEVEL

E

W

Mponeng Gold Mine Phase 1 below 120 Ventersdorp Contact Reef

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Mponeng**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Ventersdorp Contact Reef

Proved

0.48

6.11

2.90

0.09

Above 109 Level

Probable

0.52

7.18

3.77

0.12

Total

1.00

6.67

6.67

0.21

Ventersdorp Contact Reef

Proved

1.73

9.19

15.90

0.51

109 to 120 Level

Probable

5.04

5.62

28.34

0.91

Total

6.77

6.53

44.25

1.42

Ventersdorp Contact Reef

Proved

0.40

10.26

4.13

0.13  
Below 120 Level  
Probable  
10.42  
8.06  
84.00  
2.70  
Total  
10.82  
8.14  
88.13  
2.83  
TauTona Carbon Leader Reef  
Proved  
—  
—  
—  
—  
Eastern Block  
Probable  
1.06  
11.74  
12.40  
0.40  
Total  
1.06  
11.74  
12.40  
0.40  
Carbon Leader Reef Below 120 Level  
Proved  
—  
—  
—  
—  
Probable  
23.31  
12.13  
282.63  
9.09  
Total  
23.31  
12.13  
282.63  
9.09  
Carbon Leader Savuka  
Proved  
0.19  
7.90  
1.50  
0.05

Probable

2.27

7.70

17.48

0.56

Total

2.46

7.72

18.99

0.61

Mponeng

Total

45.42

9.98

453.07

14.57

*Ore Reserve modifying factors*

**as at 31 December 2013**

**Mponeng**

**Gold**

**price**

**ZAR/kg**

**Cut-off**

**value**

**g/t Au**

**Cut-off**

**value**

**cm.g/t**

**Au**

**Stoping**

**width**

**cm**

**Dilution**

**%**

**Diluted**

**grade**

**MCF**

**%**

**MetRF**

**%**

Carbon Leader Reef Savuka

360,252

6.25

750

120.0

48.3

7.22

81.0

98.3

Carbon Leader Reef Below 120

Level

360,252

7.14

750

105.0

42.2

8.84

81.0

98.4

TauTona Carbon Leader Reef

Eastern Block

360,252

6.49

750

115.5

49.1

11.34

81.6

98.4

Ventersdorp Contact Reef 109

to 120 Level

360,252

5.58

750

134.4

46.5

5.67

81.0

97.9

Ventersdorp Contact Reef

Above 109 Level

360,252

5.69

750

131.9

46.2

5.73

80.9

98.0

Ventersdorp Contact Reef

Below 120 Level

360,252

5.05

750

148.5

44.1

6.41

84.5

98.1

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MPONENG

**continued**

0

2

4

6

8

10

12

14

16

18

Tonnes above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

28

26

24

22

20

18

16

14

12

110

100

90

80

70

60

50

40

30

Tonnes above cut-off

Ave grade above cut-off

**Mponeng**

**Grade tonnage curve – Underground (metric)**

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Mponeng**

**Tonnes Moz**

**Comment**

Carbon Leader Reef Below

120 Level

5.73

14.49

82.95

2.67

Carbon Leader Reef Phase 2, 4 and 6 – Inferred

Mineral Resource included in business plan but not  
in Ore Reserve

Total

5.73

14.49

82.95

2.67

The Inferred Mineral Resource was used for optimisation purposes and it forms part of the business plan, but it was not included in

the Ore Reserve. These portions of the deposit are located in the WUDLS area below current infrastructure and that part of the CLR

Mineral Resource that is to be included in the CLR phase 4 project.

*Ore Reserve below infrastructure*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Mponeng**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

–

–

–

–

Probable

23.31

12.13

282.63

9.09

Mponeng

Total

23.31

12.13

282.63

9.09

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Gareth Flitton

GSSA

964 758

10 years

BSc Hons (Geology)

GDE (Mineral Economics) WITS

Ore Reserve

Pieter Enslin

PLATO

PMS 0183

31 years

GDE (Mineral Economics) WITS

HND (Mineral Resource Management)

MSCC

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TAUTONA  
LOCATION

TauTona (Savuka has formed part of TauTona operations since 2013), lies on the West Wits Line, just south of Carletonville in the North West Province, about 70km southwest of Johannesburg. Mining at this operation takes place at depths ranging from 2,000m to 3,640m. The mine has a three-shaft system. The mine exploits the Carbon Leader Reef (CLR) at depths varying from 2,600m to 3,500m below datum. The Ventersdorp Contact Reef (VCR), which is about 900m above the CLR, has largely been mined out and mining operations on the VCR horizon ceased in 2010 and 2013 at Savuka and TauTona mines respectively.

GEOLOGY

The CLR is the principal economic horizon at TauTona and the VCR is the secondary economic horizon. The CLR is located near the base of the Johannesburg Subgroup, which forms part of the Central Rand Group. The Central Rand Group sediments are unconformably overlain by the Klipriviersberg lavas and the VCR is developed at the interface between the Central Rand Group sediment and the overlying lavas. The CLR and the VCR at TauTona are vertically separated by about 900m of shales and quartzites. The CLR is a thin, on average 20cm thick, tabular, auriferous quartz pebble conglomerate and consists of three sedimentary facies or units. Economically, the most important is Unit 1, which is present as a sheet-like deposit over the whole mine, although reef development and grades tend to decrease very rapidly where Unit 1 overlies Unit 2. Unit 2 is a complex channel deposit that is only present along the eastern-most limit of current mining at TauTona. The Unit 2 CLR may be over 2m thick. Unit 3 is preserved below Unit 1 in the southern parts of TauTona and is the oldest of the CLR conglomerates.

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All production on the VCR at TauTona ceased in 2013, and no future mining has been planned on this reef horizon. The VCR is

comprised of a quartz pebble conglomerate (up to 2m thick) capping the top-most angular unconformity of the Witwatersrand

Supergroup. The topography of the VCR depositional area is uneven and the reef is draped over a series of slopes and forms terraces

at different elevations.

The CLR and VCR are cross-cut by faults and intrusive dykes that displace the reef horizons. The faulting, in conjunction with the

many intrusives that also intersect the deposit, is responsible for most of the risk inherent in deep-level gold mining, since seismicity is

associated with these geological features.

#### EXPLORATION

Savuka is a mature mine that is approaching the end of its productive life. No exploration is currently taking place at this operation and

any un-mined ground will be re-allocated to surrounding mines.

No further exploration drilling has been planned for 2014.

#### PROJECTS

No projects are currently being undertaken at Savuka as it is approaching the end of its productive life.

At TauTona a project was initiated to drill a series of long holes from 112 Level to explore the ground south of the Pretorius Fault Zone.

The programme was abandoned mid 2012 due to methane intersections. The programme will continue with shorter geological drill

holes south of the Pretorius to investigate the lateral movement of this geological structure and the implications thereof. Information

on the different intrusions, age relationships and characteristics of geological features are required to determine the geotechnical

properties of this area.

AngloGold Ashanti Technology and Innovation Consortium (ATIC) Reef Boring Project

Two blocks of ground in the WW were identified on 97 Level, where the ATIC Project will focus on improving the mine design and

planning, with a view towards increasing productivity, improving gold recovery and improving safety.

Block nine, the current test site, is proving the reef boring theory to mine all the gold, only the gold, all the time.

AngloGold Ashanti Technology and Innovation Consortium (ATIC) Geological Drilling Project

Orebody knowledge and exploration plays a critical part in the exploitation of a mineralised deposit. Testing of alternative drilling

technology on 75 Level seeks to improve current planning practices and will be essential in the application of mechanical reef mining.

The trial will direct the geological drilling strategy going forward with two options envisaged:

a) Favourable results – Trial continues but with alterations and design modifications to the machine and auxiliary equipment.

b) Unfavourable results – Alternative drilling methods will be tested.

#### MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

#### **Type of drilling**

#### **Mine/Project**

#### **Category**

#### **Spacing**

#### **m (-x-)**

#### **Diamond**

#### **RC**

**Blast-hole  
Channel  
Other**

**Comments**

TauTona

Measured

5 x 5

–

–

–

–

Underground chip sampling

Indicated

100 x 100

–

–

–

–

Underground drilling

Inferred

1,000 x 1,000

–

–

–

–

Surface drilling

Grade/Ore Control

–

–

–

–

See Measured category

TAUTONA

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**46**

*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**TauTona**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

East of the Bank Between 100 & 112 Levels

Measured

0.53

28.36

14.99

0.48

Indicated

1.77

23.66

41.77

1.34

Inferred

–

–

–

–

Total

2.29

24.74

56.77

1.83

Carbon Leader Reef – 1C11

Measured

0.15

20.76

3.11

0.10

Indicated

0.12

26.20

3.21

0.10

Inferred

–

–

–

–

Total

0.27

23.21



6.31  
 0.20  
 Carbon Leader Reef Base  
 Measured  
 1.04  
 25.97  
 26.91  
 0.87  
 Indicated  
 1.07  
 32.78  
 35.13  
 1.13  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 2.11  
 29.43  
 62.04  
 1.99  
 Savuka Carbon Leader Reef  
 Measured  
 0.44  
 17.01  
 7.47  
 0.24  
 Indicated  
 0.27  
 22.41  
 6.15  
 0.20  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 0.71  
 19.09  
 13.62  
 0.44  
 TauTona  
 Total  
 5.39  
 25.75  
 138.75  
 4.46  
*Exclusive Mineral Resource*

as at 31 December 2013

**Tonnes**  
**Grade**  
**Contained gold**  
**TauTona**  
**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**  
 Measured  
 1.75  
 23.84  
 41.60  
 1.34  
 Indicated  
 1.31  
 30.77  
 40.24  
 1.29  
 Inferred  
 –  
 –  
 –  
 –

TauTona  
 Total  
 3.05  
 26.81  
 81.85  
 2.63

At TauTona the Exclusive Mineral Resource is defined by mining strategy, and additional Mineral Resource is expected to be taken up in safety, boundary and remnant pillars ahead of current mining.

*Mineral Resource below infrastructure*

There is no Mineral Resource reported below infrastructure.

4.69  
 -0.30  
 0.00  
 -0.00  
 0.04  
 -0.16  
 0.19  
 0.00  
 4.46  
 Ounces  
 millions)  
 4.70  
 4.60  
 4.50  
 4.40

4.30  
4.20  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**TauTona**

**Mineral Resource reconciliation: 2012 to 2013**

1.65  
-0.20  
-0.27  
0.00  
0.00  
0.20  
0.00  
0.00  
1.39  
Ounces  
(millions)

1.65  
1.60  
1.55  
1.50  
1.45  
1.40  
1.35  
1.30  
1.25  
1.20  
1.15  
1.10

2012  
Other  
2013

**TauTona**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics

New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

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TAUTONA

**continued**

ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**TauTona**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

East of the Bank Between

Proved

0.16

9.77

1.60

0.05

100 & 112 Levels

Probable

1.29

8.89

11.44

0.37

Total

1.45

8.99

13.03

0.42

Carbon Leader Reef – 1C11

Proved

0.01

6.91

0.05

0.00

Probable

0.06

9.26

0.55

0.02

Total

0.07

8.98

0.61

0.02

Carbon Leader Reef Base

Proved

0.37

9.85

3.66  
 0.12  
 Probable  
 2.74  
 9.08  
 24.83  
 0.80  
 Total  
 3.11  
 9.17  
 28.50  
 0.92  
 Savuka Carbon Leader Reef  
 Proved  
 0.08  
 6.55  
 0.53  
 0.02  
 Probable  
 0.06  
 8.78  
 0.51  
 0.02  
 Total  
 0.14  
 7.49  
 1.04  
 0.03  
 TauTona  
 Total  
 4.76  
 9.06  
 43.18  
 1.39

The closure of Blyvooruitzicht in 2013, and their subsequent inability to continue with groundwater pumping, presents a serious risk to the economic viability of TauTona's Ore Reserves. In order to mitigate this risk the Covalent Water Company was established in order to assume pumping at source at their No. 4 and 6 shafts (previously Blyvooruitzicht No. 4 and No. 6 shaft). Although the Covalent Water Company will be responsible to handle the bulk of the underground water from Blyvooruitzicht mine, around 8MI/day of underground water will build up within the workings of Blyvooruitzicht mine's No. 5 shaft after which it will flow through the workings to Savuka. Savuka currently does not have the facilities to pump this water to surface and as a result an underground pipeline from Savuka to TauTona was established in order to pump the water from Savuka to TauTona from where it can be pumped to surface. Although all the mitigating actions are already in place, the water level at Blyvooruitzicht No. 5 shaft has not yet reached the point where the water will flow to Savuka.

2.98  
-0.05  
0.00  
-0.83  
0.07  
0.40  
-2.57  
0.00  
0.00  
Ounces  
(millions)  
3.0  
2.5  
2.0  
1.5  
1.0  
0.5  
0.0  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013  
**Savuka**  
**Mineral Resource reconciliation: 2012 to 2013**  
0.54  
-0.03  
0.00  
0.00  
0.00  
-0.51  
0.00  
0.00  
0.00  
Ounces  
(millions)  
0.6  
0.5  
0.4  
0.3  
0.2  
0.1

0.0

2012

Other

2013

**Savuka**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion

Model  
change

Economics

New  
ounces

from

Projects

Scope

Change

Acquisition/

Disposal

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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*Ore Reserve modifying factors*  
**as at 31 December 2013**

**TauTona**

**Gold**

**price**

**ZAR/kg**

**Cut-off**

**value**

**Cut-off**

**value**

**cm.g/t**

**Au**

**Stoping**

**width**

**cm**

**Dilution**

**%**

**Diluted**

**grade**

**MCF**

**%**

**MetRF**

**%**

Carbon Leader Reef 1C11

360,252

8.58

900

120.0

57.7

8.98

71.8

97.3

Carbon Leader Reef Base

360,252

8.58

900

105.0

63.0

9.17

71.8

97.3

East of the Bank Between 100 &

112 Levels

360,252

8.58

900

105.0

63.0

8.99

71.8

97.3

Savuka Carbon Leader

Reef

360,252

7.83

900

115.0

54.5

7.49

65.0

97.3

*Inferred Mineral Resource in business plan*

No planning or scheduling took place in material classified as Inferred Mineral Resource during the planning process.

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Michelle Pienaar

GSSA

967 796

13 years

BSc Hons (Geology)

Ore Reserve

Joey Modise

PLATO

MS 0113

26 years

Government Certificate of Competency

in Mine Survey

HND (Mineral Resource Management)

0

2

4

6

8

12

10

14

16

18

20

22

24

Tonnes above  
cut-off (millions)

Average  
grade  
above

cut-off (g/t)

Cut-off grade (g/t)

34

32

30

28

26

24

5.5

5.0

4.5

4.0

3.5

3.0

2.5

2.0

1.5

Tonnes above cut-off

Ave grade above cut-off

**TauTona**

**Grade tonnage curve – Underground (metric)**

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SOUTH AFRICA

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## OVERVIEW

Surface operations in South Africa produce gold by treating lower-grade surface material such as waste rock dumps and the re-treatment of tailings storage facilities (TSF). Surface operations comprise Vaal River Surface, West Wits Surface and Mine Waste Solutions (MWS). In Vaal River the Kopanang, West and Mispah Gold Plants are dedicated Surface Operations plants, while the Noligwa gold plant and South uranium plant circuit process reef material for extraction of gold and uranium. Waste rock dump material is processed in the Noligwa gold plant (Vaal River), Mponeng and Savuka gold plants (West Wits) when mills are not filled to capacity with reef material. AngloGold Ashanti acquired the MWS tailings retreatment operation in the Vaal River region in July 2012. The MWS tailings dams are scattered over an area that stretches approximately 13.5km north-south and 14km east-west. The MWS Mineral Resource comprises TSFs that originated from the processing of material from the Buffelsfontein, Hartebeestfontein and the Stilfontein gold mines. MWS comprises three separate gold plants namely Stream 1, Stream 2 and Stream 3. Hydraulically-reclaimed material from several TSFs are delivered to the three plants for gold extraction. Since August 2013 the Sulphur Paydam (a TSF previously processed at Vaal River East Gold Plant) was transferred to MWS.

## LOCATION

The Vaal River Surface Operations are located immediately to the north and south of the Vaal River, close to the town of Orkney in the North West Province of South Africa. These operations extract gold from the waste rock dumps material emanating from the mining and processing of the Vaal Reef (VR) and Ventersdorp Contact Reef (VCR) mined at the Vaal River mines. The majority of surface gold produced is from the processing of waste rock dump material, as well as from the reclamation of TSFs and a small contribution from by-product gold from the rehabilitation of surface areas. The rehabilitation is in line with our commitment to care for the environment.

The MWS operation is located approximately 8km from the town of Klerksdorp near Stilfontein within 20km of the Vaal River Surface operations.

The West Wits Surface Operations are located on the West Wits Line, near the town of Carletonville, across the border between the North West and Gauteng Provinces in South Africa. These operations process waste rock dump material sourced from the mining and processing of the Carbon Leader Reef (CLR) and the VCR mined at the West Wits mines in the Carletonville/Fochville area.

## WASTE ROCK DUMPS

The waste rock dumps have been built from waste rock mined from underground workings; hoisted, transported and deposited via conveyor belt. The gold contained within these dumps was sourced from three areas:

- minor reefs that were developed in order to access the primary reef;
- gold-bearing reefs that were contained within small fault blocks that were exposed by off-reef development; and
-

cross-tramming of gold-bearing reef material to the waste tips.

During 2013 the Great Nologwa waste rock dump had reached its end of life and in line with the environmental rehabilitation practice,

footprint cleaning has commenced in the year's fourth quarter. Footprint cleanup of the No. 7 waste rock dump in Vaal River

commenced late 2013 and it is foreseen that the cleanup will continue in 2014.

#### TAILINGS STORAGE FACILITIES

The tailings dams are made up of tailings material which originated from the processing of the underground ore from the Orkney gold

mines (VR Surface) and Buffels and Stilfontein gold mines (MWS). These gold mines are deep-level gold mines, which predominantly

extract the tabular, conglomeritic VR. The VR has been predominantly mined for gold in the past although the reef contains both gold

and uranium oxide.

The material contained in the tailings dams is generally fine in nature. The footprints of the MWS tailings dams and Vaal River Surface

Operations tailings dams cover an area of approximately 1,100ha.

The West Wits tailings are not planned for processing in the current business plan, but this remains an opportunity and will be re-

evaluated in the future.

#### SURFACE OPERATIONS

#### MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## RECLAMATION METHODOLOGY

### Waste rock dump

Bulldozers are used to create furrows through the waste rock material in order to blend the rock. The material is then loaded onto rail

hoppers by means of a front-end loader and transported to the relevant gold plants for processing.

### Tailings storage facilities

The tailings are recovered using a number of monitoring guns situated in strategic positions. The extraction process utilises the

monitoring guns to deliver water at pressure, typically 30 bar, to the face. The tailings are then effectively blasted from the high wall by

the pressurised water from the monitoring gun nozzle. These guns can be positioned to mine the selected bench top-to-bottom or

bottom-to-top. Bench heights are basically constrained by the force delivered from the nozzle. With sufficient pressure, face lengths

of up to 25m can be managed.

The reclamation strategy is aimed at mining the higher-grade dams first. The pump stations are located at the lowest point of the dams

to ensure that the slurry from the dams will flow towards the pump station from where the slurry will be pumped to the processing

plant. To access the high-grade areas first, trenches will be mined through the lower-grade dams to the higher grade dams. Slurry from

the dams will flow through these trenches to the slurry pump station.

## ENVIRONMENTAL REHABILITATION

Rehabilitation work is ongoing and gold is produced from cleaning-up operations at Vaal River where material was treated through the

archive mill at East Gold Plant until July 2013. Since the closure of the East Gold Plant, this material is now processed at Kopanang

Gold Plant.

## PROJECTS AND GROWTH

Treatment of the Vaal River TSF, Sulphur Paydam, commenced at MWS in May 2013. Subsequently treatment of TSF Mineral Resource

at Vaal River ceased as of July 2013. Design of a new pump station for reclaiming the Vaal River East TSF to the MWS circuit is in

progress with the pump station required to commence operation by June 2014.

Initiatives to sustain margins include projects to improve logistics and reduce costs. The projects will receive focus in early 2014.

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SURFACE OPERATIONS

**continued**

MINERAL RESOURCE

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Vaal River Surface**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Tailings storage facilities

Measured

–

–

–

–

Indicated

454.65

0.27

123.55

3.97

Inferred

–

–

–

–

Total

454.65

0.27

123.55

3.97

Waste rock dump

Measured

–

–

–

–

Indicated

35.65

0.48

17.27

0.56

Inferred

4.45

0.69

3.06

0.10

Total

40.10

0.51

20.33

0.65

**West Wits Surface**

Tailings storage facilities

Measured

—

—

—

—

Indicated

178.73

0.24

43.57

1.40

Inferred

—

—

—

—

Total

178.73

0.24

43.57

1.40

Waste rock dump

Measured

—

—

—

—

Indicated

11.35

0.53

6.00

0.19

Inferred

—

—

—

—

Total

11.35

0.53

6.00

0.19

**Mine Waste Solutions**

Tailings storage facilities

Measured



142.43  
 0.22  
 31.18  
 1.00  
 Indicated  
 162.02  
 0.24  
 39.04  
 1.26  
 Inferred  
 15.51  
 0.30  
 4.62  
 0.15  
 Total  
 319.96  
 0.23  
 74.84  
 2.41  
 Surface Operations  
 Total  
 1,004.79  
 0.27  
 268.29  
 8.63  
*Exclusive Mineral Resource*  
**as at 31 December 2013**  
**Tonnes**  
**Grade**  
**Contained gold**  
**West Wits Surface**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Measured  
 0  
 0  
 0  
 0  
 Indicated  
 178.93  
 0.24  
 43.83  
 1.41  
 Inferred  
 0  
 0  
 0  
 0

Total  
178.93  
0.24  
43.83  
1.41

**Mine Waste Solutions**

Measured  
0  
0  
0  
0

Indicated  
1.00  
0.31  
0.31  
0.01

Inferred  
0.34  
0.30  
0.10  
0.00

Total  
1.33  
0.31  
0.41  
0.01

**Surface Operations**

Total  
180.27  
0.25  
44.24  
1.42

The Exclusive Mineral Resource includes a small portion of MWS and the majority of West Wits Surface operations' TSF Mineral Resource.

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**52**

4.76  
-0.16  
0.00  
0.00  
-0.04  
0.06  
0.00  
0.00  
4.63  
Ounces  
(millions)

4.76  
4.72  
4.68  
4.64  
4.60  
4.56  
4.52  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Vaal River Surface**

**Mineral Resource reconciliation: 2012 to 2013**

4.65  
-0.15  
-0.06  
0.00  
0.00  
0.00  
0.02  
0.00  
4.46  
Ounces  
(millions)  
4.65  
4.60  
4.55  
4.50  
4.45  
4.40

4.35  
2012  
Other  
2013

**Vaal River Surface**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

1.57  
-0.02  
0.00  
0.00  
0.01  
0.02  
0.00  
0.00  
1.59

Ounces  
(millions)

1.595  
1.585  
1.575  
1.565  
1.555  
1.545

2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**West Wits Surface**

**Mineral Resource reconciliation: 2012 to 2013**

0.17  
-0.02  
0.01  
0.00  
0.00  
0.03  
-0.00  
0.00  
0.18  
Ounces  
(millions)  
0.190  
0.185  
0.180  
0.175  
0.170  
0.165  
0.160  
0.155  
0.150  
0.145  
2012  
Other  
2013

**West Wits Surface**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal  
2.58  
-0.20  
0.00  
0.00  
0.00  
0.01  
0.02  
0.00  
2.41  
Ounces  
(millions)

2.60  
2.55  
2.50  
2.45  
2.40  
2.35  
2.30  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Mine Waste Solutions**

**Mineral Resource reconciliation: 2012 to 2013**

2.35  
-0.20  
0.00  
0.00  
0.00  
0.10  
-0.00  
0.00  
2.25  
Ounces  
(millions)

2.35  
2.30  
2.25  
2.20  
2.15  
2.10  
2.05  
2012  
Other  
2013

**Mine Waste Solutions**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics

New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

**53**

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SURFACE OPERATIONS

**continued**

ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Vaal River Surface**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Tailings storage facilities

Proved

–

–

–

–

Probable

454.65

0.27

123.55

3.97

Total

454.65

0.27

123.55

3.97

Waste rock dump

Proved

–

–

–

–

Probable

35.65

0.43

15.16

0.49

Total

35.65

0.43

15.16

0.49

**West Wits Surface**

Waste rock dump

Proved

–

–



–  
 –  
 Probable  
 11.15  
 0.51  
 5.73  
 0.18  
 Total  
 11.15  
 0.51  
 5.73  
 0.18  
**Mine Waste Solutions**  
 Tailings storage facilities  
 Proved  
 142.43  
 0.22  
 31.18  
 1.00  
 Probable  
 161.02  
 0.24  
 38.74  
 1.25  
 Total  
 303.45  
 0.23  
 69.91  
 2.25  
 Surface Operations  
 Total  
 804.91  
 0.27  
 214.36  
 6.89  
*Ore Reserve modifying factors*  
**as at 31 December 2013**  
**Vaal River Surface**  
**Gold**  
**price**  
**ZAR/kg**  
**Cut-off**  
**value**  
**g/t Au**  
**Dilution**  
**%**  
**Diluted**  
**g/t**  
**%**  
**RMF**  
**(based**

**on**  
**tonnes)**  
 %  
**RMF**  
**(based**  
**on g/t)**  
 %  
**MRF**  
**(based**  
**on**  
**tonnes)**  
 %  
**MRF**  
**(based**  
**on g/t)**  
**MCF**  
 %  
**MetRF**  
 %  
 Tailings storage facilities  
 360,252  
 0.18  
 –  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 57.6  
 Waste rock dump  
 360,252  
 0.40  
 –  
 –  
 100.0  
 88.0  
 100.0  
 100.0  
 100.0  
 100.0  
 89.0  
**West Wits Surface**  
 Waste rock dump  
 360,252  
 0.53  
 –  
 –  
 100.0  
 100.0  
 100.0  
 100.0

100.0

90.0

**Mine Waste Solutions**

Tailings storage facilities

360,252

0.18

–

–

100.0

100.0

100.0

100.0

100.0

57.6

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Surface Operations**

**Tonnes**

**Moz**

**Comment**

Vaal River Surface

Waste rock dump

4.45

0.62

2.76

0.09

No. 3 Waste rock dump part of BP2014 plan

Mine Waste Solutions

Tailings storage facilities

15.17

0.30

4.52

0.15

Inferred Mineral Resource Tailings storage facility material

Total

19.62

0.37

7.28

0.23

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Raymond Orton

PLATO

MS 0132

27 years

GDE (Mineral Economics) WITS

Government Certificate of Competency  
in Mine Survey

HND (Mineral Resource Management)

ND (Survey)

Ore Reserve

Mariaan Gagiano

SAIMM

705 920

29 years

Certificate of Competency: Assaying

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URANIUM  
OVERVIEW

Uranium is produced at Vaal River by processing the reef material from Moab Khotsong, Great Noligwa and Kopanang in the Noligwa gold plant/South Uranium plant circuit. The reef is milled at the Noligwa Gold Plant and processed at the South Uranium Plant for uranium oxide extraction by the reverse leach process. Ammonium diuranate (ADU or 'yellow cake') is the final product of the South Uranium plant and is transported to Nufcor (located in Gauteng) where the material is calcined and packed for shipment to the converters.

PROJECTS AND GROWTH

AngloGold Ashanti acquired the MWS tailings retreatment operation in the Vaal River region in July 2012. Currently the TSF material is processed for extraction of gold; completion of the construction of the uranium circuit is in progress and it will be commissioned in early 2014 for extraction of uranium from the TSF material.

*Inclusive Mineral Resource by-product: Uranium (U3O8)*

**Tonnes**

**Grade**

**Contained uranium oxide**

**as at 31 December 2013**

**Category**

**million**

**kg/t**

**Tonnes Pounds million**

Great Noligwa

Measured

–

–

–

–

Indicated

2.89

0.52

1,491

3.29

Inferred

0.05

0.48

26

0.06

Total

2.94

0.52

1,517

3.34

Kopanang

Measured

–

–

–

–  
Indicated  
13.96  
0.63  
8,771  
19.34  
Inferred  
0.79  
1.05  
830  
1.83  
Total  
14.75  
0.65  
9,601  
21.17  
Moab Khotsong  
Measured  
–  
–  
–  
–  
Indicated  
23.71  
0.82  
19,412  
42.80  
Inferred  
10.07  
0.75  
7,581  
16.71  
Total  
33.79  
0.80  
26,993  
59.51  
Mponeng  
Measured  
0.32  
0.31  
97  
0.21  
Indicated  
32.09  
0.29  
9,339  
20.59  
Inferred  
7.97  
0.27

2,182

4.81

Total

40.38

0.29

11,618

25.61

TauTona

Measured

—

—

—

—

Indicated

5.39

0.30

1,612

3.55

Inferred

—

—

—

—

Total

5.39

0.30

1,612

3.55

Vaal River Surface

Measured

—

—

—

—

Indicated

454.65

0.09

42,243

93.13

Inferred

—

—

—

—

Total

454.65

0.09

42,243

93.13

West Wits Surface

Measured

—  
—  
—  
—  
Indicated  
178.73  
0.07  
12,809  
28.24  
Inferred  
—  
—  
—  
—  
Total  
178.73  
0.07  
12,809  
28.24  
Mine Waste Solutions  
Measured  
142.43  
0.07  
9,790  
21.58  
Indicated  
162.02  
0.08  
12,907  
28.46  
Inferred  
15.51  
0.09  
1,469  
3.24  
Total  
319.96  
0.08  
24,166  
53.28  
Total  
Total  
1,050.59  
0.12  
130,560  
287.83

MINERAL RESOURCE AND ORE RESERVE REPORT

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*Ore Reserve by-product: Uranium (U3O8)*

**Tonnes**

**Grade**

**Contained uranium oxide**

**as at 31 December 2013**

**Category**

**million**

**kg/t**

**Tonnes Pounds million**

Great Noligwa

Proved

1.48

0.28

413

0.91

Probable

0.35

0.26

90

0.20

Total

1.83

0.27

502

1.11

Kopanang

Proved

2.19

0.35

768

1.69

Probable

4.59

0.35

1,591

3.51

Total

6.78

0.35

2,358

5.20

Moab Khotsong

Proved

1.24

0.32

396

0.87

Probable

17.79

0.37

6,538

14.41  
Total  
19.04  
0.36  
6,934  
15.29  
Vaal River Surface  
Proved  
—  
—  
—  
—  
Probable  
420.00  
0.09  
39,478  
87.04  
Total  
420.00  
0.09  
39,478  
87.04  
Mine Waste Solutions  
Proved  
5.39  
0.09  
489  
1.08  
Probable  
109.52  
0.07  
8,135  
17.94  
Total  
114.92  
0.08  
8,624  
19.01  
Total  
Total  
562.58  
0.10  
57,897  
127.64

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SECTION ONE

This section covers AngloGold Ashanti's nine mining operations and a development project in six countries within Continental Africa Region.

CA

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MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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OVERVIEW

OVERVIEW

AngloGold Ashanti has nine mining operations within Continental Africa Region: Kibali in the Democratic Republic of the Congo (DRC)

(production commenced in the 3rd quarter 2013); Iduapriem and Obuasi in Ghana; Siguiri in Guinea; Morila, Sadiola and Yatela in Mali;

Navachab in Namibia; and Geita in Tanzania. It also has the development project, Mongbwalu in the DRC.

As at 31 December 2013, the total attributable Mineral Resource (inclusive of the Ore Reserve) for the Continental Africa region was

69.06Moz (2012: 73.01Moz) and the attributable Ore Reserve, 24.41Moz (2012: 27.59Moz). This is equivalent to around 30% and

36% of the group's Mineral Resource and Ore Reserve respectively. Combined production from these operations totalled 1.46Moz of

gold in 2013, equivalent to 36% of group production.

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Continental Africa**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

110.41

2.32

256.30

8.24

Indicated

475.62

2.52

1,197.92

38.51

Inferred

290.50

2.39

693.66

22.30

Total

876.52

2.45

2,147.88

69.06

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Continental Africa**

**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**

Measured

22.89

3.68

84.32

2.71

Indicated

244.05

2.24

546.35

17.57

Inferred

289.56

2.39

691.73

22.24

Total

556.50

2.38

1,322.40

42.52

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Continental Africa**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

67.88

2.22

150.35

4.83

Probable

250.06

2.44

608.99

19.58

Total

317.93

2.39

759.34

24.41

Moz  
35  
30  
25  
20  
15  
10  
5  
0  
December 2012  
December 2013  
**Continental Africa**  
**Inclusive Mineral Resource – attributable**  
**Per operation/project**

Moz  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0  
December 2012  
December 2013  
**Continental Africa**  
**Ore Reserve – attributable**  
**Per operation/project**

\*

*Management embarked on a careful review of the company's portfolio which led to the abandoning of a Mongbwalu development project.*

*\*\* No more Ore Reserve being reported. Mining operations have ceased.*

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## COUNTRY OVERVIEW

AngloGold Ashanti owns 45% of Kibali and 86.2% of the Mongbwalu project in the Democratic Republic of Congo (DRC). Implementation of the Mongbwalu project was suspended in 2013 while production commenced during the 3rd quarter of 2013 at Kibali.

### Kibali

On 15 October 2009 AngloGold Ashanti acquired a 50% indirect interest in Moto Goldmines Ltd through a joint venture with Randgold

Resources Limited (Randgold). On 21 December 2009, Randgold and AngloGold Ashanti increased their joint venture interest in Kibali

to 90%, whilst Société Minière de Kilo-Moto (SOKIMO) retained a 10% holding.

The operation is a joint development between three separate groups:

- AngloGold Ashanti;

- Randgold, which is the operator, an African-focused gold mining and exploration business with primary listings on the London Stock Exchange and Nasdaq; and

- SOKIMO, the state-owned gold mining company.

The consolidated lease is made up of 10 mining concessions.

### Mongbwalu

The Mongbwalu project is situated within the 5,487km<sup>2</sup> permit covered by Concession 40 in the Ituri Province of north-eastern DRC.

Concession 40 has a rich history of gold occurrences and covers the entire Kilo Archaean granite-greenstone belt that extends

approximately 850km west-northwest of Lake Albert. The concession is held in a joint venture between AngloGold Goldfields Kilo

(AGK) and SOKIMO, a government body which currently holds a 13.8% non-contributory share. AGK is 86.2% owned by AngloGold

Ashanti. A feasibility study has been completed around the old Adidi mine as part of the agreement with the DRC government. During

2013 it was decided to halt the implementation of the project. The project is currently on hold.

## MINERAL RESOURCE ESTIMATION

Mineral Resource estimation is undertaken by in-house competent persons or by approved external consultants. The results of both

diamond drilling (DD) and reverse circulation (RC) drilling are used in the estimation process. 3D mineralised envelopes are established

using both grade and geology and these are then statistically verified to confirm their validity for use in grade estimation. Appropriate

domaining of homogeneous zones is conducted whereby high-grade central core areas are modeled separately to the lower-grade

surrounding halos. Volumes are then filled with block model cells and these are then interpolated for density, rock type and grade, the

latter using Ordinary Kriging. Grade top cuts are applied to drill-hole data to prevent the spread of high grades during the estimation

process. Drill-hole spacing is used to guide the Mineral Resource classification according to requirements of the relevant reporting

codes. The open-pit Mineral Resource is quoted within a limiting shell and the underground Mineral Resource is quoted above a

specified cut off.



## ORE RESERVE ESTIMATION

The Ore Reserve for Kibali has been based on the latest Mineral Resource model using Ordinary Kriging. High-grade domains (1.0-4.0g/t)

are commonly surrounded by a low-grade (+0.3g/t) halo.

The open-pit Ore Reserve shell optimisations were completed on the Mineral Resource model. This incorporated the mining layout,

operating factors, stripping ratio and relevant cut-off grade for the Ore Reserve. An open pit–underground interface was determined as

optimal at 5,685 mRL between the Karagba, Chauffeur and Durba deposit (KCD) open pit and underground mine.

A cut-off grade analysis at US\$1,000/ oz was used to determine a cut-off grade of 2.4g/t for the underground mine.

Longitudinal

and transverse stoping methods with hydraulic and waste rock fill were chosen as the preferred mining method.

Underground stope

designs were updated from the previously reported Ore Reserve using the Mineral Resource model. Modifying factors for planned and

unplanned rock dilution, backfill dilution and ore loss were applied to obtain the reported Ore Reserve. Metallurgical, environmental,

social, legal, marketing and economic factors were adequately considered in the Kibali feasibility study and have been updated as the

project has developed for the Ore Reserve to remain viable.

DRC

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## KIBALI

### LOCATION

Kibali is located in the north-eastern part of the Democratic Republic of the Congo (DRC) near the international borders with Uganda and Sudan. The local office is located in the village of Doko, which is centrally located within the project area. Kibali is approximately 210km by road from Arua, on the Ugandan border and immediately north of the district capital of Watsa. The operations area falls within the administrative district of Haut Uélé in Province Orientale. The town of Bunia, which is the United Nations controlled entry point to north-eastern DRC, lies about 200km to the south of the project.

### GEOLOGY

Kibali is located within the Moto Greenstone Belt, which consists of Archaean Kibalian volcano-sedimentary rocks and ironstone-chert horizons that have been metamorphosed to greenschist facies. It is cut by regional scale north, east, northeast and northwest trending faults and is bounded to the north by the Middle Archaean West Nile granite-gneiss complex and the south by the Upper Zaire granitic complex.

The local geology consists of a volcano-sedimentary sequence comprising fine-grained sedimentary rocks, several varieties of pyroclastic rocks, basaltic flow rocks, mafic-intermediate intrusions (dykes and sills) and intermediate-felsic intrusive rocks (stocks, dykes and sills). This sequence is variably altered from slight to intense, such that in some cases the original lithology of the rock is unrecognisable.

Several major mineralised trends have been outlined by soil geochemistry data and by the distribution of known gold mineralisation.

The Kibali-Durba-Karagba Trend and the Gorumbwa-Kombokolo Splay are anomalous with respect to gold endowment, and together define a mineralised, northeast-striking 'mineralised corridor', 1.5km wide and 8km long. These corridors host the deposits of Kibali,

Sessenge, Gorumbwa, Karagba, Chauffeur and Durba and Pakaka.

The main Kibali deposit, which comprises the combination of Karagba, Chauffeur and Durba, is colloquially termed the KCD deposit and hosts 73% of the grant's Mineral Resource and 82% of the Ore Reserve (both for open pit and underground mining options). The next biggest deposit is Pakaka, which hosts some 6% of the Mineral Resource and 7% of the Ore Reserve. Currently only the KCD deposit hosts an underground Ore Reserve and this constitutes 66% of the total KCD Ore Reserve.

Gold mineralisation is generally associated with structural features, resulting in tightly constrained zones which often host pods or lenses of plunging mineralisation. Alteration is closely associated with the mineralisation and is typically carbonate-silica-albite with minor sulphide.

### EXPLORATION

A large amount of exploration was undertaken by the previous owners of the Kibali project, Moto Goldmines Ltd, and this was focused primarily on the KCD deposit. Since the acquisition of the concession area by AngloGold Ashanti and Randgold, the dominant exploration targets have been the KCD underground area and upgrading the confidence in the proposed KCD open pit.

During 2013

exploration was focused on Mengu Hill for confidence upgrades and ore extensions around the KCD deposit. Historical exploration

holes for Aerodrome, Rhino and Gorumbwa were reviewed and closer spaced infill holes were completed at Aerodrome to increase

confidence in the geological model. The advanced and infill grade control programme also identified additional ore tonnages.

**PROJECTS**

Additional oxide sources from Aerodrome, Rhino and Gorumbwa were investigated. Updated Mineral Resource models are in progress

for these projects. The mine plan has been reviewed to optimally incorporate the various ore sources.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

m (-x-)

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Kibali

Measured

5 x 10

–

–

–

–

–

Indicated

40 x 40

–

–

–

–

Inferred

80 x 80

–

–

–

–

Grade/Ore Control                      5 x 10

–

–

–

–

–

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kibali**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Open pit

Measured

2.47

2.50

6.17

0.20

Indicated

36.39

2.08

75.81

2.44

Inferred

12.17

2.16

26.32

0.85

Total

51.03

2.12

108.29

3.48

Underground

Measured

–

–

–

–

Indicated

30.56

5.20

158.89

5.11

Inferred

13.83

3.10

42.86

1.38

Total

44.38

4.55

201.75

6.49

Kibali

Total

95.41

3.25

310.04

9.97

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kibali**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

0.09

1.63

0.14

0.00

Indicated

27.63

2.62

72.41

2.33

Inferred

25.06

2.68

67.26

2.16

Kibali

Total

52.78

2.65

139.81

4.50

The Exclusive Mineral Resource is primarily due to the gold price differential between the Mineral Resource and Ore Reserve. At the KCD deposit it is also partially due to the selection of a fixed interface between the open pit and the underground mining areas.

The Exclusive Mineral Resource makes up 45% of the total Mineral Resource. The Inferred Mineral Resource component forms a significant part of this material. As part of wrapping up outstanding commitments under the original agreement with Sokimo, a deal was reached to transfer a portion of ground south of the Kibali River which contains the Kibali South Inferred Mineral Resource to Sokimo in settlement of the remaining obligations. This resulted in a reduction of the Inferred Mineral Resource.

*Mineral Resource below infrastructure*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kibali**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

–

–

–

–

Indicated

30.56

5.20

158.89

5.11

Inferred

13.83

3.10

42.86

1.38

Kibali

Total

44.38

4.55

201.75

6.49

8.50

-0.05

-0.17

0.36

1.87

-0.00

0.00

-0.55

9.97

Ounces

(millions)

11.0

10.5

10.0

9.5

9.0

8.5

8.0

7.5

2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal

2013

**Kibali**

**Mineral Resource reconciliation: 2012 to 2013**

4.92  
-0.05  
0.29  
0.00  
0.00  
0.00  
0.00  
0.00  
5.17  
Ounces  
(millions)  
5.20  
5.15  
5.10  
5.05  
5.00  
4.95  
4.90  
4.85  
4.80

2012

Other

2013

**Kibali**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope



Change  
Acquisition/  
Disposal

KIBALI

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kibali**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Open pit

Proved

2.43

2.36

5.71

0.18

Probable

17.54

2.49

43.65

1.40

Total

19.97

2.47

49.36

1.59

Underground

Proved

–

–

–

–

Probable

19.69

5.66

111.33

3.58

Total

19.69

5.66

111.33

3.58

Kibali

Total

39.66

4.05

160.70

5.17

*Ore Reserve modifying factors*

as at 31 December 2013

**Kibali**

**Gold**

**price**

US\$/oz

**Cut-off**

**value**

**g/t Au**

**Stoping**

**width**

**cm**

**Dilution**

%

**Dilution**

**g/t**

%

**RMF**

**(based**

**on**

**tonnes)**

%

**RMF**

**(based**

**on g/t)**

%

**MRF**

**(based**

**on**

**tonnes)**

%

**MRF**

**(based**

**on g/t)**

**MCF**

%

**MetRF**

%

Open pit

1,000

0.90

—

10.0

—

100.0

100.0

100.0

100.0

100.0

84.5

Underground

1,000

2.40  
2,000  
2.7  
1.00  
100.0  
100.0  
100.0  
100.0  
100.0  
88.9

*\* \$1,000 Ore Reserve price used by Randgold Resources Limited (operating partner).*

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KIBALI

**continued**

*Inferred Mineral Resource in business plan*

There is no Inferred Mineral Resource included in the reported Ore Reserve for Kibali. The current mine plan does not have any reliance

on the Inferred Mineral Resource to support the economic viability of the project.

*Ore Reserve below infrastructure*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Kibali**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

–

–

–

–

Probable

19.69

5.66

111.33

3.58

Kibali

Total

19.69

5.66

111.33

3.58

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership number**

**Relevant experience**

Mineral Resource

Rodney Quick\*

SACNASP

400014/05

20 years

Ore Reserve

\* *Employed by Randgold Resources Limited.*

0

2

1

4

3  
5  
7  
8  
9  
10  
6  
Tonnes above  
cut-off (millions)  
Average  
grade above  
cut-off (g/t)  
Cut-off grade (g/t)

16  
14  
12  
10  
8  
6  
4  
2  
0

60  
50  
40  
30  
20  
10  
0

Tonnes above cut-off  
Ave grade above cut-off

**Kibali**

**Grade tonnage curve – Surface (metric)**

0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10

Tonnes above  
cut-off (millions)  
Average  
grade above  
cut-off (g/t)  
Cut-off grade (g/t)  
14

12  
10  
8  
6  
4  
2  
0  
100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
0

Tonnes above cut-off  
Ave grade above cut-off

**Kibali**

**Grade tonnage curve – Underground (metric)**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**64**

## MONGBWALU

### LOCATION

The Mongbwalu project covers an area of 396km<sup>2</sup> which forms part of the larger Ashanti Goldfields Kilo (AGK) concession of exploitation licences, totalling 5,487km<sup>2</sup> in the Ituri province of the north-eastern DRC. Management embarked on a careful review of the company's portfolio which led to the abandoning of a Mongbwalu development project. The district capital of Bunia lies to the southwest of the concession area, some three hours by road from the project site. Bunia is approximately one hour's flight from the nearest international airport at Kampala in Uganda.

### GEOLOGY

The Mongbwalu project is located in the Kilo Archaean granite-greenstone belt, approximately 3,000km in area and situated 850km west-northwest of Lake Albert. The Kibalian rocks have been divided into an upper and lower unit. The lower unit is dominated by magnesium-rich tholeiitic basalts whilst the upper unit is dominated by schists, quartzites and banded iron formations. The relationship between the upper and lower units appears to be conformable.

The oldest known rocks at Mongbwalu are basement gneisses which have been dated at more than 3,400 Ma.

Granitoid rocks comprise

more than 80% of the area, which includes rafts of Kibalian rocks, intruded by diorites of variable mineralogy, dated at 2,651 Ma.

The Kilo Archaean granite-greenstone belt was part of the Tanzania shield but was separated by Late Proterozoic crustal mobilisation and then by later rifting along the eastern Rift Valley system. The rocks have undergone regional metamorphism, ranging from upper greenschist to lower amphibolite facies. During the formation of the east African rift system over the past 100 – 200Ma, north-south faults formed, along which dolerite-lamprophyre dykes were intruded. There is also evidence of some younger faulting in the region. The area has undergone weak lateritic weathering to shallow depths. Cover sequences are thin and are generally no greater than 1m thick.

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MONGBWALU

**continued**

The mineralisation at Mongbwalu is hosted in anastomosing mylonite bodies of around 10 – 15m in width. These mylonite bodies have been subdivided into three main blocks separated by the late north-south trending Nzebi and Adidi faults, which offset mineralisation by up to 200m. The fault blocks are termed the Western, Central and Eastern blocks – hosting the Nzebi, Adidi and Kanga mylonites respectively.

**EXPLORATION**

Consequent on the last model update in 2011, it was recommended to proceed with three phases of drilling to upgrade confidence

and to target extensions to the current Mineral Resource base.

A significant amount of drilling was completed during 2012 and early 2013 which has been incorporated into the current Mineral

Resource update. The 2012 drill campaign mainly focussed on infill drilling to improve the confidence of the Mineral Resource in the

Mongbwalu project area (around the old Adidi mine).

The current model update includes 242 new drillholes of which 152 are diamond core and 90 reverse circulation holes.

**PROJECTS**

The interpretation of the high-grade mineralisation in this model was based on a geological re-logging exercise that identified three

relatively continuous mineralised quartz ore zones within the mylonite. These quartz zones were further refined in the current model

update, resulting in a thinner, more laterally continuous mineralised horizon.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Mongbwalu

Measured

–

–

–

–

–

–

Indicated

50 x 25

–

–

–

–

Inferred  
100 x 100

—

—

—

—

Grade/Ore Control

—

—

—

—

—

*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Mongbwalu**  
**Category**  
**million**

**g/t**  
**Tonnes**

**Moz**  
Underground  
Measured

—

—

—

—

Indicated

4.68

7.64

35.74

1.15

Inferred

5.56

7.65

42.58

1.37

Mongbwalu

Total

10.24

7.65

78.32

2.52

The Mongbwalu Mineral Resource is reported at a cut-off grade of 2.8g/t Au. The mineralisation has been classified into Inferred Mineral

Resource and Indicated Mineral Resource and these represent a drill-hole spacing of 100m x 100m and 25m x 50m respectively. Due

to the fact that the development project has not advanced, all the Mineral Resource is exclusive and below infrastructure.

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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2.06  
0.00  
0.00  
0.00  
0.46  
0.00  
0.00  
0.00  
2.52  
Ounces  
(millions)

2.50  
2.40  
2.30  
2.20  
2.10  
2.00  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Mongbwalu**  
**Mineral Resource reconciliation: 2012 to 2013**

0  
1  
2  
3  
4  
5  
6  
7  
8  
Tonnes  
above  
cut-off  
(millions)  
Average  
grade above  
cut-off (g/t)  
Cut-off grade (g/t)  
14

12  
10  
8  
6  
4  
2  
30  
25  
20  
15  
10  
5  
0

Tonnes above cut-off  
Ave grade above cut-off

**Mongbwalu**

**Grade tonnage curve – Underground (metric)**

**COMPETENT PERSONS**

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Vasu Govindsammy

SACNASP

400086/04

17 years

BSc (Stats)

HND (Economic Geology)

MSc (Mining Engineering)

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## COUNTRY OVERVIEW

AngloGold Ashanti has two mines in Ghana: Obuasi, which has surface and underground operations, and Iduapriem, an open pit mine. Obuasi and Iduapriem are both wholly owned by AngloGold Ashanti. Obuasi is located in the Ashanti region of southern Ghana, approximately 80km south of Kumasi. It is primarily an underground mine operating at depths of up to 1,500m with a continuous history of mining dating back to the 1890s. Iduapriem is located in western Ghana, some 85km from the coast and is currently an open pit operation, although the options to mine underground may be considered in the future.

## MINERAL RESOURCE ESTIMATION

Using the latest geological mapping, sampling and drilling Information, the relevant underground mineralisation wireframes are updated on a monthly basis. Block models are estimated within the delineated mineralised ore zones using Ordinary Kriging. The geological interpretation is based on diamond drill and cross-cut sampling information. Estimates are based on a block model comprised of 20m x 5m x 15m blocks, which approximate the minimum selective mining unit (SMU). Open pit mining commenced at the Sibi area of Obuasi in 2012 and was completed in 2013. The open pit Mineral Resource at both Obuasi and Iduapriem were estimated by geostatistical techniques within 3D wireframe models of the mineralisation. These models are based on geological information and cut-off boundaries defined by sampling results. Geological interpretation is based on trench and reverse RC and/or DD drilling. Estimation is by Ordinary Kriging into 30m x 30m x 10m blocks. Surface stockpiles volumes are based on surveys and grades based on historical sampling. Tailings are part of the Mineral Resource with estimated tonnes and grades based on combinations of 3D block models of some dams and historical metallurgical discharge data.

## ORE RESERVE ESTIMATION

The 3D Mineral Resource models are used as the basis for the Ore Reserve. A mineralisation envelope is developed using the Mineral Resource block model, geological information and the relevant cut-off grade, which is then used for mine design. An appropriate mining layout is designed that incorporates mining extraction losses and dilution factors.

**Obuasi underground:**  
All mine designs are done using the Studio 5D-planner software package to delineate stopes by taking into consideration cut-off grade, geotechnical design parameters for each mining block, mining level and section, usually leading to an extension to the existing mining sequence, and corresponding development layouts. The underground operationally runs to a depth of 1,500m from surface. Mining levels are at between 15 and 20m intervals with major levels between 30-60m intervals. Underground production is made up of open stope mining (both longitudinal and transverse), and sub-levels caving methods.

**Iduapriem open pit:**  
The Ore Reserve is estimated within mine designs based on modifying factors based on actual mining and detailed analysis of cut-off grade, geotechnical, environmental, productivity considerations and the requirements of the mining fleet. The upper portions of

the Ajopa deposit have been discounted for the estimated depletion by artisanal miners. This discount factor has been derived from observation and estimates based on the Mineral Resource model.

GHANA

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## LOCATION

Iduapriem is located in the western region of Ghana, some 85km north of the coastal city of Takoradi and approximately 8km southwest of the town of Tarkwa. Iduapriem is an open pit mine which commenced mining operations in 1992. Its processing facilities include a 4.7 million tonnes per annum (Mtpa) carbon-in-pulp (CIP) plant with a gravity circuit. The gravity feed recovers about 30% of the gold and the CIP plant recovers the remainder.

Iduapriem is bordered to the north by Gold Fields (Ghana) Ltd's Tarkwa Mine and to the east by Ghana Manganese Company (GMC)

– a manganese mine which has existed since the 1920s.

## GEOLOGY

Iduapriem is located within the Tarkwaian Group of rocks that form part of the West Africa Craton which is covered to a large extent by metavolcanics and metasediments of the Birimian Supergroup. In Ghana, the Birimian terrane consists of northeast/southwest trending volcanic belts separated by sedimentary basins. The Tarkwaian Group was deposited in these basins as shallow water deltaic sediments. The gold mineralisation at Iduapriem is hosted in the Proterozoic Banket Series conglomerates that were developed within these sediments.

## IDUAPRIEM

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The Banket Reef Zone (BRZ) comprises a sequence of individual beds of quartz pebble conglomerate, breccia conglomerate, quartzite and grit. The outcropping Banket Series in the mine lease area forms prominent curved ridges that extend southwards from Tarkwa, westwards through Iduapriem and northwards towards Teberebie. All known gold mineralisation within the Banket Series is associated with the conglomerates and is found within the matrix that binds the pebbles together. The gold content is a function of the size and amount of packing of the quartz pebbles within the conglomeratic units. At Iduapriem, the gold mineralisation is unrelated to metamorphic or hydrothermal alteration events and the gold is coarse grained, particulate and free milling. Mineralogical studies indicate that the grain size of native gold particles ranges between 2µm and 500µm and averages 130µm. Sulphide mineralisation is present only at trace levels and is not associated with the gold. Haematite mineralisation is often extremely well developed on cross bed foresets. The conglomerates often show strong haematite mineralisation in the matrix with rare visible gold grains.

#### EXPLORATION

Surface exploration drilling to probe the down-dip extension of the Block 7&8 pit has been suspended due to budgetary constraints.

A comprehensive brownfield exploration programme is being put together to understand the true potential within the three leases of the Iduapriem concession.

169 diamond holes totaling 43,535m was planned, including 22,195m RC pre-collar and 21,340m DD tail for Block 7&8 Mineral

Resource conversion.

Geological mapping was focused on Block 3W, Block 5 and Block 8 North.

Block 3W is situated on a geologically disturbed area, though the mineralisation is lithologically controlled, there are some major late structures controlling them. It is again located at the hinge of the Tarkwa Synformal basin plunging approximately 50° northeast.

The structural mapping at Block 5 shows three mineralised conglomerate horizons (reefs) striking NNE (005°-030°) with average dip of 35°-40°. However there are evidences of minor local faulting and some shearing. The conglomerates alternate with the barren

quartzite, this relationship however is also observed in the individual mineralised reefs.

Overtured folding has been interpreted at Block 8N, with the fold axis running parallel to the major fault of the area, and has surfaced

two of the reefs on the footwall.

#### MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

##### **Type of drilling**

##### **Mine/Project**

##### **Category**

##### **Spacing**

##### **m (-x-)**

##### **Diamond**

##### **RC**

##### **Blast-hole Channel**

##### **Other**

**Comments**

Iduapriem

Measured

50 x 50,

50 x 75,

100 x 50

—

—

—

—

Indicated

50 x 75,

50 x 100,

100 x 75

—

—

—

—

Inferred

100 x 100

—

—

—

—

Grade/Ore Control            10 x 12,

10 x 15

—

—

—

—

IDUAPRIEM

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Iduapriem**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Ajopa

Measured

–

–

–

–

Indicated

9.01

1.70

15.32

0.49

Inferred

2.69

1.22

3.28

0.11

Total

11.71

1.59

18.60

0.60

Block 3W

Measured

–

–

–

–

Indicated

0.10

1.17

0.12

0.00

Inferred

3.11

1.49

4.63

0.15

Total

3.21

1.48

4.75  
0.15  
Block 5  
Measured  
—  
—  
—  
—  
Indicated  
0.02  
1.01  
0.02  
0.00  
Inferred  
1.52  
1.08  
1.64  
0.05  
Total  
1.54  
1.08  
1.65  
0.05  
Blocks 7 and 8  
Measured  
8.08  
1.36  
10.98  
0.35  
Indicated  
49.44  
1.65  
81.47  
2.62  
Inferred  
38.64  
1.64  
63.20  
2.03  
Total  
96.15  
1.62  
155.65  
5.00  
Stockpile (Full Grade Ore)  
Measured  
7.08  
0.86  
6.06  
0.19  
Indicated

—  
—  
—  
—  
Inferred  
—  
—  
—  
—  
Total  
7.08  
0.86  
6.06  
0.19  
Stockpile (Other)  
Measured

—  
—  
—  
—  
Indicated

—  
—  
—  
—  
Inferred  
21.00  
0.49  
10.35  
0.33  
Total  
21.00  
0.49  
10.35  
0.33  
Stockpile (Marginal Ore)  
Measured  
0.13  
0.56  
0.07  
0.00

Indicated  
—  
—  
—  
—  
Inferred

—  
—  
—  
—

Total

0.13

0.56

0.07

0.00

Iduapriem

Total

140.82

1.40

197.14

6.34

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Iduapriem**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

1.36

1.13

1.53

0.05

Indicated

27.75

1.57

43.52

1.40

Inferred

66.96

1.24

83.11

2.67

Iduapriem

Total

96.06

1.33

128.16

4.12

The Exclusive Mineral Resource listed above is derived mainly from the following:

- Inferred Mineral Resource located within the optimised Ore Reserve pit shell; and

- Mineral Resource located outside the Ore Reserve shell but within the optimised Mineral Resource shell. This consists mainly of down-dip extensions of the ore zones, most of which may be mineable at a higher gold price.

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ORE RESERVE

*Ore Reserve*

as at 31 December 2013

**Tonnes**

**Grade**

**Contained gold**

**Iduapriem**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Ajopa

Proved

–

–

–

–

Probable

5.34

1.85

9.87

0.32

Total

5.34

1.85

9.87

0.32

Blocks 7 and 8

Proved

6.56

1.32

8.69

0.28

Probable

22.24

1.65

36.68

1.18

Total

28.79

1.58

45.36

1.46

Stockpile (Full Grade Ore)

Proved

7.08

0.86

6.06

0.19

Probable



—  
—  
—  
—

Total  
7.08  
0.86  
6.06  
0.19

Iduapriem  
Total  
41.22  
1.49  
61.29  
1.97

*Ore Reserve modifying factors*  
**as at 31 December 2013**

**Iduapriem**

**Gold  
price**

**US\$/oz**

**Cut-off  
value**

**g/t Au**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based  
on**

**tonnes)**

**%**

**RMF**

**(based  
on g/t)**

**%**

**MRF**

**(based  
on**

**tonnes)**

**%**

**MRF**

**(based  
on g/t)**

**MCF**

**%**

**MetRF**

**%**

Ajopa

1,100  
 0.86  
 -  
 -  
 102.5  
 92.0  
 100.0  
 94.0  
 100.0  
 95.0  
 Blocks 7 and 8  
 1,100  
 0.76  
 -  
 -  
 104.0  
 97.0  
 100.0  
 94.0  
 100.0  
 95.0  
 IDUAPRIEM  
**continued**  
 6.62  
 -0.29  
 -0.31  
 0.00  
 0.07  
 0.19  
 0.06  
 0.00  
 6.34  
 Ounces  
 (millions)  
 6.7  
 6.6  
 6.5  
 6.4  
 6.3  
 6.2  
 6.1  
 6.0  
 5.9  
 2012  
 Deple-  
 tion  
 Gold  
 price  
 Cost  
 Explo-  
 ration

Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Iduapriem**

**Mineral Resource reconciliation: 2012 to 2013**

2.21  
-0.22  
-0.05  
0.00  
0.00  
0.03  
0.00  
0.00  
0.00  
1.97

Ounces  
(millions)

2.25  
2.20  
2.15  
2.10  
2.05  
2.00  
1.95  
1.90  
1.85  
2012

Other  
2013

**Iduapriem**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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0.00  
 0.50  
 0.25  
 1.00  
 0.75  
 1.25  
 1.75  
 2.00  
 1.50  
 Tonnes above  
 cut-off (millions)  
 Average  
 grade  
 above  
 cut-off (g/t)  
 Cut-off grade (g/t)

2.4  
 2.2  
 2.0  
 1.8  
 1.6  
 1.4  
 80  
 70  
 60  
 50  
 40  
 30  
 20  
 10  
 0

Tonnes above cut-off  
 Ave grade above cut-off

**Iduapriem**

**Grade tonnage curve – Surface (metric)**

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Iduapriem**

**Tonnes Moz**

**Comment**

Ajopa

1.54

1.23

1.90

0.06

Grade control drilling will be done on every bench

(18 m) for better ore definition

Blocks 7 and 8

2.88

1.44

4.13

0.13

Total

4.42

1.37

6.04

0.19

The Inferred Mineral Resource within the Ore Reserve design is 9% of the total ore scheduled (47.56Mt) and exists as pockets of

Inferred Mineral Resource material located within the models of all the deposits.

#### COMPETENT PERSONS

##### Category

##### Competent Person

##### Professional

##### organisation

##### Membership

##### number

##### Relevant

##### experience

##### Qualification

Mineral Resource

Tebogo Mushi

SAIMM

702 438

10 years

BSc (Hons) Mining Engineering

GDE (Mineral Economics) WITS

Ore Reserve

Stephen Asante

Yamoah

MAusIMM

304 095

9 years

BSc (Hons) Mining Engineering

MSc (Mining Engineering)

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#### LOCATION

Obuasi mine is located in the Ashanti Region of Ghana some 320km northwest of the capital Accra. The mine is situated in a largely forested region, with surrounding land occupied by subsistence farmers. The mining concession covers an area of 47.5ha. Eighty communities lie within a 30km radius of the mine. Obuasi mine employs sub-level open stoping and sub-level caving for extraction of its mineable Ore Reserve.

#### GEOLOGY

The mine is located within the Obuasi concession area in south-western Ghana along the north easterly striking Ashanti volcanic belt. The deposit is one of the most significant Proterozoic gold belts discovered to date. The Ashanti belt predominantly comprises sedimentary and mafic volcanic rocks, and is the most prominent of the five Birimian Supergroup gold belts found in Ghana. The belt is a 300km wrench fault system that propagated from Dixcove in the southwest to beyond Konongo in the northeast. The Birimian was deformed, metamorphosed and intruded by syn- and post-tectonic granitoids during the Eburnean tectonothermal event around two billion years ago. Folding trends are dominantly north-northeast to northeast. Elongate syn-Birimian basins developed between the ridges of the Birimian system and these were filled with the Tarkwaian molasse sediments made up primarily of conglomerates, quartzose and arkosic sandstones and minor shale units. Major faulting has taken place along the same trends. Gold mineralisation is associated with, and occurs within, graphite-chlorite-sericite fault zones. These shear zones are commonly associated with pervasive silica, carbonate and sulphide hydrothermal alteration and occur in tightly-folded Lower Birimian schists, phyllites meta-greywackes, and tuffs, along the eastern limb of the Kumasi anticlinorium.

#### OBUASI

#### MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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Mineralised shears are found in close proximity to the 'contact' with harder metamorphosed and metasomatically-altered intermediate to basic upper Birimian volcanics. The competency contrast between the harder metavolcanic rocks to the east and the more argillaceous rocks to the west is thought to have formed a plane of weakness. During crustal movement, this plane became a zone of shearing and thrusting coeval with the compressional phases.

The Lower Birimian metasediments and metavolcanics are characterised and defined by argillaceous and fine to intermediate arenaceous rocks. These rocks are represented by phyllites, meta siltstones, meta greywackes, tuffaceous sediments, ash tuffs and hornstones in order of decreasing importance. Adjacent to the shear zones, these rocks are replaced by sericitic, chloritic and carbonaceous schists, which may be graphitic in places. Multiple lodes are a common feature in the mine. Granites outcrop in the west and northwest of the concession area and intrude the Birimian rocks only. Two types of granite are present, one is very resistant to weathering than the other, the less resistant granite is prospective for gold mineralisation.

Two main ore types are mined namely, quartz vein and sulphide ore. The quartz vein type consists mainly of quartz with free gold in association with lesser amounts of various metal sulphides containing iron, zinc, lead and copper. This ore type is generally non-refractory. Sulphide ore is characterised by the inclusion of gold in the crystal structure of arsenopyrite minerals. Higher gold grades tend to be associated with finer grain arsenopyrite crystals. Sulphide ore is generally refractory.

#### EXPLORATION

##### Surface exploration

Three holes with total depth of 775m were drilled at Gyabunsu.

##### Underground exploration

Underground exploration during 2013 focused on Sansu 3 project area above 50 Level. The objective of the drilling programme was to upgrade the Inferred Mineral Resource within the Sansu 3 block of quartz and sulphide mineralisation to Indicated Mineral Resource.

Ten holes with total depth of 3,421m were completed.

#### PROJECTS

##### Mining method

The mining method at Obuasi is being changed from transverse and longitudinal open stoping to longitudinal retreat mining in mining blocks where it is suitable to do so. The major advantage of this method is the up to 50% reduction in waste development; reducing capital expenditure along with additional reef drive exposure.

##### Sansu bypass decline project

The bypass decline became a necessity after the wall failure in the Sansu Open pit in January 2013 required closure of the old Sansu

Portal. Development of 590m (dimensions 5.0m x 5.0m) decline holed into 7 Level on 22 September 2013 as planned. Obuasi deeps decline project

Following an extensive review, AngloGold Ashanti embarked on a process to modernise its Obuasi mine and reverse a long trend of declining production and rising costs. This project is focused on the development of a new decline roadway system from surface to

by-pass aged infrastructure and more efficiently access the upper ore zones, some of which are not currently in the mine plan and the deeper, higher-grade areas of the orebody to allow for additional ore extraction to meet the 2016 production targets. The project is expected to complete by 2016.

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MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Obuasi

Measured

20 x 20,

40 x 20,

50 x 50

–

Percussion drilling for  
open pits.

Indicated

30 x 30,

50 x 50,

60 x 60

–

Percussion drilling for  
open pits and discharge  
sampling for tailings.

Inferred

90 x 90,

100 x 100,

120 x 120

–

Percussion drilling for  
open pits and discharge  
sampling for tailings.

Grade/Ore Control                      10 x 10

–

Channel sampling of cross  
cuts and definition drilling.

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Obuasi**

**Category**

**million**

**g/t**  
**Tonnes**  
**Moz**  
Anyankyirem  
Measured  
—  
—  
—  
—  
Indicated  
5.53  
2.37  
13.14  
0.42  
Inferred  
0.11  
2.50  
0.27  
0.01  
Total  
5.64  
2.38  
13.41  
0.43  
Anyinam  
Measured  
0.00  
2.50  
0.01  
0.00  
Indicated  
0.45  
3.54  
1.59  
0.05  
Inferred  
1.02  
4.24  
4.33  
0.14  
Total  
1.47  
4.02  
5.93  
0.19  
Gyabunsu-Sibi  
Measured  
0.05  
4.00  
0.21  
0.01

Indicated

0.05

3.48

0.16

0.01

Inferred

0.28

3.97

1.13

0.04

Total

0.38

3.92

1.50

0.05

Tailings (Kokoteasua)

Measured

3.22

1.97

6.33

0.20

Indicated

1.65

1.96

3.24

0.10

Inferred

—

—

—

—

Total

4.87

1.96

9.57

0.31

Tailings (Pompora)

Measured

—

—

—

—

Indicated

—

—

—

—

Inferred

33.61

1.57

52.89

1.70  
Total  
33.61  
1.57  
52.89  
1.70  
Other Surface Resources  
Measured  
—  
—  
—  
—  
Indicated  
1.09  
2.50  
2.72  
0.09  
Inferred  
—  
—  
—  
—  
Total  
1.09  
2.50  
2.72  
0.09  
Upper Mine  
Measured  
2.19  
10.10  
22.12  
0.71  
Indicated  
2.49  
7.67  
19.09  
0.61  
Inferred  
0.94  
6.00  
5.63  
0.18  
Total  
5.62  
8.34  
46.85  
1.51  
OBUASI  
**continued**  
MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**76**

as at 31 December 2013

**Tonnes**

**Grade**

**Contained gold**

**Obuasi**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Above 50 Base

Measured

20.64

7.30

150.73

4.85

Indicated

39.91

5.83

232.70

7.48

Inferred

23.68

6.32

149.66

4.81

Total

84.23

6.33

533.09

17.14

Adansi 50-60

Measured

2.16

5.28

11.38

0.37

Indicated

1.83

4.46

8.15

0.26

Inferred

6.54

5.03

32.89

1.06

Total

10.52

4.98

52.42

1.69  
Stockpile (Heap Leach)  
Measured  
1.08  
0.58  
0.63  
0.02  
Indicated  
—  
—  
—  
—  
Inferred  
—  
—  
—  
—  
Total  
1.08  
0.58  
0.63  
0.02  
Stockpile (Surface Oxides)  
Measured  
0.02  
1.70  
0.04  
0.00  
Indicated  
—  
—  
—  
—  
Inferred  
—  
—  
—  
—  
Total  
0.02  
1.70  
0.04  
0.00  
KMS 50-60  
Measured  
—  
—  
—  
—  
Indicated  
3.53

18.67

65.96

2.12

Inferred

6.08

11.01

66.94

2.15

Total

9.61

13.82

132.90

4.27

Stockpile (Surface Sulphides)

Measured

0.05

2.58

0.13

0.00

Indicated

—

—

—

—

Inferred

—

—

—

—

Total

0.05

2.58

0.13

0.00

Obuasi

Total

158.20

5.39

852.07

27.39

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**OBUASI**

**continued**

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Obuasi Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

8.31

8.98

74.64

2.40

Indicated

28.47

5.47

155.74

5.01

Inferred

72.26

4.34

313.74

10.09

Obuasi

Total

109.04

4.99

544.12

17.49

The Obuasi Exclusive Mineral Resource is made up of Mineral Resource from underground, open pit and tailings. The bulk of the

Exclusive Mineral Resource is from underground.

*Mineral Resource below infrastructure*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Obuasi**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

2.16

5.28

11.38

0.37  
Indicated  
5.36  
13.82  
74.11  
2.38  
Inferred  
12.62  
7.91  
99.83  
3.21  
Obuasi  
Total  
20.13  
9.20  
185.32  
5.96  
29.82  
-0.35  
0.00  
0.00  
0.10  
-2.18  
0.00  
0.00  
27.39  
Ounces  
(millions)  
30.0  
29.5  
29.0  
28.5  
28.0  
27.5  
27.0  
26.5  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013  
**Obuasi**

**Mineral Resource reconciliation: 2012 to 2013**

8.52  
-0.21  
-0.16  
0.00  
0.00  
0.00  
-0.00  
-0.00  
8.14  
Ounces  
(millions)  
8.55  
8.50  
8.45  
8.40  
8.35  
8.30  
8.25  
8.20  
8.15  
8.10  
8.05  
2012  
Other  
2013

**Obuasi**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Obuasi**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Tailings (Kokoteasua)

Proved

1.75

1.96

3.45

0.11

Probable

3.12

1.96

6.12

0.20

Total

4.87

1.96

9.57

0.31

Tailings (Pompora)

Proved

–

–

–

–

Probable

1.09

2.10

2.29

0.07

Total

1.09

2.10

2.29

0.07

Above 50 Base

Proved

15.74

6.18

97.34

3.13

Probable

19.17  
 5.47  
 104.80  
 3.37  
 Total  
 34.91  
 5.79  
 202.14  
 6.50  
 KMS 50-60

Proved  
 0.60  
 13.49  
 8.09  
 0.26

Probable  
 2.39  
 13.01  
 31.15  
 1.00

Total  
 2.99  
 13.11  
 39.23  
 1.26

Obuasi  
 Total  
 43.86  
 5.77  
 253.23  
 8.14

*Ore Reserve modifying factors*  
**as at 31 December 2013**

**Obuasi**  
**Gold**  
**price**  
**US\$/oz**  
**Cut-off**  
**value**  
**g/t Au**  
**Dilution**  
**%**  
**Dilution**  
**g/t**  
**%**  
**RMF**  
**(based**  
**on**  
**tonnes)**  
**%**  
**RMF**

(based  
on g/t)  
%

MRF  
(based  
on  
tonnes)  
%

MRF  
(based  
on g/t)  
MCF  
%

MetRF  
%

Above 50 Base

KMS 50-60

1,100

4.00\*

12.0\*\*

0.25

100.0

100.0

95.0

#

100.0

95.0

85.4

\*

*2.20g/t incremental cut-off, and 4.00g/t global cut-off for stopes, 1.5g/t cut-off for development.*

*\*\* 20% for sub-level cave stoping, 12% for all other methods, 0% for development.*

#

*95% for stoping, 100% for development.*

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*Inferred Mineral Resource in business plan*  
**as at 31 December 2013**

**Tonnes**  
**million**

**Grade**  
**g/t**

**Contained gold**  
**Obuasi**

**Tonnes Moz**  
**Comment**

Above 50 Base

1.94

6.79

13.15

0.42

5.5% Inferred Mineral Resource tonnes, and 6.5%

Inferred Mineral Resource ounces

KMS 50-60

0.17

15.37

2.55

0.08

Total

2.10

7.47

15.70

0.50

*Ore Reserve below infrastructure*

**as at 31 December 2013**

**Tonnes**  
**Grade**

**Contained gold**  
**Obuasi**

**Category**  
**million**

**g/t**

**Tonnes**  
**Moz**

Proved

0.60

13.49

8.09

0.26

Probable

2.39

13.01

31.15

1.00

Obuasi

Total

2.99

13.11

39.23

1.26

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Clement Asamoah-

Owusu

MAusIMM

210 145

29 years

BSc (Hons) Geological Engineering

MSc (Mineral Exploration)

Ore Reserve

Christian Boafo

MAusIMM

312 532

16 years

Graduate Diploma (Mining)

OBUASI

**continued**

0.0

1.5

0.5

1.0

3.0

2.0

2.5

3.5

4.5

5.0

4.0

Tonnes above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

6.5

6.0

5.5

5.0



4.5  
4.0  
3.5  
3.0  
2.5  
2.0  
1.5  
1.0  
16  
14  
12  
10  
8  
6  
4  
2  
0

Tonnes above cut-off  
Ave grade above cut-off

**Obuasi**

**Grade tonnage curve – Surface (metric)**

0  
2  
4  
6  
8  
10  
12  
14  
16  
18  
20

Tonnes  
above  
cut-off  
(millions)  
Average grade  
above  
cut-off (g/t)

Cut-off grade (g/t)  
40  
35  
30  
25  
20  
15  
10  
5  
0  
120  
100

80  
60  
40  
20  
0

Tonnes above cut-off  
Ave grade above cut-off

**Obuasi**

**Grade tonnage curve – Underground (metric)**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## COUNTRY OVERVIEW

The Siguiri mine is AngloGold Ashanti's only operation in the Republic of Guinea. The mine is 85% owned by AngloGold Ashanti and 15% by the government of Guinea. The mine is a conventional open pit operation situated in the Siguiri district in the northeast of Guinea. It lies about 850km from the capital city of Conakry and 109km from the border with Mali. Gold-bearing ore is mined from several pits and sent to a CIP plant.

## MINERAL RESOURCE ESTIMATION

Mineral Resource definition drilling is done with air core (AC), RC and DD. All available geological drill-hole information is validated for usage in the models and the local geology of the deposit together with an understanding of grade variability is used to classify the drill-hole information into appropriate estimation domains. Detailed statistical analyses are conducted on each of these domains and this allows for the identification of high-grade outlier values. If these values are anomalous to the general population characteristics they may be cut, that is reduced back to the appropriate upper limit of the population. The Mineral Resource model is estimated using Ordinary Kriging into a 3D block model. Geological interpretation is based on geological drill-hole data. The dimensions of these Mineral Resource blocks range from 10m x 10m x 2.5m to 50m x 25m x 6m block sizes, guided by the shape of the deposit and the drilling density. The Mineral Resource is declared within an optimised limiting Mineral Resource pit shell using a gold price, of US\$1,600/oz.

## ORE RESERVE ESTIMATION

The Mineral Resource models for each pit are depleted to the current mined-out surface. Costs are assigned on a pit-by-pit basis, reflecting the existing cost structure of the operation. The relevant dilution and ore loss factors are applied and pit optimisation is then performed. The relevant modifying factors such as metallurgical recoveries, geotechnical parameters, cut-off grades and economics are applied to generate the mine designs that are used to estimate the final Ore Reserve.

## GUINEA

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## LOCATION

Siguiri is located in the Siguiri district of north-eastern Guinea, West Africa, and is about 850km from the capital city of Conakry. The Société Ashanti Goldfields de Guinée (SAG) mining concession consists of four blocks totaling 1,495km<sup>2</sup>. Gold mining in the district can be traced back for centuries, but there are no reliable records of pre-Western production. The French became involved in the area in the late 19th and early 20th centuries. Between 1931 and 1951 the French reported gold coming out of Siguiri, with figures varying between 1 and 3.8 tonnes annually, however little exploration work was completed. There was a phase of Russian exploration in the area between 1960 and 1963. The Russian work focused on the placer deposits along the major river channels in the area. In 1980 SOMIQ (Société Minière Internationale du Quebec) gained the exploration rights for Siguiri and Mandiana. SOMIQ focused its work on the Koron and Didi areas. The Chevaning Mining Company Ltd. was then created to undertake a detailed economic evaluation of the prospect, with more intensive work beginning in the late 1980s. AuG (Société Aurifère de Guinée) took over from its predecessors and continued work on the placers deposits. Production on the Koron placer reached a peak in 1992 with 1.1t gold being produced, although due to a number of difficulties the mine was shut down later that year. Golden Shamrock started a pre-feasibility study in 1995 after which Ashanti Goldfields became interested in the deposit and Siguiri Mine started production in 1998 as Société Ashanti Goldfields de Guinée (SAG). In 2004 the merger of AngloGold and Ashanti resulted in the operation being run by AngloGold Ashanti. Siguiri is currently a multi-pit oxide gold mining operation. All ore and waste is mined by a mining contractor utilizing backhoe excavators and trucks. Most material is free dig with very limited “paddock blasting” in soft laterites and saprolite and hard rock blasting in Duricrust. Processing of the ore is done by a CIP plant which has been successfully optimised to reach throughput of 11.5Mt per annum.

## GEOLOGY

The gold mineralisation at Siguiri occurs in Paleoproterozoic Birimian rocks consisting of turbidites and lesser volcanoclastic sequences. It is situated in an arcuate zone of a larger anastomosing shear zone system. These zones form part of the northerly trending, continental scale shear zone system that transects the West African Craton and bordering areas.

## SIGUIRI

### MINERAL RESOURCE AND ORE RESERVE REPORT

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There are two types of oxide mineralisation in the Siguiri basin:

- eluvial or alluvial hosted laterite mineralisation; and
  - primary quartz vein and associated shear hosted mineralisation.
- The laterite mineralisation occurs as alluvial lateritic gravel adjacent to and immediately above the in-situ vein related mineralisation.

The vein related mineralisation is hosted in metasediments and areas of economic gold mineralisation are formed where these veins are closely spaced.

The main vein related mineralisation at Siguiri is structurally controlled and associated with a major, east-northeast trending and steep

south dipping sheeted quartz vein sets that generally occur in the coarser, brittle siltstone and sandstone lithologies.

The regional

development and consistent orientation of this main vein set, irrespective of the nature of wall rocks or wall-rock structures, indicates

the control of these veins by regional strains.

A deep oxidation (weathering) profile is developed in the region, varying between 50m to 150m. The mineralised saprolite provides the

main oxide feedstock for the CIP plant. The previous practice at Siguiri was to blend the laterite and saprolite ore types and to process

these using the heap-leach method. With the percentage of available laterite ore decreasing, a CIP plant was brought on stream during

2005 to treat predominantly saprolite oxide ore. With continued exploration into deeper fresh rock extensions of the ore deposit, new

treatment options are again under consideration.

#### EXPLORATION

Exploration at Siguiri was historically focused on finding a new oxide Mineral Resource in the saprolite, and upgrading the confidence in

the existing oxide Mineral Resource. This is achieved using geophysics, soil geochemistry and drill-hole sampling in the context of the

regional and pit-scale geological models. Following the completion of an Asset Strategy Optimisation project in 2012, which indicated

the potential economic viability of the fresh rock material, the aim of the exploration has expanded and the objectives are twofold.

Firstly, there is an aim to explore for replacement and additional oxide material for short-term mining requirements.

The second

objective of the exploration programme is to increase the level of confidence in the five major fresh rock targets below the oxide pits

at Bidini, Kami, Kalamagna, Seguélen and Sintroko. In 2013, 52,000m of reconnaissance AC and RC drilling was completed to test

soil sampling and geophysical targets as well as potential extensions to known mineralised trends, 18,000m of RC and DD drilling was

done on fresh rock exploration, while infill RC drilling amounted to 18,000m.

The infill drilling was completed at Soloni and Sokunu to upgrade Inferred Mineral Resource to Indicated Mineral Resource.

Detailed geophysical surveys completed in 2012 and early 2013 were used to refine the 2013 reconnaissance drilling programme.

Reconnaissance drilling was completed on two targets south of the existing Sintroko Pit, on the anomalies that lie adjacent to a major

structure that extends northwestward from the Seguélen Mineral Resource area as well as at two targets, Niono and Silakoro, that lie to the west of the main pit areas. Follow-up work will be conducted in 2014 on three of the targets that returned intersections of significance.

The fresh rock programme was focused on three areas. At Bidini and Seguélen the aim was to complete diamond drill holes to test the mineralisation projected to depths of 200m to 250m below the oxide Mineral Resource with a row of holes at each pit spaced 100m apart. At Kami a grid of diamond drill holes was completed in December 2013. The Kami grid was planned to give a 100m x 100m spaced coverage of the mineralisation projected to approximately 200m below the oxide Mineral Resource and to provide detailed information on the geological structures and lithologies controlling the mineralisation.

#### PROJECTS

In association with the Continental Africa Region's geological team as well as a Siguiri-sponsored PhD study by a student at the University of Western Australia, good progress was achieved during 2013 on the production of a geological model for the mineralisation on the Siguiri lease area. This model will be used to guide future exploration programmes as well as to inform the Mineral Resource models. During the year RC and DD holes were drilled on the advanced Greenfields exploration targets at Saraya in Block 2 and Kounkoun in Block 3 to provide samples for preliminary metallurgical testing. Economic scoping studies were conducted on these deposits and the results of the studies and metallurgical tests will be used to decide on the timing of the next phase of work on these deposits. An Inferred Mineral Resource has been declared for Kounkoun in 2013. Core samples from drill holes in Bidini and Kami were also selected and submitted for preliminary metallurgical testing. The results are expected in the first quarter of 2014. The planned project work in 2014 will involve a more-detailed assessment of the options to bring the Block 2 and Block 3 oxide deposits and the Block 1 fresh rock deposits into production.

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MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel Other**

**Comments**

Siguiri

Measured

–

–

–

–

–

–

Indicated

20 x 40,

25 x 25,

50 x 25

–

–

–

–

–

Inferred

20 x 40,

50 x 25,

50 x 50

–

–

–

–

Grade/Ore Control            5 x 10, 5 x 12,

10 x 5,

10 x 10

–

–

–

–

–

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Siguiri**

**Category**

**million**  
**g/t**  
**Tonnes**  
**Moz**  
Bidini  
Measured  
—  
—  
—  
—  
Indicated  
3.17  
1.17  
3.71  
0.12  
Inferred  
6.00  
0.99  
5.91  
0.19  
Total  
9.16  
1.05  
9.62  
0.31  
Eureka East  
Measured  
—  
—  
—  
—  
Indicated  
1.96  
1.02  
2.00  
0.06  
Inferred  
0.41  
0.72  
0.30  
0.01  
Total  
2.37  
0.97  
2.30  
0.07  
Foulata  
Measured  
—  
—  
—



—  
Indicated

—  
—  
—  
—

Inferred

3.37  
1.48  
4.98  
0.16

Total

3.37  
1.48  
4.98  
0.16

Kalamagna

Measured

—  
—  
—  
—

Indicated

4.60  
0.69  
3.18  
0.10

Inferred

0.60  
0.74  
0.44  
0.01

Total

5.20  
0.70  
3.63  
0.12

Kami

Measured

—  
—  
—  
—

Indicated

8.48  
0.79  
6.73  
0.22

Inferred

3.96  
0.73

2.89  
0.09  
Total  
12.44  
0.77  
9.62  
0.31  
Kosise  
Measured  
—  
—  
—  
—  
Indicated  
3.72  
0.74  
2.75  
0.09  
Inferred  
4.05  
0.68  
2.76  
0.09  
Total  
7.77  
0.71  
5.51  
0.18  
Kozan North  
Measured  
—  
—  
—  
—  
Indicated  
5.93  
0.69  
4.11  
0.13  
Inferred  
0.54  
0.70  
0.38  
0.01  
Total  
6.47  
0.69  
4.49  
0.14  
SIGUIRI  
**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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as at 31 December 2013

**Tonnes**

**Grade**

**Contained gold**

**Siguiri**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Kozan South

Measured

–

–

–

–

Indicated

6.93

0.72

4.97

0.16

Inferred

0.03

0.74

0.02

0.00

Total

6.96

0.72

4.99

0.16

Seguélén

Measured

6.26

0.79

4.96

0.16

Indicated

12.32

1.05

12.95

0.42

Inferred

4.89

1.23

6.04

0.19

Total

23.47

1.02

23.95

0.77  
Sintroko South  
Measured

—  
—  
—  
—

Indicated

2.12  
1.37  
2.92  
0.09

Inferred

0.20  
1.77  
0.36  
0.01

Total

2.33  
1.41  
3.28  
0.11

Sokunu

Measured

—  
—  
—  
—

Indicated

4.50  
0.87  
3.92  
0.13

Inferred

2.72  
0.86  
2.34  
0.08

Total

7.21  
0.87  
6.26  
0.20

Soloni

Measured

—  
—  
—  
—

Indicated

6.11

0.72  
4.37  
0.14  
Inferred  
2.84  
0.72  
2.05  
0.07  
Total  
8.95  
0.72  
6.42  
0.21  
Sorofe  
Measured  
—  
—  
—  
—  
Indicated  
4.29  
0.96  
4.14  
0.13  
Inferred  
2.78  
1.20  
3.33  
0.11  
Total  
7.08  
1.05  
7.46  
0.24  
Kounkoun  
Measured  
—  
—  
—  
—  
Indicated  
—  
—  
—  
—  
Inferred  
15.38  
1.28  
19.65  
0.63  
Total

15.38

1.28

19.65

0.63

Stockpile (Marginal Ore)

Measured

22.27

0.48

10.80

0.35

Indicated

—

—

—

—

Inferred

—

—

—

—

Total

22.27

0.48

10.80

0.35

Stockpile (Full Grade Ore)

Measured

5.42

1.00

5.40

0.17

Indicated

—

—

—

—

Inferred

—

—

—

—

Total

5.42

1.00

5.40

0.17

Stockpile (Spent Heap Leach)

Measured

—

—

—

–  
 Indicated  
 31.95  
 0.54  
 17.29  
 0.56  
 Inferred  
 13.40  
 0.57  
 7.61  
 0.24  
 Total  
 45.35  
 0.55  
 24.90  
 0.80  
 Sigui  
 Total  
 191.19  
 0.80  
 153.25  
 4.93  
*Exclusive Mineral Resource*  
**as at 31 December 2013**  
**Tonnes**  
**Grade**  
**Contained gold**  
**Sigui**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Measured  
 0.41  
 0.61  
 0.25  
 0.01  
 Indicated  
 43.36  
 0.80  
 34.85  
 1.12  
 Inferred  
 61.17  
 0.97  
 59.06  
 1.90  
 Sigui  
 Total  
 104.94



0.90

94.15

3.03

*Inclusive Mineral Resource continued*

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The Exclusive Mineral Resource at Siguiri includes:

- Indicated Mineral Resource that is economic at the Mineral Resource gold price of US\$1,600/oz, but not at the Ore Reserve price. This material forms 42% of the Exclusive Mineral Resource.
- Inferred Mineral Resource not included in the current pit designs. Selected parts of these areas will be included in infill drilling programmes during 2015 and 2016 to meet LOM planning requirements. This Inferred Mineral Resource forms 55% of the Exclusive Mineral Resource.
- Inferred Mineral Resource located within the Ore Reserve optimised pit shell. This material forms 3% of the Exclusive Mineral Resource. There are portions of Indicated Mineral Resource associated with all the major pits as a result of the material being sub-economic under current Ore Reserve optimisation conditions. The Inferred Mineral Resource material associated with the Exclusive Mineral Resource is not currently supported by sufficient geological information to be classified as Indicated Mineral Resource or Measured Mineral Resource and is therefore not incorporated in the Ore Reserve.

5.17  
-0.25  
-0.56  
-0.33  
0.79  
0.17  
-0.06  
0.00  
4.93  
Ounces  
(millions)

5.2  
5.0  
4.8  
4.6  
4.4  
4.2  
4.0  
3.8  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology

Other  
Acquisition/  
Disposal  
2013

**Signiri**

**Mineral Resource reconciliation: 2012 to 2013**

2.20  
-0.23  
0.02  
-0.16  
0.04  
-0.02  
-0.01  
0.00  
1.84  
Ounces  
(millions)  
2.25  
2.20  
2.15  
2.10  
2.05  
2.00  
1.95  
1.90  
1.85  
1.80  
1.75  
2012

Other  
2013

**Signiri**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

SIGUIRI

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Signiri**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Eureka East

Proved

–

–

–

–

Probable

1.24

0.92

1.14

0.04

Total

1.24

0.92

1.14

0.04

Kalamagna

Proved

–

–

–

–

Probable

0.10

0.84

0.08

0.00

Total

0.10

0.84

0.08

0.00

Kozan North

Proved

–

–

–

–

Probable

0.92  
0.70  
0.65  
0.02  
Total  
0.92  
0.70  
0.65  
0.02  
Kozan South  
Proved  
—  
—  
—  
—  
Probable  
2.71  
0.76  
2.07  
0.07  
Total  
2.71  
0.76  
2.07  
0.07  
Seguélién  
Proved  
6.03  
0.80  
4.83  
0.16  
Probable  
9.50  
1.05  
9.98  
0.32  
Total  
15.53  
0.95  
14.81  
0.48  
Sokunu  
Proved  
—  
—  
—  
—  
Probable  
2.52  
0.84  
2.12

0.07  
Total  
2.52  
0.84  
2.12  
0.07  
Soloni  
Proved  
—  
—  
—  
—  
Probable  
1.90  
0.79  
1.50  
0.05  
Total  
1.90  
0.79  
1.50  
0.05  
Sorofe  
Proved  
—  
—  
—  
—  
Probable  
1.67  
0.86  
1.43  
0.05  
Total  
1.67  
0.86  
1.43  
0.05  
Stockpile (Marginal Ore)  
Proved  
22.27  
0.48  
10.80  
0.35  
Probable  
—  
—  
—  
—  
Total  
22.27

0.48  
10.80  
0.35  
Stockpile (Full Grade Ore)  
Proved  
5.42  
1.00  
5.40  
0.17  
Probable  
—  
—  
—  
—  
Total  
5.42  
1.00  
5.40  
0.17  
Stockpile (Spent Heap Leach)  
Proved  
—  
—  
—  
—  
Probable  
31.95  
0.54  
17.29  
0.56  
Total  
31.95  
0.54  
17.29  
0.56  
Siguirí  
Total  
86.23  
0.66  
57.28  
1.84  
**87**  
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*Ore Reserve modifying factors*

**as at 31 December 2013**

**Siguiri**

**Gold**

**price**

**US\$/oz**

**Cut-off**

**value**

**g/t Au**

**Dilution**

**%**

**Diluted**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

**on g/t)**

**MCF**

**%**

**MetRF**

**%**

Eureka East

1,100

0.65

18.0

0.22

100.0

100.0

82.4

88.0

100.0

90.0\*\*

Kalamagna

1,100

0.65

5.0

0.28



100.0

100.0

97.1

97.5

100.0

90.0\*\*

Kozan North

1,100

0.65

9.0

0.24

100.0

100.0

95.1

96.6

100.0

90.0\*\*

Kozan South

1,100

0.65

4.0

0.25

100.0

100.0

94.4

94.8

100.0

90.0\*\*

Seguélén

1,100

0.67

11.0

0.31

100.0

100.0

95.6

96.0

100.0

90.0\*\*

Sokunu

1,100

0.68

22.0

0.33

100.0

100.0

98.1

98.7

100.0

90.0\*\*

Soloni

1,100

0.64

2.0

0.21

100.0

100.0

99.5

99.6

100.0

90.0\*\*

Sorofe

1,100

0.65

14.0

0.26

100.0

100.0

91.0

91.5

100.0

90.0\*\*

Stockpile (Full Grade Ore)

1,100

0.65

—

—

100.0

100.0

100.0

100.0

100.0

90.0\*

Stockpile (Marginal Ore)

1,100

0.37

—

—

100.0

100.0

100.0

100.0

100.0

88.0

Stockpile (Spent Heap Leach)

1,100

0.37

—

—

100.0

100.0

100.0

100.0

100.0

90.0

\* *Oxide = 90%, Transitional Ore = 75%.*

\*\* *Marginal Ore = 80%, Transitional Ore = 55%.*

SIGUIRI

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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*Inferred Mineral Resource in business plan*  
**as at 31 December 2013**

**Tonnes  
million**

**Grade  
g/t**

**Contained gold  
Siguri**

**Tonnes Moz**

**Comment**

Eureka East

0.20

0.49

0.10

0.00

Within pit design (7% Inferred Mineral Resource)

Kozan North

0.00

0.26

0.00

0.00

Within pit design (0.01% Inferred Mineral Resource)

Seguélén

2.50

0.97

2.42

0.08

Within pit design (12% Inferred Mineral Resource)

Sokunu

0.08

0.76

0.06

0.00

Within pit design (2% Inferred Mineral Resource)

Soloni

0.08

0.93

0.07

0.00

Within pit design (4% Inferred Mineral Resource)

Sorofe

0.72

0.99

0.71

0.02

Within pit design (30% Inferred Mineral Resource)

**Total**

3.57

0.94

3.35

0.11

There are instances where Mineral Resource material classified as Inferred Mineral Resource is included in the business plan. This material totals 0.11 Moz, which is not significant and only represents 4.7% of the ounces in the business plan. The major contributors of Inferred Mineral Resource material within the Ore Reserve are Seguéién and Tubani (Sorofe) at 0.08 Moz and 0.02 Moz respectively.

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional organisation**

**Membership number**

**Relevant experience**

**Qualification**

Mineral Resource

Craig Duvel

SACNASP

400007/98

19 years

BSc Hons (Geology)

GDE (Mining Engineering) WITS

Ore Reserve

Desiderius

Kamugisha

MAusIMM

227 181

12 years

BSc (Mining Engineering)

0.0

0.4

0.2

0.8

0.6

1.0

1.6

1.8

1.2

1.4

Tonnes above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

2.4

2.2

2.0

1.8

1.6  
1.4  
1.2  
1.0  
0.8  
0.6  
0.4  
0.2  
350  
300  
250  
200  
150  
100  
50  
0

Tonnes above cut-off

Ave grade above cut-off

**Siguiri**

**Grade tonnage curve – Surface (metric)**

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## COUNTRY OVERVIEW

AngloGold Ashanti has interests in three operations in the West African country of Mali – Sadiola (41%), Yatela (40%) and Morila (40%).

The Sadiola and Yatela operations are managed by AngloGold Ashanti, while Randgold Resources Limited (Randgold) manages

Morila.

## MINERAL RESOURCE ESTIMATION

The Mineral Resource is taken as the material that falls within the US\$1,600/oz economic shell optimised for each individual deposit.

Mining at Yatela has been stopped and treatment of stockpile material continues as part of the closure plan. A 3D surface is generated

to create the outline of the geological model within which grades are estimated. Block sizes are between 25m x 25m x 10m and

30m x 30m x 10m (X Y Z) and where appropriate, selective sub-celling is used for definition on the geological and mineralisation

boundaries. All the deposits are estimated by Ordinary Kriging. Where deemed appropriate, a geostatistical technique called Uniform

Conditioning (UC) is used to estimate the proportion of material that occurs above the cut-off, hence forming a recoverable Mineral

Resource model at a specific selective mining unit (SMU).

## ORE RESERVE ESTIMATION

The Mineral Resource models are used as the basis for the Ore Reserve. Optimisations are run on the Measured and Indicated

Mineral Resource and the Measured, Indicated and Inferred Mineral Resource. All appropriate costs, metallurgical recovery factors and

geotechnical parameters are applied to generate the mine designs that are used to estimate the final Ore Reserve.

## MALI

### MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## LOCATION

The Morila mine is situated some 280km southeast of Bamako, the capital city of Mali. The mine is operated by Morila SA, a joint venture company incorporating Randgold (40%), AngloGold Ashanti (40%) and the Government of Mali (20%). Randgold took over the operation of Morila mine from AngloGold Ashanti in February 2008. Mining of the Morila main pit was re-investigated during 2012 and early 2013 and, due to improved economics, a further pushback was planned (Pit4S). The mining of the main pit will be complemented by re-handling and processing the existing marginal ore and mineralised waste stockpiles.

## GEOLOGY

The Morila deposit occurs within a sequence of amphibolite facies Birimian metasediments. The economic mineralisation is located in these metasediments within a broad north-northwest trending corridor of shearing. This shear zone has both near-vertical and flat-lying components and is interpreted as being a second order shear off the main Banafin shear, approximately 25km to the east. The Doubalakoro granite pluton borders the metasediments to the west and the Massigui granites lie to the east. Gold mineralisation is associated with silica feldspar alteration and the sulphide minerals arsenopyrite, pyrrhotite, and pyrite (with minor chalcopyrite). The pushback project on the south of the current pit has been updated in 2013 to reflect an improved slope angle design. A preliminary study revealed a total of 23.8Mt to be mined, including 22.6Mt of waste and 1.2Mt @ 3.00 g/t ore to produce 106,000 oz of recovered gold over a 22-month activity period. For cost saving reasons, all of the waste mined will be dumped in-pit.

## PROCESSING

Ore throughput dropped to 3.6Mtpa since the SAG mill was taken off-line in July 2013 and the milling and crushing circuit reconfigured along with an upgraded three-stage crushing plant. In addition, the plant's oxygen system was upgraded with the installation of a new oxygen unit designed to improve the recovery rates as well as cyanide consumption. Additional Archen reactors are due to be installed in early 2014 to further enhance oxygenation of the pulp.

## MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

### **Type of drilling**

### **Mine/Project**

### **Category**

### **Spacing**

### **m (-x-)**

### **Diamond**

### **RC**

### **Blast-hole**

### **Channel**

### **Other**

### **Comments**

Morila

Measured

10 x 10



-  
-  
-  
-

Indicated  
30 x 30

-  
-  
-  
-

Inferred  
60 x 60

-  
-  
-  
-

Grade/Ore Control            10 x 10

-  
-  
-  
-  
-

MORILA

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Morila**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Main pit

Measured

–

–

–

–

Indicated

0.40

2.93

1.18

0.04

Inferred

0.15

4.02

0.60

0.02

Total

0.55

3.23

1.78

0.06

Stockpile (Marginal Ore)

Measured

0.17

1.14

0.20

0.01

Indicated

–

–

–

–

Inferred

–

–

–

–

Total

0.17

1.14

0.20  
0.01  
Stockpile (Mineralised Waste)  
Measured  
—  
—  
—  
—  
Indicated  
—  
—  
—  
—  
Inferred  
0.82  
0.79  
0.65  
0.02  
Total  
0.82  
0.79  
0.65  
0.02  
Tailings storage facilities  
Measured  
—  
—  
—  
—  
Indicated  
—  
—  
—  
—  
Inferred  
13.24  
0.35  
4.63  
0.15  
Total  
13.24  
0.35  
4.63  
0.15  
Morila  
Total  
14.78  
0.49  
7.26  
0.23  
*Exclusive Mineral Resource*

as at 31 December 2013

Tonnes

Grade

Contained gold

Morila

Category

million

g/t

Tonnes

Moz

Measured

–

–

–

–

Indicated

–

–

–

–

Inferred

14.21

0.41

5.88

0.19

Morila

Total

14.21

0.41

5.88

0.19

0.06

-0.05

0.00

0.00

0.00

0.04

0.00

0.00

0.04

Ounces

(millions)

0.06

0.05

0.04

0.03

0.02

0.01

0.00

2012

Other

2013

**Morila**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion

Model  
change

Economics

New  
ounces

from

Projects

Scope

Change

Acquisition/

Disposal

0.27

-0.05

0.00

0.00

0.00

0.01

0.00

0.00

0.23

Ounces

(millions)

0.28

0.27

0.26

0.25

0.24

0.23

0.22

0.21

0.20

2012

Deple-  
tion

Gold

price

Cost

Explo-  
ration

Metho-  
dology

Other

Acquisition/

Disposal

2013

**Morila**

**Mineral Resource reconciliation: 2012 to 2013**

MORILA

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

**92**

0.00  
0.50  
0.25  
1.00  
0.75  
1.25  
1.75  
2.00  
1.50  
Tonnes above  
cut-off (millions)  
Average  
grade  
above  
cut-off (g/t)  
Cut-off grade (g/t)

3.5  
3.4  
3.3  
3.2  
3.1  
3.0  
2.9  
2.8  
2.7  
0.95  
0.90  
0.85  
0.80  
0.75  
0.70  
0.65  
0.60  
0.55

Tonnes above cut-off  
Ave grade above cut-off

**Morila**

**Grade tonnage curve – Surface (metric)**

ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Morila**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

**Main pit**

Proved

—  
—  
—  
—

Probable

0.40  
2.93  
1.18  
0.04

Total

0.40  
2.93  
1.18  
0.04

Stockpile (Marginal Ore)

Proved

—  
—  
—  
—

Probable

0.17  
1.14  
0.20  
0.01

Total

0.17  
1.14  
0.20  
0.01

Morila

Total

0.57  
2.40  
1.38  
0.04

*Ore Reserve modifying factors*

**as at 31 December 2013**

**Morila**

**Gold**

**price**

**US\$/oz**

**Cut-off**

**value**

**g/t Au**

**Dilution**

**%**

**Dilution**

**g/t**

**%**



**RMF**  
**(based**  
**on**  
**tonnes)**  
 %

**RMF**  
**(based**  
**on g/t)**  
 %

**MRF**  
**(based**  
**on**  
**tonnes)**  
 %

**MRF**  
**(based**  
**on g/t)**

**MCF**  
 %

**MetRF**  
 %

Main  
 pit

1,000	1.00	10.0
-------	------	------

–

100.0

100.0

95.0

100.0

100.0

91.0

Stockpile (Marginal Ore)

1,000

1.00\*

–

–

100.0

100.0

100.0

100.0

100.0

100.0

88.8

*US\$1,000 Ore Reserve price used by Randgold Resources Limited (operating partner).*

*\* Lower cut off for Marginal Ore is 1.00g/t with top cut off of 1.30g/t.*

*Inferred Mineral Resource in business plan*

No planning or scheduling took place in areas classified as Inferred Mineral Resource.

**COMPETENT PERSONS**

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership number**

**Relevant experience**

Mineral Resource

Rodney Quick\*

SACNASP

400014/05

20 years

Ore Reserve

\* *Employed by Randgold Resources Limited.*

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## LOCATION

Sadiola is situated in western Mali, 77km to the south of the regional capital of Kayes and about 440km north-west of the capital city

of Bamako. The mine is 41% owned by AngloGold Ashanti, 41% by IAMGOLD Corporation and 18% by the Republic of Mali.

The mine has been in production and operated by AngloGold Ashanti since 1996. Current operations are focused on the mining of

oxide material from the Fe4 and Tambali pits. Mining from the Sadiola main pit has stopped as the oxide Ore Reserve is depleted

although this pit remains a key project in the extension of the LOM plan with the Sadiola Sulphide Project (SSP) awaiting board

approval.

Ore is treated in a 4.8Mtpa CIP processing plant. The plant was originally designed to treat only soft oxide ore, but has been

progressively adapted to include a blend of hard oxides as well as batch feeding of a sulphide ore blend. Any hard material making up

the blends currently undergoes preconditioning through primary crushers.

The SSP aims to mine the underlying sulphide material in the Sadiola main pit and modify the existing oxide plant to process the

sulphide ore. The modified plant will treat both sulphide stockpiles and then the run-of-mine sulphide material. This project will extend

the life of Sadiola and leverage any further sulphide exploration successes in the region.

## GEOLOGY

The Sadiola gold deposits are located within the Malian portion of the Keniéba-Kedougou Inlier, a major early Paleoproterozoic-

Birimian window along the northeast margin of the Kenema-Man shield. The deposits are in the north of the inlier and positioned in

the Kofi Formation, just east of the Senegalo-Malian Shear Zone (SMS) terrane boundary. Regional metamorphism is of greenschist

facies with amphibolites facies metamorphism observed in the contact aureoles around major intrusions.

The gold mineralisation in the Sadiola main pit is related to the interaction of the north-striking Sadiola Fracture Zone (SFZ) and a north-

northeast striking fault array. The SFZ follows the competency contrast between the brittle hangingwall greywacke and the ductile

footwall marbles and is mineralised over a drilled strike length of approximately 2,500km. The stratigraphy is intruded by discontinuous

diorite and quartz-feldspar porphyry dykes. Mineralisation occurs in all four rock types although most of the mineralisation is hosted in

the footwall adjacent to the SFZ. The deposit has been intensely weathered to a maximum depth of two hundred metres.

The oxide Ore Reserve of the original Sadiola main pit is now fully depleted with the remaining ore below the current pit being part of

the SSP.

The primary source of the oxide ore currently comes from two satellite areas. The FE3/FE4 complex is located approximately six

kilometres southeast of the Sadiola mine and processing plant while the new Tambali Pit is two kilometres southwest of the plant.

Mineralisation at the FE3 deposit is hosted in marbles adjacent to the upper contact with carbon-rich pelites. Gold is associated with

northeast-east striking faults and lens-shaped breccia zones that are broadly parallel to the northwest-trending stratigraphy. The FE4

deposit is located in an interbedded sandstone and pelite sequence with mineralisation predominantly hosted in breccia along a

northeast-striking regional shear and several subsidiary north-northeast-trending faults.

At Tambali the mineralisation is associated with two sets of structures, orientated in a north-north-easterly (NNE) (dipping steeply south-

east) and north-westerly (NW) (dipping south-west). These structures are often related to thin tourmaline-quartz rich shears/veins or zones

of (mostly NNE trending) quartz-feldspar porphyry intrusions that have undergone later shearing. A NW trending graphite rich brecciated

boundary between south-westerly dipping sandstones (in the East) and metapelites (in the west) is also evident.

Bedding parallel shearing is

also indicated in some areas, possibly accounting for some of the westerly-dipping mineralised structures.

#### EXPLORATION

The exploration strategy at Sadiola is focused on the near-mine remaining oxide potential in the short term while ramping up exploration

of sulphide mineralisation potential in the medium to long term. During 2013 work consisted of reconnaissance drilling of identified

exploration oxide target areas while developing conceptual models of the sulphide controls.

During 2013 work was completed on a number of oxide targets in close proximity to the current pit areas of FE3/4 complex, Tambali

and Sadiola as well as further away along known mineralised extensions. The S12 prospect returned exciting drilling results showing

both oxide and sulphide potential within access of the FE3/4 complex infrastructure. The prospect is however situated adjacent to the

existing tailing storage facility (TSF) and indications are that mining will impact on the integrity of the TSF. Infill drilling was completed

at the FN3 and Tambali deposits to improve confidence in the Mineral Resource.

#### SADIOLA

#### MINERAL RESOURCE AND ORE RESERVE REPORT

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Exploration targeting was enhanced with an updated regolith map and new geophysical interpretations that were produced during the year. Results from X-Ray fluorescence analysis of drill sample pulps produced good lithological indicators which will be expanded in

2014 to supplement all other analysis to assist in refining exploration targeting.

The Centre for Exploration Targeting (CET) from the University of Western Australia continued the research during the year. The

purpose of the research is to determine the controls on the genesis, geometry and location of the Sadiola gold system in order to

refine targeting and optimise the current mining. This second year of the research programme focused on laboratory work related to

geochronology, petrography and litho-geochemistry.

Although the Sadiola concession is considered a mature exploration area, potential remains for further oxide and sulphide discoveries.

A targeting workshop held in November 2013 identified areas for exploration in 2014 where the strategy remains focused on fast

tracking oxide potential and methodically exploring for sulphides, subject to a pending decision on the future of the SSP.

**PROJECTS**

The SSP remains the only major AngloGold Ashanti project in Mali and is the focus for extension of the LOM plan.

The project is being

re-evaluated and optimised in light of the lower gold price.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Sadiola

Measured

25 x 25

–

–

–

–

Indicated

25 x 25,

50 x 25

–

–

–

–

Inferred

50 x 50

–

-  
-  
-  
-  
-  
-  
-  
-  
-  
-

Grade/Ore Control            5 x 10

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SADIOLA

**continued**

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Sadiola**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

FE2

Measured

–

–

–

–

Indicated

0.53

1.77

0.94

0.03

Inferred

0.03

1.75

0.06

0.00

Total

0.57

1.76

1.00

0.03

FE3

Measured

–

–

–

–

Indicated

1.40

2.23

3.12

0.10

Inferred

0.02

2.47

0.05

0.00

Total

1.42  
2.23  
3.17  
0.10  
FE4  
Measured  
—  
—  
—  
—  
Indicated  
0.63  
2.14  
1.35  
0.04  
Inferred  
0.00  
2.14  
0.00  
0.00  
Total  
0.63  
2.14  
1.35  
0.04  
FN2  
Measured  
—  
—  
—  
—  
Indicated  
0.12  
1.44  
0.18  
0.01  
Inferred  
—  
—  
—  
—  
Total  
0.12  
1.44  
0.18  
0.01  
FN3  
Measured  
—  
—  
—



—  
Indicated  
0.12  
1.59  
0.19  
0.01  
Inferred  
0.11  
1.69  
0.18  
0.01  
Total  
0.22  
1.64  
0.36  
0.01  
Total stockpiles  
Measured  
6.66  
0.83  
5.50  
0.18  
Indicated  
1.59  
2.29  
3.64  
0.12  
Inferred  
—  
—  
—  
—  
Total  
8.25  
1.11  
9.14  
0.29  
Sekokoto  
Measured  
—  
—  
—  
—  
Indicated  
0.25  
1.59  
0.40  
0.01  
Inferred  
0.10  
1.75

0.17  
0.01  
Total  
0.35  
1.63  
0.57  
0.02  
Tambali South  
Measured  
—  
—  
—  
—  
Indicated  
2.71  
1.24  
3.37  
0.11  
Inferred  
0.09  
1.15  
0.11  
0.00  
Total  
2.81  
1.24  
3.48  
0.11  
SSP (Oxides)  
Measured  
0.00  
1.96  
0.01  
0.00  
Indicated  
0.44  
1.45  
0.64  
0.02  
Inferred  
0.08  
1.43  
0.11  
0.00  
Total  
0.52  
1.45  
0.75  
0.02  
SSP (Transitional)  
Measured

—  
—  
—  
—  
Indicated  
0.22  
1.54  
0.34  
0.01  
Inferred  
0.28  
1.57  
0.44  
0.01  
Total  
0.50  
1.56  
0.78  
0.03  
SSP (Sulphides)  
Measured  
0.00  
4.84  
0.02  
0.00  
Indicated  
30.89  
2.09  
64.55  
2.08  
Inferred  
5.42  
2.04  
11.04  
0.35  
Total  
36.31  
2.08  
75.61  
2.43  
Sadiola  
Total  
51.69  
1.86  
96.38  
3.10  
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SADIOLA

**continued**

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Sadiola**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

5.08

0.74

3.77

0.12

Indicated

23.21

1.74

40.37

1.30

Inferred

6.13

1.98

12.16

0.39

Sadiola

Total

34.42

1.64

56.29

1.81

The Exclusive Mineral Resource is defined as the part of the Mineral Resource that was not converted to Ore Reserve.

For the Sadiola

pits, the Exclusive Mineral Resource is defined as follows:

- the Mineral Resource that is outside the current Ore Reserve designs but inside the Mineral Resource shells;

- the Inferred Mineral Resource; and

- material below the Ore Reserve cut-off grade and above the Mineral Resource cut-off grade.

The Exclusive Mineral Resource gives an indication of the future potential of the deposit. This material could be converted to Ore

Reserve with an increase in the gold price and favourable costs. The Inferred Mineral Resource portion of the Mineral Resource within

the Ore Reserve pit design will be converted to the Ore Reserve through grade control drilling. The low-grade 'mineralised waste'

stockpiles that are currently below the marginal ore cut-off grade are also declared as Exclusive Mineral Resource as these stockpiles

are currently not in the mining plan.

The Exclusive Mineral Resource includes three projects previously reported as Ore Reserve but were removed from the Ore Reserve

Statement because they are not economic at the lower business planning gold price: FN2 and FN3, FE2 and Tabakoto.

3.79  
 -0.09  
 -0.55  
 0.00  
 0.02  
 -0.07  
 -0.01  
 0.00  
 3.10  
 Ounces  
 (millions)  
 3.8  
 3.7  
 3.6  
 3.5  
 3.4  
 3.3  
 3.2  
 3.1  
 3.0  
 2.9  
 2012  
 Deple-  
 tion  
 Gold  
 price  
 Cost  
 Explo-  
 ration  
 Metho-  
 dology  
 Other  
 Acquisition/  
 Disposal  
 2013

**Sadiola**

**Mineral Resource reconciliation: 2012 to 2013**

2.14  
 -0.13  
 -0.21  
 -0.28  
 0.00  
 0.00  
 -0.09  
 0.00  
 1.43

Ounces  
(millions)

2.2

2.1

2.0

1.9

1.8

1.7

1.6

1.5

1.4

1.3

2012

Other

2013

**Sadiola**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-

tion

Model

change

Economics

New

ounces

from

Projects

Scope

Change

Acquisition/

Disposal

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Sadiola**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

FE4

Proved

–

–

–

–

Probable

0.18

2.71

0.48

0.02

Total

0.18

2.71

0.48

0.02

Total stockpiles

Proved

–

–

–

–

Probable

2.64

1.11

2.92

0.09

Total

2.64

1.11

2.92

0.09

Tambali South

Proved

–

–

–

–

Probable



1.05  
1.49  
1.57  
0.05  
Total  
1.05  
1.49  
1.57  
0.05  
SSP (Oxides)  
Proved  
—  
—  
—  
—  
Probable  
0.34  
1.35  
0.46  
0.01  
Total  
0.34  
1.35  
0.46  
0.01  
SSP (Transitional)  
Proved  
—  
—  
—  
—  
Probable  
0.11  
1.79  
0.20  
0.01  
Total  
0.11  
1.79  
0.20  
0.01  
SSP (Sulphides)  
Proved  
—  
—  
—  
—  
Probable  
18.80  
2.07  
38.89

1.25

Total

18.80

2.07

38.89

1.25

Sadiola

Total

23.13

1.93

44.53

1.43

*Ore Reserve modifying factors*

**as at 31 December 2013**

**Sadiola**

**Gold**

**price**

**US\$/oz**

**Cut-off**

**value**

**g/t Au**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

**on g/t)**

**MCF**

**%**

**MetRF**

**%**

FE4

1,100

1.00 –1.70

3.1

0.07

100.0

100.0

97.3

97.0

100.0

94.0

#

SSP (Oxides)

1,100

1.00 –1.65

3.4

0.08

100.0

100.0

97.3

96.7

100.0

94.0

#

Tambali South

1,100

1.00 –1.65

1.9

0.03

100.0

100.0

96.0

98.2

100.0

94.0

#

SSP (Sulphides)

1,100

1.00 –1.65

3.4

0.08

100.0

100.0

97.3

96.7

100.0

76.0\*\*

SSP (Transitional)

1,100

1.00 –1.65

3.4

0.08

100.0

100.0

97.3

96.7  
100.0  
85.0\*

#

*The Metallurgical recovery listed is for Saprolitic Oxide, included in the Ore Reserve.*

*\*\* The Metallurgical recovery listed is for Hard Sulphide, included in the Ore Reserve.*

*\* The Metallurgical recovery listed is for Transitional, included in the Ore Reserve.*

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SADIOLA

**continued**

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Sadiola**

**Tonnes Moz**

**Comment**

FE4

0.00

1.50

0.00

0.00

—

Tambali South

0.02

1.17

0.02

0.00

—

Total

0.02

1.19

0.02

0.00

The plant feed of the final LOM pit designs includes Inferred Mineral Resource which has been included in the final schedule. The

tonnage of the Inferred Mineral Resource Included in the LOM is less than one percent of the total LOM ore tonnage.

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Geoffrey H.

Gushée

MAusIMM

207 957

25 years

BA (Geology)

GDE (Mining Engineering) WITS

MEng (Mineral Resource Management)

Ore Reserve

Andrew Bridges

MAusIMM

300 976

16 years

BSc (Hons) Mining Engineering

0.0

0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5

0.1 0.2

Tonnes above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

3.0

2.5

2.0

1.5

1.0

0.5

0.0

250

200

150

100

50

0

Tonnes above cut-off

Ave grade above cut-off

**Sadiola**

**Grade tonnage curve – Surface (metric)**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## LOCATION

Yatela mine is situated 25km north of Sadiola, approximately 50km southwest of Kayes. The mine is 40% owned by AngloGold

Ashanti, 40% by IAMGOLD Corporation and 20% by the Republic of Mali. Yatela is a mature open pit operation which has been

operated by AngloGold Ashanti since 2000 and is now operating in closure mode with mining activities from the pits completed in

September 2013. The Yatela mine is currently processing stockpile material and re-treating the heap leach pads. This material is

expected to provide feed to the processing plant through 2015.

Ore is processed through a three million tonnes per annum heap leach plant that was commissioned in 2000. The pregnant liquor

pond for gold recovery uses the carbon-in-solution (CIS) process, with loaded carbon being sent to Sadiola for elution, regeneration,

electro-winning and smelting.

## GEOLOGY

The Yatela mine comprises the Yatela and Alamoutala deposits located in northwest Mali within the Keniéba-Kedougou Inlier, a major

Paleoproterozoic- Birimian inlier along the northeast margin of the Kenema-Man shield. The Yatela deposit is located in the north of the

inlier and is hosted in sedimentary rocks of the Kofi Formation, which have been intruded by numerous felsic to intermediate intrusives.

The sedimentary rocks consist of fine-grained greywackes, pelites and impure limestones with minor tuffs and acid volcanics. The

primary gold mineralisation is hosted along a sheared contact between predominantly dolomitic carbonate rocks of the Kofi Formation

to the west and a dioritic intrusion to the east. The secondary mineralisation was concentrated to economic grades through dissolution

of the carbonate and subsequent concentration of the gold by eluvial processes and supergene enrichment.

Karst development at Yatela has formed deep pot-holes, collectively named the Yatela Basin, which were gradually filled by sandstones

and conglomerates during peneplanation of the Proterozoic rocks. Chaotic collapse during karstification, coupled with the infill

sediments resulted in the deposit being hosted in a melange-type of rocks made up of sedimentary rocks and dissolution residues.

Gold is disseminated in the unconsolidated ferruginous, clastic layer with sandy-clayey matrix that lines the bottom and walls of a deep

trough with steep margins. The karst margin dips steeply on the west wall and more gently to the west on the east wall, following a

keel-like geometry with tight closure on the folded diorite towards the south. The supergene enrichment of low-grade primary gold

mineralisation associated with the karstification is the most important geological feature to the economics of the Yatela deposit.

## YATELA

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The geology of the Alamoutala deposits comprises north-trending clastic metasediments and calcitic marbles which were intruded by a coarse-grained to porphyritic granodiorite. In the Alamoutala pits, the gold mineralisation is hosted in saprolitised (skarn altered) marbles and karstic rocks in the northwest. The strong mineralisation occurs proximal to the intermittently sheared and fractured contact, named the Alamoutala Fracture Zone, between the clastic and east carbonate units. Weaker or narrow mineralisation occurs along the contact between the clastics and the western carbonate. The Alamoutala deposits are mined out. Primary mineralisation at Alamoutala has invariably been classified as being skarn type possibly driven by the granodiorite or a deeper seated intrusion.

#### EXPLORATION

An aggressive four-year oxide exploration drilling programme was completed at the end of January 2013 which resulted in four targets being identified for follow up. The targets were infill drilled and evaluated with the results being: Yatela North East – optimisation shows it is not economic at the planning Ore Reserve price; KW18 - Mineral Resource is small; Alamoutala North Extension – sub-economic at the planning Ore Reserve price; and Dinnguillou - the deposit is small, low grade and far from the processing plant. The results of the exploration programme were submitted to a peer review in May 2013 to ensure the programmes were adequate to realise any undiscovered potential on the concession. Geochemical, geophysical, mapping and drilling data were reviewed and the conclusion was that the level of completed work was sufficient to test the concession and indicate that major undiscovered mineralised zones were unlikely in those areas.

An asset close-out programme is in progress that will summarise the gold mineralisation remaining on the concession after closure and catalogue exploration and mine geology data and information. The results from research by University of Western Australia's Centre for Exploration Targeting will be used to assist in conceptual modelling of the sulphide potential to be included in the closure document.

#### PROJECTS

No projects are planned on the Yatela concession. The main focus at Yatela is implementing the closure plan and processing the remaining stockpiles while extracting additional value from the heap leach pads.

#### MINERAL RESOURCE

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Yatela**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Total stockpiles

Measured

0.35

0.54

0.19

0.01

Indicated

—

—

—

—

Inferred

—

—

—

—

Yatela

Total

0.35

0.54

0.19

0.01

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Yatela**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

0.35

0.54

0.19

0.01

Indicated

—

—

—

—

Inferred

—

—

—

—

Yatela

Total

0.35

0.54

0.19

0.01

YATELA

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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0.09  
-0.01  
-0.07  
0.00  
0.00  
0.00  
0.00  
0.00  
0.01  
Ounces  
(millions)  
0.09  
0.08  
0.07  
0.06  
0.05  
0.04  
0.03  
0.02  
0.01  
0.00  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013  
**Yatela**  
**Mineral Resource reconciliation: 2012 to 2013**  
0.03  
-0.01  
0.00  
-0.02  
0.00  
0.00  
0.00  
0.00  
0.00  
0.00  
Ounces  
(millions)  
0.035  
0.030  
0.025

0.020  
0.015  
0.010  
0.005  
0.000  
2012  
Other  
2013

**Yatela**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal  
ORE RESERVE

No Ore Reserve is declared for the Yatela operation for 2013.

**COMPETENT PERSONS**

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Geoffrey H.

Gushée

MAusIMM

207 957

25 years

BA (Geology)

GDE (Mining Engineering) WITS

MEng (Mineral Resource Management)

Ore Reserve

Andrew Bridges

MAusIMM

300 976

16 years

BSc (Hons) Mining Engineering

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#### COUNTRY OVERVIEW

Navachab gold mine, AngloGold Ashanti's sole operation in Namibia, is wholly owned by the company. It is currently the only significant

gold mining operation in Namibia.

#### MINERAL RESOURCE ESTIMATION

Mineral Resource estimation is performed using geostatistical techniques. Grade interpolation is done into blocks with approximate

dimensions of 20m x 20m x 5m using Ordinary Kriging and Indicator Kriging methods. A geostatistical technique called UC is then

used to estimate the proportion of ore that occurs above the Mineral Resource cut-off and this is reported assuming a specified

selective mining unit (SMU).

#### ORE RESERVE ESTIMATION

Optimised pit shells are generated using economic parameters. The final pits are then designed based on the optimised pit shell,

recommended slope geometry, ramp access requirements and economic assumptions. The mine design is used as the basis to

estimate the Ore Reserve.

#### NAMIBIA

#### MINERAL RESOURCE AND ORE RESERVE REPORT

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## LOCATION

Navachab Gold Mine started out as a geochemical anomaly for copper, but in 1981 gold was discovered on the neighbouring farm Krantzberg. Gold was discovered on the Navachab farm in 1984 and the first holes were drilled on the prospect in June 1985. The feasibility study for the proposed gold mine was completed in July 1987 and production started in October 1989 with full production being achieved in March 1990. Navachab is located 10km southwest of Karibib and 170km west-northwest of Windhoek, the capital of Namibia. Navachab is mined as an open-pit mine with a CIP plant that has a production capacity of 120,000 tonnes per month (tpm). The plant includes mills, CIP and electro-winning facilities. A dense-media separation (DMS) plant with a 200 tonnes per hour (tph) capacity was commissioned during 2010 and a portion of the CIP feed comes from this pre-concentration plant.

## GEOLOGY

The Navachab gold deposit is located in the Pan-African Damara Orogen and hosted by greenschist-amphibolite facies calc-silicates, marbles and volcanoclastic rocks. The rocks have been intruded by granite, pegmatite and aplitic dykes and have also been deformed into a series of alternating dome and basin-like structures. The mineralisation at Navachab forms a sheet-like body which plunges at an angle of approximately 20° to the northwest. The mineralisation is predominantly hosted in a sheeted quartz vein set (approximately 60% of tonnage) and a replacement skarn (approximately 40% of tonnage). The mineralisation in the main pit is hosted by a northeast to southwest striking metamorphosed sequence of calc-silicates, marbles and volcanoclastic rocks that dip at 70° to the west. The gold is very fine-grained and associated with pyrrhotite and minor amounts of pyrite, chalcopyrite, arsenopyrite, sphalerite, maldonite and bismuthinite. An estimated 90% of the gold occurs as free gold and the remainder is present in minerals such as maldonite (Au<sub>2</sub>Bi). Silver is also present with a gold to silver ratio of approximately 15 to 1.

## EXPLORATION

The exploration strategy at Navachab's main deposit is to evaluate the shallow mineralisation in the NP2 pit (located adjacent to the main pit) where a second vein swarm plunges down to 250m below surface. Drilling during the year has confirmed the down-plunge extension of this mineralisation and this near-surface mineralisation will assist in unlocking deeper footwall mineralisation for further exploitation down to 350m below surface. Drilling during the year has infilled mineralisation information gaps and confirmed the footwall down-plunge extension. Drilling during the next four years will focus on exploration of the satellite deposits to find near-surface, high-grade 'Grid A' type mineralisation to displace low-grade plant feed during stripping of the main deposit extensions. Current satellite target areas are Anomaly 16, Gecko, Steenbok, Starling and Klipspringer.

## PROJECTS

Exploration of the Gecko target has produced a shallow, high-grade Mineral Resource containing 0.04 Moz. This mineralisation can be



used to supplement the low production years. Exploration of the Anomaly 16 target, which is approximately 7km from the plant, has produced a lower-grade Mineral Resource of approximately 0.127 Moz with the potential to grow significantly. The Mineral Resource for Anomaly 16 is currently situated in the Valley target area, whilst the Central and Beacon target areas are yet to be explored.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Navachab

Measured

5 x 10,

10 x 10

–

–

–

–

–

Indicated

25 x 25

–

–

–

–

Inferred

50 x 50

–

–

–

–

Grade/Ore Control                      5 x 10

–

–

–

–

–

NAVACHAB

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Navachab**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Anomaly 16

Measured

–

–

–

–

Indicated

1.70

1.36

2.33

0.07

Inferred

1.22

1.33

1.62

0.05

Total

2.92

1.35

3.95

0.13

Gecko

Measured

–

–

–

–

Indicated

0.51

1.56

0.80

0.03

Inferred

0.30

1.40

0.42

0.01

Total

0.81

1.50

1.22  
 0.04  
 Main pit (Anomaly 13)  
 Measured  
 –  
 –  
 –  
 –  
 Indicated  
 72.82  
 1.31  
 95.44  
 3.07  
 Inferred  
 5.31  
 1.24  
 6.57  
 0.21  
 Total  
 78.13  
 1.31  
 102.01  
 3.28  
 Stockpile (Marginal Ore)  
 Measured  
 9.39  
 0.53  
 4.95  
 0.16  
 Indicated  
 –  
 –  
 –  
 –  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 9.39  
 0.53  
 4.95  
 0.16  
 Stockpile (Full Grade Ore)  
 Measured  
 12.71  
 0.74  
 9.44  
 0.30  
 Indicated

–  
 –  
 –  
 –  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 12.71  
 0.74  
 9.44  
 0.30  
 Navachab  
 Total  
 103.96  
 1.17  
 121.57  
 3.91  
*Exclusive Mineral Resource*  
**as at 31 December 2013**  
**Tonnes**  
**Grade**  
**Contained gold**  
**Navachab**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Measured  
 7.29  
 0.52  
 3.80  
 0.12  
 Indicated  
 40.72  
 1.15  
 46.72  
 1.50  
 Inferred  
 6.83  
 1.26  
 8.61  
 0.28  
 Navachab  
 Total  
 54.84  
 1.08  
 59.13

1.90  
 The main pit contains the largest portion (1.629 Moz) of the Exclusive Mineral Resource. Approximately 0.12 Moz of the Exclusive Mineral Resource is hosted in the marginal ore stockpiles at a grade of 0.52 g/t and the intention is to bring the gold to account through pre-concentration (using the DMS plant) in the future. The remainder of the Exclusive Mineral Resource is from Anomaly 16 (0.13 Moz) and Gecko (0.02 Moz).

4.41  
 -0.10  
 -0.07  
 -0.28  
 0.05  
 0.07  
 -0.16  
 0.00  
 3.91  
 Ounces  
 (millions)

4.45  
 4.35  
 4.25  
 4.15  
 4.05  
 3.95  
 3.85  
 2012  
 Depletion  
 Gold  
 price  
 Cost  
 Exploration  
 Methodology  
 Other  
 Acquisition/  
 Disposal  
 2013

**Navachab  
 Mineral Resource reconciliation: 2012 to 2013**

2.10  
 -0.09  
 0.06  
 -0.13  
 0.00  
 -0.02  
 0.00  
 0.00  
 1.92

Ounces  
(millions)

2012

Other

2013

**Navachab**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion

Model

change

Economics

New

ounces

from

Projects

Scope

Change

Acquisition/

Disposal

2.12

2.08

2.04

2.00

1.96

1.92

1.88

NAVACHAB

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Navachab**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Gecko

Proved

–

–

–

–

Probable

0.44

1.18

0.51

0.02

Total

0.44

1.18

0.51

0.02

Main pit (Anomaly 13)

Proved

–

–

–

–

Probable

32.64

1.52

49.48

1.59

Total

32.64

1.52

49.48

1.59

Stockpile (Marginal Ore)

Proved

–

–

–

–

Probable



0.95  
 0.55  
 0.52  
 0.02  
 Total  
 0.95  
 0.55  
 0.52  
 0.02  
 Stockpile (Full Grade Ore)  
 Proved

—  
 —  
 —  
 —

Probable  
 12.31  
 0.74  
 9.13  
 0.29  
 Total  
 12.31  
 0.74  
 9.13  
 0.29

Navachab  
 Total  
 46.34  
 1.29  
 59.65  
 1.92

*Ore Reserve modifying factors*  
**as at 31 December 2013**

**Navachab**  
**Gold**  
**price**  
**US\$/oz**  
**\$/ZAR**  
**Exchange**  
**rate**  
**Cut-off**  
**value**  
**g/t Au**  
**Dilution**  
**%**  
**Dilution**  
**g/t**  
**%**  
**RMF**  
**(based**  
**on**

tonnes)

%

**RMF**

(based  
on g/t)

%

**MRF**

(based  
on

tonnes)

%

**MRF**

(based  
on g/t)

**MCF**

%

**MetRF**

%

Gecko

1,100

10.53

0.49

—

—

100.0

100.0

100.0

100.0

100.0

88.6\*

Main pit (Anomaly 13)

1,100

10.53

0.75

—

—

100.0

100.0

100.0

100.0

100.0

88.6\*

Stockpile (Full Grade

Ore)

1,100

10.53

0.4

—

—

100.0

100.0

100.0  
 100.0  
 100.0  
 88.6\*  
 Stockpile (Marginal  
 Ore)  
 1,100  
 10.53  
 0.4  
 –

–  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 88.6\*

*\* Average LOM % MetRF.*

*Inferred Mineral Resource in business plan  
 as at 31 December 2013*

**Tonnes  
 million  
 Grade  
 g/t  
 Contained gold**

**Navachab  
 Tonnes Moz  
 Comments**

Gecko  
 0.07  
 0.62  
 0.04  
 0.00

–  
 Main pit (Anomaly 13)  
 0.85  
 1.19  
 1.01  
 0.03

–  
 Total  
 0.92  
 1.15  
 1.05  
 0.03

The Inferred Mineral Resource was used in the pit optimisation process and is present in the designed pits and in the LOM schedule.

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Graham Bell

MAusIMM

306 709

14 years

BSc (Geology)

BSc (Hons) Geological Engineering

Ore Reserve

George Botshiwe MAusIMM

229 475

13 years

BSc (Hons) Mining Engineering

GDE (Mining Engineering) WITS

0.00

0.50

0.25

1.00

1.25 1.50 1.75

0.75

2.00

2.50 2.75 3.00

2.25

Tonnes above

cut-off (millions)

Average

grade

above

cut-off (g/t)

4.5

4.0

3.5

3.0

2.5

2.0

1.5

1.0

0.5

0.0

500

450

400

300  
250  
200  
150  
100  
50  
0

Tonnes above cut-off

Ave grade above cut-off

**Navachab**

**Grade tonnage curve – Surface (metric)**

Cut-off grade (g/t)

NAVACHAB

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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## COUNTRY OVERVIEW

Geita is the largest of AngloGold Ashanti's seven open-pit mines in Africa. Prior to April 2004, Geita was managed under a joint venture agreement between Ashanti and AngloGold. Since the merger of the two companies, Geita is a wholly-owned subsidiary of AngloGold Ashanti.

## MINERAL RESOURCE ESTIMATION

The mineralisation boundaries for the individual deposits are defined from the detailed logging of all geological drill holes. This information is validated and then used to create a 3D model. The geological model is subsequently populated with an appropriately dimensioned block model. Ordinary Kriging is used to interpolate values into the blocks. A geostatistical technique called UC is used to estimate the proportion of ore that occurs above the Mineral Resource cut-off and this is then reported assuming a specified selective mining unit (SMU). The Mineral Resource is reported within a US\$1,600/oz optimised pit shell and above the calculated mineralised waste cut-off grade per pit. Stockpiled material above mineralised waste cut-off grade is included in the Mineral Resource.

## ORE RESERVE ESTIMATION

The Mineral Resource models are used as the basis for Ore Reserve estimation. Modifying factors include the input gold Ore Reserve price, mining dilution and recovery, geotechnical, stay in business capital, operating costs, metallurgical recovery, processing capacity, and mining equipment capacities. Appropriate Ore Reserve cut-off grades are applied and optimised pit shells are generated. Pit designs are then done on selected shells upon which mine scheduling is done. An Ore Reserve gold price of US\$1,100/oz was used.

## TANZANIA

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## CONTINENTAL AFRICA

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## LOCATION

The Geita Gold Mine (GGM) is located approximately 910km from Dar es Salaam in the Lake Zone of northern Tanzania, with the mine lease situated within the Archaean Sukumaland Greenstone Belt of the Lake Victoria goldfields. The mining licence (SML45/99) covers approximately 196km<sup>2</sup> while the other prospecting licences cover about 120km<sup>2</sup>. Other gold mines hosted in this greenstone belt include Golden Pride, Bulyanhulu, Tulawaka, Buzwagi and North Mara. The geological setting is considered to be one of the world's most-productive Archaean Greenstone belts. Mining at Geita is currently undertaken by conventional truck and shovel open-pit mining method on three active pits (Nyankanga, Geita Hill and Star & Comet). However, some underground mining potential exists and early stage studies are underway.

## GEOLOGY

The Geita Greenstone belt forms part of the Archaean Sukumaland, which strikes east-west, is 60km in length and up to 15km wide. The Geita terrain is comprised of upper- to mid-Nyanzian greenschist facies units, made up of clastic sediments, black shales, banded iron formation and volcanoclastics. These have been intruded by a variety of felsic to mafic intrusive bodies, dykes and sills. Supracrustal rocks of variable thickness are locally estimated to be at least 500m thick and are generally underlain by intrusive complexes.

Within GGM tenure, the NW trending deformation corridors divide the Geita Greenstone Trend into three distinct sub-terrains, namely Nyamulilima Terrain in the west (hosting the Star and Comet, Ridge 8 and Roberts deposits), Geita Terrain in the central part (hosting the Nyankanga, Geita Hill, Lone Cone and Chipaka deposits) and Kukuluma Terrain to the northeast (hosting the Matandani, Kukuluma and Area 3 West deposits). Approximately 78% of the Mineral Resource is situated in the Geita sub-terrain, with 16% in Nyamulilima and 6% in Kukuluma Terrain.

Like other greenstone sequences the Geita Greenstone Belt has been through a protracted history of deformation, which resulted in a property-scale, multiphase, box-shaped synformal configuration, with 'limbs' trending west-northwest and dipping mostly steeply, connected by a northeast trending 'hinge zone' dipping moderately to northwest. This large-scale architecture conceals both prior and post-deformation events, either as older folding systems, or younger shear arrays developing sub-parallel to the spatial position of rock packages along its 'hinge and limb' zones. The Geita Terrain comprises mostly the northeasterly 'hinge' zone. To the west, the Nyamulilima Terrain is mostly underlain by a semi-circular structure surrounding intrusive centers, and internally encompasses fold and fault systems of variable scale which may locally control gold mineralisation. The Kukuluma Terrain, to the northeast, trends also west-northwesterly, with sub-vertical limbs being dominant over compressed, multiphase hinge zones. Regional north-northeasterly structures hosting Proterozoic gabbro dykes are also conspicuous geological features in the area.

## EXPLORATION



The year 2013 saw exploration focusing on target consolidation exercises and improving geological knowledge on known deposits, particularly the active Nyankanga, Geita Hill and Star & Comet open pits. Drilling programmes focused on infill drilling in active open pits as well as their respective extensions (Nyankanga Deeps; Star & Comet Deeps; and Matandani). Limited early stage drilling programmes were undertaken to test exploration targets. The infill drilling campaigns were designed to increase the confidence of the Geita Mineral Resource so as to allow for conversion of the Mineral Resource to Ore Reserve. Significant progress was made in understanding the geological setting and controls of gold mineralisation at the Nyankanga, Geita Hill, Nyamulilima and Kukuluma domains. Geology simulations are in the process of being generated and refined to increase their predictive abilities and to, as much as possible, mimic reality.

#### PROJECTS

GGM's exploration strategy included three major projects, namely Nyankanga Underground, Refractory Ore Projects and deep drilling at Nyankanga and Star & Comet. During 2013 drilling programmes were undertaken to test the continuity of Nyankanga and Star & Comet deposits at depth, as well as the extensions of known deposits in the Kukuluma Terrane at Matandani. Both deep-drilling programmes were cut short as cut-backs on exploration budgets were necessitated by unfavourable commodity prices and a group-wide cash conservation exercise.

#### GEITA

#### MINERAL RESOURCE AND ORE RESERVE REPORT

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In 2013 the Nyankanga underground project was the most advanced of the potential underground projects that GGM was looking at.

This project was at pre-feasibility stage when it was halted due to cutbacks in capital spending. In the meantime, GGM will proceed with low-cost desktop and conceptual studies on all deposits that have potential for underground mining. The refractory ore project had two elements namely the exploration aimed at increasing the Mineral Resource and the metallurgical test work. An optimal flow-sheet is still to be identified and developed for the treatment of the refractory ore material.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

m (-x-)

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Geita

Measured

–

–

–

–

–

–

Indicated

20 x 20,

40 x 20,

40 x 40,

50 x 50

–

–

–

20x20 as optimal, 40x40 is the lower limit, infill drilling has incurred to 20x20m and to 40x20m.

Inferred

40 x 40,

80 x 40

–

–

–

Classification study

revealed optimal spacing.

Grade/Ore Control            5 x 10,

10 x 5

-  
-  
-  
-

Depths vary from 10 to  
30m for routine grade  
control drilling.

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Geita**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Area 3 West Oxide

Measured

–

–

–

–

Indicated

1.06

2.31

2.45

0.08

Inferred

0.02

1.31

0.02

0.00

Total

1.08

2.29

2.47

0.08

Area 3 West (Refractory Ore)

Measured

–

–

–

–

Indicated

0.11

3.53

0.39

0.01

Inferred

–

–

–

–

Total

0.11

3.53

0.39  
0.01  
Chipaka  
Measured  
—  
—  
—  
—  
Indicated  
1.33  
1.75  
2.32  
0.07  
Inferred  
2.15  
1.98  
4.26  
0.14  
Total  
3.48  
1.89  
6.58  
0.21  
Geita Hill (Open Pit)  
Measured  
—  
—  
—  
—  
Indicated  
15.03  
2.74  
41.13  
1.32  
Inferred  
0.73  
2.26  
1.64  
0.05  
Total  
15.76  
2.71  
42.77  
1.37  
Geita Hill (Underground)  
Measured  
—  
—  
—  
—  
Indicated

4.79

4.27

20.45

0.66

Inferred

4.27

4.32

18.46

0.59

Total

9.07

4.29

38.91

1.25

Kalondwa Hill

Measured

—

—

—

—

Indicated

—

—

—

—

Inferred

1.07

3.34

3.58

0.12

Total

1.07

3.34

3.58

0.12

Kukuluma (Non-Refractory Ore)

Measured

—

—

—

—

Indicated

0.11

2.92

0.31

0.01

Inferred

—

—

—

—

Total

0.11

2.92

0.31

0.01

Kukuluma (Refractory Ore)

Measured

—

—

—

—

Indicated

—

—

—

—

Inferred

1.37

4.00

5.46

0.18

Total

1.37

4.00

5.46

0.18

Lone Cone

Measured

—

—

—

—

Indicated

2.48

2.45

6.09

0.20

Inferred

1.99

2.43

4.83

0.16

Total

4.47

2.44

10.92

0.35

Matandani (Non-Refractory Ore)

Measured

—

—

—  
—  
Indicated  
1.18  
2.26  
2.68  
0.09  
Inferred  
0.00  
8.66  
0.03  
0.00  
Total  
1.19  
2.28  
2.71  
0.09  
Matandani (Refractory Ore)  
Measured  
—  
—  
—  
—  
Indicated  
—  
—  
—  
—  
Inferred  
2.04  
4.41  
9.00  
0.29  
Total  
2.04  
4.41  
9.00  
0.29  
Nyankanga (Open Pit) Cut 6  
Measured  
—  
—  
—  
—  
Indicated  
0.15  
3.92  
0.57  
0.02  
Inferred  
0.07



1.52

0.10

0.00

Total

0.21

3.17

0.68

0.02

GEITA

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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*Inclusive Mineral Resource* continued  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Geita**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Nyankanga (Open Pit) Cut 7

Measured

–

–

–

–

Indicated

9.88

4.04

39.89

1.28

Inferred

1.25

2.08

2.59

0.08

Total

11.13

3.82

42.48

1.37

Nyankanga (Open Pit) Cut 8

Measured

–

–

–

–

Indicated

8.35

4.89

40.85

1.31

Inferred

5.01

1.80

9.01

0.29

Total

13.36

3.73

49.86

1.60

Nyankanga (Open Pit) Cut 11

Measured

—

—

—

—

Indicated

1.25

5.77

7.22

0.23

Inferred

0.40

2.88

1.15

0.04

Total

1.65

5.07

8.37

0.27

Nyankanga Others

Measured

—

—

—

—

Indicated

0.45

2.86

1.30

0.04

Inferred

4.31

2.48

10.69

0.34

Total

4.76

2.52

11.99

0.39

Nyankanga (Underground)

Measured

—

—

—

—

Indicated

2.55  
5.33  
13.57  
0.44  
Inferred  
1.78  
5.02  
8.95  
0.29  
Total  
4.33  
5.20  
22.53  
0.72  
Ridge 8 (Open Pit)  
Measured  
—  
—  
—  
—  
Indicated  
2.96  
1.98  
5.87  
0.19  
Inferred  
0.08  
1.38  
0.11  
0.00  
Total  
3.04  
1.97  
5.98  
0.19  
Ridge 8 (Underground)  
Measured  
—  
—  
—  
—  
Indicated  
1.55  
4.25  
6.59  
0.21  
Inferred  
2.78  
4.30  
11.94  
0.38

Total

4.33

4.28

18.52

0.60

Roberts

Measured

—

—

—

—

Indicated

8.88

1.57

13.95

0.45

Inferred

0.33

4.03

1.32

0.04

Total

9.20

1.66

15.27

0.49

Star and Comet

Measured

—

—

—

—

Indicated

2.92

3.53

10.30

0.33

Inferred

1.75

3.56

6.21

0.20

Total

4.67

3.54

16.51

0.53

Stockpile (Full Grade Ore)

Measured

—

—

—  
—  
Indicated  
3.81  
1.80  
6.86  
0.22  
Inferred  
—  
—  
—  
—  
Total  
3.81  
1.80  
6.86  
0.22  
Stockpile (Marginal Ore)  
Measured  
—  
—  
—  
—  
Indicated  
9.08  
0.88  
7.94  
0.26  
Inferred  
—  
—  
—  
—  
Total  
9.08  
0.88  
7.94  
0.26  
Stockpile (Refractory Ore)  
Measured  
—  
—  
—  
—  
Indicated  
0.56  
2.80  
1.57  
0.05  
Inferred  
—

-  
-  
-

Total

0.56

2.80

1.57

0.05

Geita

Total

109.87

3.02

331.66

10.66

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*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Geita**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Measured

—  
 —  
 —  
 —  
 Indicated  
 48.23  
 2.43  
 117.00  
 3.76  
 Inferred  
 31.38  
 3.17  
 99.35  
 3.19  
 Geita  
 Total  
 79.61  
 2.72  
 216.35  
 6.96

The Exclusive Mineral Resource at Geita includes the underground Mineral Resource plus additional material that occurs predominantly between the Ore Reserve pit shell and the Mineral Resource pit shell (at a gold price of US\$1,600/oz). This material is not economic to mine at the current Ore Reserve gold price and forms potential extensions to the current LOM in an elevated gold price environment.

A significant portion of this material is in the Inferred Mineral Resource category (including 0.27Moz within the Ore Reserve Pit shell) and infill drilling programmes are planned to upgrade potentially economic areas to Indicated Mineral Resource. In instances where the mineralisation extends down-dip, below the current LOM design pit shell and where it could potentially be economically exploited by underground mining methods, a 35m crown pillar forms part of the Exclusive Mineral Resource below the open pit limits. This material is not planned to be mined.

*Mineral Resource below infrastructure*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**



**Geita**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Measured  
 –  
 –  
 –  
 –  
 Indicated  
 8.89  
 4.57  
 40.61  
 1.31  
 Inferred  
 8.83  
 4.45  
 39.35  
 1.27  
 Geita  
 Total  
 17.72  
 4.51  
 79.96  
 2.57  
 12.28  
 -0.62  
 -1.61  
 -0.41  
 0.23  
 0.82  
 -0.03  
 0.00  
 10.66  
 Ounces  
 (millions)  
 12.5  
 12.0  
 11.5  
 11.0  
 10.5  
 10.0  
 9.5  
 9.0  
 2012  
 Deple-  
 tion  
 Gold  
 price

Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Geita**

**Mineral Resource reconciliation: 2012 to 2013**

5.42  
-0.50  
0.46  
-2.00  
0.00  
0.51  
0.00  
0.00  
3.90

Ounces  
(millions)

5.5  
5.0  
4.5  
4.0  
3.5  
3.0  
2.5  
2012

Other  
2013

**Geita**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal  
GEITA

**continued**

**MINERAL RESOURCE AND ORE RESERVE REPORT  
2013**



ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Geita**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Geita Hill (Open pit)

Proved

–

–

–

–

Probable

10.53

2.82

29.68

0.95

Total

10.53

2.82

29.68

0.95

Nyankanga (Open pit) Cut 7

Proved

–

–

–

–

Probable

9.06

4.31

39.06

1.26

Total

9.06

4.31

39.06

1.26

Nyankanga (Open pit) Cut 8

Proved

–

–

–

–

Probable

5.29  
5.79  
30.62  
0.98  
Total  
5.29  
5.79  
30.62  
0.98  
Nyankanga (Open pit) Cut 11  
Proved  
—  
—  
—  
—  
Probable  
1.18  
6.03  
7.10  
0.23  
Total  
1.18  
6.03  
7.10  
0.23  
Star and Comet  
Proved  
—  
—  
—  
—  
Probable  
0.39  
5.12  
1.99  
0.06  
Total  
0.39  
5.12  
1.99  
0.06  
Stockpile (Full Grade Ore)  
Proved  
—  
—  
—  
—  
Probable  
3.81  
1.80  
6.86

0.22  
Total  
3.81  
1.80  
6.86  
0.22  
Stockpile (Marginal Ore)  
Proved  
—  
—  
—  
—  
Probable  
6.67  
0.89  
5.97  
0.19  
Total  
6.67  
0.89  
5.97  
0.19  
Geita  
Total  
36.92  
3.28  
121.29  
3.90

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GEITA

**continued**

*Ore Reserve modifying factors*

**as at 31 December 2013**

**Geita**

**Gold**

**price**

**US\$/oz**

**Cut-off**

**value**

**g/t Au**

**Dilution**

*%*

**Dilution**

**g/t**

*%*

**RMF**

**(based**

**on**

**tonnes)**

*%*

**RMF**

**(based**

**on g/t)**

*%*

**MRF**

**(based**

**on**

**tonnes)**

*%*

**MRF**

**(based**

**on g/t)**

**MCF**

*%*

**MetRF**

*%*

Nyankanga (Open pit)

Cut 6, 7, 8, 9, 10, 11 and

Nyankanga Others

1,100

1.23

—

—

100.0

100.0

105.0

95.0

100.0

92.7

Geita Hill (Open pit)

1,100  
 1.28  
 –  
 –  
 100.0  
 100.0  
 105.0  
 95.0  
 100.0  
 89.6  
 Star and Comet  
 1,100  
 1.39  
 –  
 –  
 105.0  
 95.0  
 105.0  
 95.0  
 100.0  
 91.0  
 Stockpile (Full Grade Ore) \*  
 1,100  
 1.27  
 –  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 91.0  
 Stockpile (Marginal Ore) \*  
 1,100  
 0.94  
 –  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 91.3

*Dilution included in MRF.*

*\* Stockpile (Full Grade and Marginal Ore) = Average factors among Nyankanga, Geita Hill and Star and Comet.*

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**  
**million**  
**Grade**  
**g/t**



**Contained gold**

**Geita**

**Tonnes Moz**

**Comment**

Geita Hill (Open pit)

0.45

2.01

0.90

0.03

Within Geita Hill West and East pit design

Nyankanga (Open pit) Cut 7

1.21

2.01

2.43

0.08

Within pit design

Nyankanga (Open pit) Cut 8

2.05

1.96

4.02

0.13

Nyankanga (Open pit) Cut 11

0.38

3.00

1.13

0.04

Star and Comet

0.01

1.73

0.01

0.00

Total

4.08

2.08

8.48

0.27

No Inferred Mineral Resource is included in the pit optimisation exercise. Although it does not contribute to the economic assessment

of the optimised pit (it is deactivated during the optimisation runs), it is present within the final pit shell as Exclusive Resource.

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

}

MINERAL RESOURCE AND ORE RESERVE REPORT

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Steven Robins

MAusIMM

222 533

18 years

BSc Hons (Geology)

MSc (Mineral Resource Evaluation)

Ore Reserve

Jasper

Musadaidzwa

MAusIMM

991 333

16 years

BEng (Hons) (Mining)

GDE (Mineral Economics) WITS

MBA

Oblique view looking down-dip of Star and Comet orebody

0

2

1

4

3

5

7

8

6

Tonnes above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

13

12

11

10

9

8

7

6

5  
4  
3  
2  
80  
70  
60  
50  
40  
30  
20  
10  
0

Tonnes above cut-off  
Ave grade above cut-off

**Geita**

**Grade tonnage curve – Surface (metric)**

0  
1  
2  
3  
4  
5  
6  
7  
8  
9

Tonnes  
above  
cut-off  
(millions)

Average  
grade  
above  
cut-off (g/t)

Cut-off grade (g/t)

14  
12  
10  
8  
6  
4  
2  
0  
55  
50  
45  
40  
35  
30  
25

20  
15  
10  
5  
0

Tonnes above cut-off  
Ave grade above cut-off

**Geita**

**Grade tonnage curve – Underground (metric)**

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AngloGold Ashanti's Australasian assets comprise Sunrise Dam and the 70%-owned Tropicana gold mine.

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AngloGold Ashanti operates two mines in Western Australia: Sunrise Dam and the new Tropicana gold mine, along with joint venture partner Independence Group Ltd., who holds a 30% stake. Tropicana, a greenfields discovery made by AngloGold Ashanti, commenced production during 2013, with the first gold bar poured on September 26th . AngloGold Ashanti is managing the Tropicana project along with a large regional exploration programme that covers some 10,833km<sup>2</sup> of tenements along a 350km strike length, considered one of the most prospective regions for new gold discoveries in Australia. As at 31 December 2013, the total attributable Mineral Resource (inclusive of the Ore Reserve) for the Australia region was 8.63Moz (2012: 8.34Moz) and the attributable Ore Reserve, 3.81Moz (2012: 3.91Moz). Sunrise Dam accounted for 37% and Tropicana 63% of the region's Mineral Resource, and Australasia accounted for around 3.7% and 5.6% of the group's Mineral Resource and Ore Reserve respectively. Production from Australasia was steady at 342,000 ounces in 2013, equivalent to 8% of group production.

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Australasia**  
**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**  
 Measured  
 35.57  
 1.65  
 58.87  
 1.89  
 Indicated  
 70.92  
 2.10  
 148.71  
 4.78  
 Inferred  
 20.05  
 3.04  
 60.92  
 1.96  
 Total  
 126.54  
 2.12  
 268.51  
 8.63

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**  
**Contained gold**  
**Australasia**

**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**

Measured

3.21

0.87

2.80

0.09

Indicated

43.29

1.97

85.30

2.74

Inferred

20.05

3.04

60.92

1.96

Total

66.55

2.24

149.02

4.79

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Australasia**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

32.37

1.73

56.08

1.80

Probable

27.16

2.30

62.33

2.00

Total

59.53

1.99  
118.41  
3.81  
OVERVIEW

Moz  
7  
6  
5  
4  
3  
2  
1  
0  
December 2012  
December 2013  
**Australia**  
**Inclusive Mineral Resource – attributable**  
**Per operation/project**

Moz  
December 2012  
December 2013  
**Australia**  
**Ore Reserve – attributable**  
**Per operation/project**

7  
6  
5  
4  
3  
2  
1  
0  
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## AUSTRALIA

### COUNTRY OVERVIEW

Sunrise Dam was acquired by AngloGold Ashanti at the end of 1999. The Australian assets currently comprise the Sunrise Dam gold mine and the Tropicana gold mine.

AngloGold Ashanti owns 100% of Sunrise Dam gold mine. The Tropicana gold mine is a joint venture with Independence Group NL in which AngloGold Ashanti Australia Limited holds 70%.

The Tropicana deposit represents a discovery in a new gold province in which the joint venture partners have a dominant land position and a competitive advantage in understanding the mineralised system. Exploration potential in the district is high and a number of large targets have been identified.

### MINERAL RESOURCE ESTIMATION

#### Sunrise Dam

Estimation of the underground Mineral Resource uses the geological model boundaries to subdivide all drill-hole data into appropriate

domains. Statistical analyses are performed on these domains and high-grade outliers are identified and appropriately cut back

to an upper limit. A number of different geostatistical estimation methods have been applied to the deposit, reflecting the different

styles of mineralisation and mining methods. Ordinary Kriging, Multiple Indicator Kriging and Conditional Simulation are used to

produce estimates of average gold grade of a pre-determined block size. The use of Conditional Simulation allows for the probabilistic

determination of the optimal mining stope configuration.

Mining of the open pit Mineral Resource was completed during 2012, and mining the crown pillar at the base of the pit finished in

2013. Remaining stockpiled material is estimated based on detailed grade control drilling completed prior to mining, with grades

estimated via the geostatistical method of Conditional Simulation.

The Golden Delicious deposit has been estimated using UC. All available geological drill-hole information is validated for use in the

models and the local geology of the deposit is used to classify the drill-hole information into appropriate estimation domains. Detailed

statistical analyses are conducted on each of these domains and this allows for the identification of high-grade outliers. If these values

are anomalous to the general population characteristics they are then cut back to an appropriate upper limit for the population.

#### Tropicana

All available geological drill-hole information is validated for use in the models and the local geology of the deposit is used to classify

the drill-hole information into appropriate geostatistical domains. Detailed statistical analyses are conducted on each of these domains

and this allows for the identification of and cutting of high-grade outliers. The recoverable gold Mineral Resource for the open pit is

estimated by UC which estimates the proportion of material recovered by mining above a cut-off grade, assuming a specified selective mining unit (SMU).

The underground Mineral Resource estimate uses drilling completed as part of the Havana Deeps Pre-Feasibility study, targeting

the down plunge and along strike extents of the Havana deposit outside the current Havana open pit. The geostatistical method of

Ordinary Kriging is used to estimate the underground Mineral Resource.

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ORE RESERVE ESTIMATION

Sunrise Dam

The open pit Ore Reserve estimate is based on run-of-mine (ROM) stockpiles only. The underground Ore Reserve is based on portions of the Mineral Resource model which were projected to be mineable based on price, mining factors and mill recovery assumptions.

The mining shapes are based in Indicated Mineral Resource materials that are projected to provide a 15% margin on total cost,

based on the reference assumptions. Mine layout and designs have been created within mining shapes for each geological domain,

to calculate the Ore Reserve directly from the Mineral Resource model. The Proved and Probable Ore Reserve was then defined by

applying the Mineral Resource classification for each estimation domain.

Tropicana

The Ore Reserve is estimated within the current pit design using the relevant Mineral Resource model and updated geotechnical and metallurgical parameters and appropriate operating costs.

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## SUNRISE DAM

### LOCATION

Sunrise Dam is approximately 220km north-northeast of Kalgoorlie and 55km south of Laverton in Western Australia.

The mine,

100% owned by AngloGold Ashanti, comprises a large open pit and underground mining complex. Open pit production commenced

in 1997 and is now complete at a final depth of 500m below surface. Underground mining commenced in 2003 with a number of

different mining methods that are dependent on the style of mineralisation and grade of the geological domain. Mining is carried out by

contractors and ore is treated in a conventional gravity and carbon in leach (CIL) process plant. The underground mine is undergoing

a significant growth phase with production expected to reach 2.4Mt of ore in 2014.

### GEOLOGY

At Sunrise Dam, gold mineralisation is structurally controlled and vein hosted. The style of mineralisation can be differentiated

depending on the structure or environment in which it is hosted. There are three dominant styles recognised:

- shear-related and high strain – e.g. Sunrise Shear Zone;
- stockwork development in planar faults with brittle characteristics (these occur in all rock types and are commonly concentrated at contacts within the volcanic stratigraphy or the porphyry margin and within hinge positions within the magnetite shales) – e.g. Western Shear Zone, Watu, Cosmo, Summercloud; and
- placer-style mineralisation hosted within the fluvial sediments.

The vein and shear styles of gold mineralisation are introduced primarily during the third and fourth deformation stages and variations

in structural style, ore and gangue mineralogy and alteration intensity are observed locally.

### EXPLORATION

Exploration around Sunrise Dam during 2014 will concentrate on defining high-grade targets (including Sunrise Shear, Cosmo and

the Midway Shear) proximal to existing underground development, and to further define and extend the Vogue domain. The focus of

exploration is to convert drilling areas into production and Ore Reserve ounces as quickly and efficiently as possible, whilst maintaining

a high-standard of strategic sampling for geological and geometallurgical modeling.

### MINERAL RESOURCE AND ORE RESERVE REPORT 2013

MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-**

**hole**

**Channel**

**Other**

**Comments**

Surface

Measured

25 x 25

—

—

—

—

Indicated

40 x 40

—

—

—

—

Inferred

100 x 100

—

—

—

Grade/Ore Control

6 x 8

—

—

—

—

—

Underground

Measured

—

—

—

—

—

Indicated

20 x 20

—

–  
 –  
 –  
 Inferred  
 50 x 50  
 –  
 –  
 –  
 –  
 Grade/Ore Control  
 7 x 7  
 –  
 –  
 –  
 –  
 –  
***Inclusive Mineral Resource***  
**as at 31 December 2013**  
**Tonnes**  
**Grade**  
**Contained gold**  
**Sunrise Dam**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Golden Delicious  
 Measured  
 0.61  
 1.69  
 1.04  
 0.03  
 Indicated  
 1.88  
 1.50  
 2.82  
 0.09  
 Inferred  
 0.01  
 1.38  
 0.01  
 0.00  
 Total  
 2.50  
 1.55  
 3.87  
 0.12  
 Stockpile (Open pit)  
 Measured  
 14.55

1.08  
15.75  
0.51  
Indicated

—  
—  
—  
—

Inferred

—  
—  
—  
—

Total

14.55  
1.08  
15.75  
0.51

Underground  
Measured

—  
—  
—  
—

Indicated

15.59  
2.72  
42.41  
1.36

Inferred

11.74  
3.19  
37.45  
1.20

Total

27.33  
2.92  
79.86  
2.57

Stockpile (Underground)

Measured

0.39  
2.27  
0.89  
0.03

Indicated

—  
—  
—  
—

Inferred

—  
—  
—  
—

Total

0.39

2.27

0.89

0.03

Sunrise Dam

Total

44.78

2.24

100.38

3.23

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Sunrise Dam**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

0.61

1.69

1.04

0.03

Indicated

10.80

2.24

24.17

0.78

Inferred

11.75

3.19

37.47

1.20

Sunrise Dam

Total

23.17

2.71

62.67

2.01

The Exclusive Mineral Resource includes the entire Golden Delicious Mineral Resource because detailed Ore Reserve estimation and mine planning is yet to take place. In the underground mine, a large portion of Indicated Mineral Resource sits in the Exclusive



Mineral Resource due to the material being lower grade and therefore failing to meet the Ore Reserve cut-off grade requirements. The entire Inferred Mineral Resource in the underground mine sits in the Exclusive Mineral Resource. The majority of this Inferred Mineral Resource is located in the deeper parts of the underground mine where the drill density is not yet adequate for the Mineral Resource to be considered in the Ore Reserve definition process.

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SUNRISE DAM

**continued**

*Mineral Resource below infrastructure*

There is no Mineral Resource reported below infrastructure.

ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Sunrise Dam**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Stockpile (Open pit)

Proved

14.55

1.08

15.75

0.51

Probable

—

—

—

—

Total

14.55

1.08

15.75

0.51

Underground

Proved

—

—

—

—

Probable

6.20

3.22

19.97

0.64

Total

6.20

3.22

19.97

0.64

Stockpile (Underground)

Proved

0.39

2.27  
 0.89  
 0.03  
 Probable  
 –  
 –  
 –  
 –

Total  
 0.39  
 2.27  
 0.89  
 0.03

Sunrise Dam

Total  
 21.14  
 1.73  
 36.62  
 1.18

*Ore Reserve modifying factors*

**31 December 2013**

**Sunrise Dam**

**Gold**

**price**

**AUD/oz**

**Cut-off**

**value**

**g/t Au**

**Stoping**

**width**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

on g/t)

**MCF**

%

**MetRF**

%

Stockpile

(Underground) and

Stockpile (Open pit)

1,249

0.67\*

—

—

—

100.0

100.0

100.0

100.0

100.0

85.5

Underground

1,249

2.03

2,200.0

10.0

0.20

100.0

100.0

90.8

90.8

100.0

85.5

\* Economic cutoff grade is 0.60g/t, but the stockpile's average grade of oxide is 0.67g/t and average grade of fresh ore is 0.90g/t.

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Sunrise Dam**

**Tonnes**

**Moz**

**Comment**

Underground

4.56

3.32

15.16

0.49

Vogue

Total

4.56  
 3.32  
 15.16  
 0.49  
 Inferred Mineral Resource in the business plan includes the Vogue mineralisation, which will be drilled during 2014 with the aim of increasing the confidence in the area to bring it into Ore Reserve and then into production.  
 2.82  
 -0.36  
 -0.10  
 0.11  
 0.47  
 0.27  
 0.02  
 0.00  
 3.23  
 Ounces  
 (millions)  
 3.3  
 3.2  
 3.1  
 3.0  
 2.9  
 2.8  
 2.7  
 2.6  
 2.5  
 2.4  
 2.3  
 2.2  
 2012  
 Depletion  
 Gold  
 price  
 Cost  
 Exploration  
 Methodology  
 Other  
 Acquisition/  
 Disposal  
 2013  
**Sunrise Dam**  
**Mineral Resource reconciliation: 2012 to 2013**  
 1.18  
 -0.37  
 0.04  
 0.00  
 0.00

0.31  
0.01  
0.00  
1.18  
Ounces  
(millions)  
1.20  
1.15  
1.10  
1.05  
1.00  
0.95  
0.90  
0.85  
0.80  
0.75  
2012  
Other  
2013

**Sunrise Dam**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion

Model  
change

Economics

New  
ounces

from  
Projects

Scope  
Change

Acquisition/  
Disposal

MINERAL RESOURCE AND ORE RESERVE REPORT  
**2013**

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0.00 0.25 0.50  
0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00

Tonnes  
above  
cut-off  
(millions)

Average  
grade  
above  
cut-off (g/t)

Cut-off grade (g/t)

4.0  
3.5  
3.0  
2.5  
2.0  
1.5  
1.0  
0.5  
0.0  
18  
16  
14  
12  
10  
8  
6  
4  
2  
0

Tonnes above cut-off  
Ave grade above cut-off

**Sunrise Dam**

**Grade tonnage curve – Surface (metric)**

0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10

Tonnes  
above  
cut-off  
(millions)  
Average  
grade

above

cut-off (g/t)

Cut-off grade (g/t)

18

16

14

12

10

8

6

4

2

0

120

100

80

60

40

20

0

Tonnes above cut-off

Ave grade above cut-off

**Sunrise Dam**

**Grade tonnage curve – Underground (metric)**

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

**COMPETENT PERSONS**

**Category**

**Category**

**Competent**

**person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Surface

Mineral

Resource

Fraser Clark

MAusIMM

226 390

12 years

BSc Hons (Geology)

Postgraduate Certificate in Geostatistics

Ore Reserve

Salih Ramazan MAusIMM

222 870

11 years



BSc (Mining Engineering)

MSc (Engineering)

ME (Geostatistics)

PhD (Applied Science)

Underground

Mineral

Resource

Fraser Clark

MAusIMM

226 390

12 years

BSc Hons (Geology)

Postgraduate Certificate in Geostatistics

Ore Reserve

Peter Merry

MAusIMM

306 163

32 years

BEng (Mining)

GDE (Mining Engineering) WITS

Sunrise Dam Geological Model – Looking East

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## TROPICANA LOCATION

The Tropicana Gold Mine is located 330km east-northeast of Kalgoorlie, Western Australia. The mineral deposit is hosted in the eastern margin of the Yilgarn Craton. Tropicana is the first deposit discovered in this remote portion of the Great Victoria Desert which is widely regarded as an emerging greenfields gold province. Open pit mining commenced during 2012, with first gold production occurring during September 2013.

Together, the Tropicana, Havana, Havana South and Boston Shaker deposits define a northeast trending mineralised corridor, approximately 1.2km wide and 5km long, that has been tested to vertical depth of over 1,200m. The Mineral Resource remains open down-dip from Tropicana, Havana and Boston Shaker deposits and has potential for extension to the north and south. Neither the immediate metamorphic host rocks nor the mineralised zones are exposed at surface due to the presence of widespread younger cover sequences, between 0.5m and 15m thick.

## GEOLOGY

The Tropicana deposit comprises a mineralised zone up to 50m thick, predominantly hosted in quartzo-feldspathic gneiss with

a garnet gneiss dominated hangingwall package. The mineralisation is comprised of subordinate thin (3m to 5m), discontinuous

mineralised lenses that typically return intercepts of >0.5g/t gold. The Havana deposit comprises a lower, laterally continuous, higher-

grade lode up to 50m thick that is overlain, in the central and southern parts of the proposed pit, by stacked, typically lower-grade

and thinner (up to 25m thick) mineralised zones. Havana is also dominantly hosted in quartzo-feldspathic gneiss, again with a garnet

gneiss dominated hangingwall.

Mineralisation is accompanied by pyrite (2% to 8%) with accessory pyrrhotite, chalcopyrite and other minor sulphides and tellurides.

The gold mineralisation is related to shear planes that postdate the main gneissic fabric developed during peak granulite-facies metamorphism.

## EXPLORATION

As part of a wider restructure within AngloGold Ashanti during 2013, the Tropicana Brownfields and Greenfields Exploration teams were

merged. Exploration budgets will still distinguish between near-mine (Brownfields) exploration and regional (Greenfields) exploration

programmes – reflecting the different strategic goals of the respective tenement packages.

Brownfields exploration will continue to pursue to delineation of new potential open-pit satellite Mineral Resource whilst Greenfields

exploration will continue to focus on the discovery of new stand-alone deposits in the district. The proposed Brownfields exploration

programme comprises a mix of advanced and early stage work programmes including DD, RC and AC drilling. The planned drilling is

designed to test targets within a 60km radius of Tropicana.

## PROJECTS

The Havana Deeps Pre-Feasibility study indicates that technically viable projects exists, with extraction from either a large open pit or

underground mine, or a combination of both. Further work will be completed during 2014 to enhance the economics of the project by investigating a number of alternative mining methods.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-**

**hole**

**Channel**

**Other**

**Comments**

Tropicana

Measured

25 x 25

—

—

—

—

Indicated

50 x 50

—

—

—

—

Inferred

100 x 100

—

—

—

—

Grade/Ore control                      10 x 12

—

—

—

—

—

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Tropicana**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Boston Shaker – BS01

Measured

–

–

–

–

Indicated

2.38

2.19

5.22

0.17

Inferred

0.07

2.58

0.17

0.01

Total

2.45

2.20

5.39

0.17

Boston Shaker Shell

Measured

–

–

–

–

Indicated

2.53

2.72

6.87

0.22

Inferred

2.02

3.14

6.35

0.20

Total

4.55

2.91

13.22

0.43

Tropicana Starter Pit – TP01

Measured

4.78

2.00

9.54

0.31

Indicated

0.17

1.01

0.17

0.01

Inferred

0.00

1.04

0.01

0.00

Total

4.95

1.96

9.72

0.31

Tropicana – TP02

Measured

3.91

1.87

7.30

0.23

Indicated

5.98

1.90

11.36

0.37

Inferred

0.02

1.81

0.03

0.00

Total

9.90

1.89

18.70

0.60

Tropicana Shell

Measured

0.12

1.90

0.22

0.01

Indicated

3.19  
 1.80  
 5.74  
 0.18  
 Inferred  
 1.47  
 1.99  
 2.92  
 0.09  
 Total  
 4.77  
 1.86  
 8.88  
 0.29  
 Havana Starter Pit – HA01  
 Measured  
 6.49  
 2.31  
 14.97  
 0.48  
 Indicated  
 0.32  
 1.29  
 0.41  
 0.01  
 Inferred  
 –  
 –  
 –  
 –  
 Total  
 6.81  
 2.26  
 15.39  
 0.49  
 Havana Stage 3 – HA03  
 Measured  
 1.54  
 1.90  
 2.94  
 0.09  
 Indicated  
 4.25  
 1.86  
 7.93  
 0.26  
 Inferred  
 0.00  
 1.18  
 0.00  
 0.00

Total

5.80

1.87

10.88

0.35

Havana Stage 4 and 5 – HA05

Measured

0.69

2.74

1.88

0.06

Indicated

5.66

1.75

9.90

0.32

Inferred

0.00

2.92

0.00

0.00

Total

6.35

1.86

11.78

0.38

Havana Stage 6 – HA06

Measured

–

–

–

–

Indicated

7.11

1.41

10.05

0.32

Inferred

0.01

2.32

0.03

0.00

Total

7.12

1.42

10.08

0.32

Havana Stage 6 Shell

Measured

–

–



—  
—  
Indicated  
2.24  
1.36  
3.05  
0.10  
Inferred  
0.27  
1.63  
0.44  
0.01  
Total  
2.51  
1.39  
3.48  
0.11  
Havana Shell  
Measured  
0.08  
3.04  
0.23  
0.01  
Indicated  
17.97  
2.05  
36.85  
1.18  
Inferred  
0.18  
2.45  
0.43  
0.01  
Total  
18.22  
2.06  
37.51  
1.21  
Stockpile (Open pit)  
Measured  
2.43  
1.69  
4.10  
0.13  
Indicated  
—  
—  
—  
—  
Inferred  
—

—  
—  
—  
Total  
2.43  
1.69  
4.10  
0.13  
Underground  
Measured

—  
—  
—  
—

Indicated  
1.66  
3.58  
5.93  
0.19

Inferred  
4.26  
3.07  
13.07  
0.42

Total  
5.92  
3.21  
19.00  
0.61

Tropicana  
Total  
81.77  
2.06  
168.13  
5.41

TROPICANA

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Tropicana**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**

Measured  
 2.59  
 0.68  
 1.76  
 0.06  
 Indicated  
 32.49  
 1.88  
 61.13  
 1.97  
 Inferred  
 8.30  
 2.83  
 23.46  
 0.75  
 Tropicana  
 Total  
 43.38  
 1.99  
 86.35  
 2.78

The Exclusive Mineral Resource includes Inferred Mineral Resource at depth in the designed pits, as well as the deeper portions of the Havana Deeps underground Mineral Resource, which are not yet drilled to a level of confidence to establish an Ore Reserve.

*Mineral Resource below infrastructure*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Tropicana**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**

Measured  
 –  
 –  
 –

—

Indicated

1.66

3.58

5.93

0.19

Inferred

4.26

3.07

13.07

0.42

Tropicana

Total

5.92

3.21

19.00

0.61

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5.52  
 -0.23  
 0.00  
 0.00  
 0.00  
 0.12  
 0.00  
 0.00  
 5.41  
 Ounces  
 (millions)

5.55  
 5.50  
 5.45  
 5.40  
 5.35  
 5.30  
 5.25  
 5.20

2012  
 Deple-  
 tion  
 Gold  
 price  
 Cost  
 Explo-  
 ration  
 Metho-  
 dology  
 Other  
 Acquisition/  
 Disposal  
 2013

**Tropicana**  
**Mineral Resource reconciliation: 2012 to 2013**

2.73  
 -0.13  
 0.01  
 0.00  
 0.00  
 -0.01  
 0.03  
 0.00  
 2.63  
 Ounces  
 (millions)  
 2.74  
 2.72  
 2.70  
 2.68  
 2.64

2.62  
 2.60  
 2.58  
 2.56  
 2012  
 Other  
 2013

**Tropicana**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
 tion

Model  
 change

Economics

New  
 ounces  
 from

Projects

Scope

Change

Acquisition/

Disposal

TROPICANA

**continued**

ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Tropicana**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Boston Shaker – BS01

Proved

–

–

–

–

Probable

2.25

2.28

5.15

0.17

Total

2.25

2.28

5.15

0.17  
Tropicana Starter pit – TP01

Proved

4.38

2.13

9.32

0.30

Probable

0.13

1.23

0.16

0.01

Total

4.51

2.10

9.48

0.30

Tropicana – TP02

Proved

3.56

2.00

7.10

0.23

Probable

5.19

2.10

10.93

0.35

Total

8.75

2.06

18.03

0.58

Havana Starter Pit – HA01

Proved

5.68

2.56

14.56

0.47

Probable

0.23

1.60

0.36

0.01

Total

5.90

2.53

14.92

0.48

Havana Stage 3 – HA03

Proved

1.35  
 2.10  
 2.83  
 0.09  
 Probable  
 3.60  
 2.10  
 7.57  
 0.24  
 Total  
 4.94  
 2.10  
 10.40  
 0.33  
 Havana Stage 4 and 5 – HA05  
 Proved  
 0.61  
 3.02  
 1.84  
 0.06  
 Probable  
 4.54  
 2.04  
 9.29  
 0.30  
 Total  
 5.15  
 2.16  
 11.13  
 0.36  
 Havana Stage 6 – HA06  
 Proved  
 –  
 –  
 –  
 –  
 Probable  
 5.02  
 1.77  
 8.90  
 0.29  
 Total  
 5.02  
 1.77  
 8.90  
 0.29  
 Stockpile (Open pit)  
 Proved  
 1.85  
 2.04  
 3.79



0.12  
 Probable  
 –  
 –  
 –  
 –  
 Total  
 1.85  
 2.04  
 3.79  
 0.12  
 Tropicana  
 Total  
 38.39  
 2.13  
 81.79  
 2.63  
*Ore Reserve modifying factors*  
**31 December 2013**  
**Tropicana**  
**Gold**  
**price**  
**AUD/oz**  
**Cut-off**  
**value**  
**g/t Au**  
**Dilution**  
**%**  
**Dilution**  
**g/t**  
**%**  
**RMF**  
**(based**  
**on**  
**tonnes)**  
**%**  
**RMF**  
**(based**  
**on g/t)**  
**%**  
**MRF**  
**(based**  
**on**  
**tonnes)**  
**%**  
**MRF**  
**(based**  
**on g/t)**  
**MCF**  
**%**  
**MetRF**

%

Boston Shaker, Havana Stage 3,  
4, 5 and 6, Havana Starter pit,  
Stockpile (Open pit), Tropicana  
pit and Tropicana Starter pit.

1,249

0.70

—

—

100.0

100.0

100.0

100.0

100.0

90.0

*Recovery changes by region and by material type. Cut-offs change by material type.*

MINERAL RESOURCE AND ORE RESERVE REPORT

**2013**

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*Inferred Mineral Resource in business plan*

Inferred Mineral Resource within the open pit design is included in the business plan, but makes up only a small proportion (<1%) of the total mineralised material.

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

**COMPETENT PERSONS**

**Category**

**Competent Person**

**Professional organisation**

**Membership number**

**Relevant experience**

**Qualification**

Mineral Resource

Mark Kent

MAusIMM

203 631

16 years

BSc Hons (Geology)

Master of Geostatistics

Ore Reserve

Salih Ramazan

MAusIMM

222 870

11 years

BSc (Mining Engineering)

MSc (Engineering)

ME (Geostatistics)

PhD (Applied Science)

0.00

0.25

0.50

0.75

1.00

1.25

1.50

1.75

2.00

Tonnes

above cut-off

(millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

4.0

3.5

3.0  
2.5  
2.0  
1.5  
1.0  
0.5  
0.0  
800  
700  
600  
500  
400  
300  
200  
100  
0

Tonnes above cut-off  
Ave grade above cut-off

**Tropicana**

**Grade tonnage curve – Surface (metric)**

0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10

Tonnes  
above  
cut-off  
(millions)

Average  
grade  
above  
cut-off (g/t)

Cut-off grade (g/t)

11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1

7  
6  
5  
4  
3  
2  
1  
0

Tonnes above cut-off  
Ave grade above cut-off

**Tropicana**

**Grade tonnage curve – Underground (metric)**

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AMERICAS

SECTION

FIVE

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The Americas is an important growth area for AngloGold Ashanti, with operations in Argentina, Brazil and the United States and projects in Colombia.

AM

MINERAL RESOURCE AND ORE RESERVE REPORT

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AngloGold Ashanti has the Cripple Creek & Victor (CC&V, 100%) mine in the USA, the Cerro Vanguardia SA mine in Argentina (92.5%),

AngloGold Ashanti Córrego do Sítio Mineração operations and the Mineração Serra Grande, both in Brazil (both 100%).

The main projects are in Colombia with additional projects and future mine expansions in progress in the USA, Argentina and Brazil

maintaining and upgrading the current production profile.

As at 31 December 2013, the total attributable Mineral Resource (inclusive of the Ore Reserve) for the Americas region was 61.06Moz

(2012: 61.59Moz) and the attributable Ore Reserve, 8.82Moz (2012: 11.01Moz). This is equivalent to around 26% and 13% of the group's

Mineral Resource and Ore Reserve respectively. AngloGold Ashanti also conducts an extensive greenfield exploration programme across

the Americas, most notably in Colombia, where it holds a significant land position and has made two greenfield exploration discoveries

– Gramalote and La Colosa – which together account for 31.14Moz of the Americas' Inclusive Mineral Resource.

Combined production

from these operations increased by 5% to 1.0Moz ounces of gold in 2013, equivalent to 24% of group production.

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Americas**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

293.87

1.06

310.12

9.97

Indicated

277.67

1.26

349.90

11.25

Inferred

1,268.53

0.98

1,239.20

39.84

Total

1,840.07

1.03

1,899.22

61.06

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**

**Americas**  
**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

152.12

0.95

145.07

4.66

Indicated

203.04

1.04

211.91

6.81

Inferred

1,265.98

0.97

1,225.98

39.42

Total

1,621.13

0.98

1,582.96

50.89

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Americas**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

140.68

1.05

148.17

4.76

Probable

78.25

1.61

126.06

4.05

Total



218.93

1.25

274.23

8.82

OVERVIEW

Moz

30

25

20

15

10

5

0

December 2012

December 2013

**Americas**

**Inclusive Mineral Resource – attributable**

**Per operation/project**

Moz

7

6

5

4

3

2

1

0

December 2012

December 2013

**Americas**

**Ore Reserve – attributable**

**Per operation/project**

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AMERICAS

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## COUNTRY OVERVIEW

AngloGold Ashanti has a single operation in Argentina, the Cerro Vanguardia mine, which is a joint venture with Formicruz (the province of Santa Cruz). The province of Santa Cruz holds a 7.5% interest in the mine, with the remaining 92.5% belongs to AngloGold Ashanti.

## MINERAL RESOURCE ESTIMATION

The mineralisation boundaries for each geological entity (veins, stockwork and wall rock) are defined from the detailed logging of

all geological drill holes. This data is validated and the information is then used to create a three dimensional model.

This model is

subsequently overlain with a 5m x 25m x 5m block model.

Volumetric measurements of the deposit are subsequently computed in the system using the relevant block dimensions. Ordinary

Kriging is used to perform the grade interpolation and field tests are conducted to determine appropriate in-situ densities.

Conditional Simulations are performed in the main deposits for uncertainty assessment and the Mineral Resource is then classified into

the Measured, Indicated and Inferred Mineral Resource categories according to internal AngloGold Ashanti guidelines.

## ORE RESERVE ESTIMATION

The appropriate Mineral Resource models are used as the basis for the Ore Reserve. All relevant modifying factors such as mining

dilution and costs are used in the Ore Reserve conversion process. This is based on the original block grades and tonnage and

includes waste material (both internal and external). Appropriate Ore Reserve cut-off grades are applied and all blocks above this

cut-off are reported.

It is important to emphasise the importance of silver during the optimisation of the pits, since silver is a significant by-product at Cerro

Vanguardia. The ratio of silver to gold commonly ranges from 10 to 15g/t of silver per 1g/t of gold.

Cerro Vanguardia uses conventional open-pit mining with a doubled bench height of 20m and underground methods.

Open-pit

mining is distributed between multiple operating pits, typically three to five at any one time; depending on the plant feed requirements.

Currently, there are three underground mines which are operating simultaneously. Waste dumps and heap-leach stockpiles are located

adjacent to each pit. Plant grade ore feed is trucked to either the long-range or the short-range stockpiles in order to smooth out the

head grades and avoid recovery losses due to higher than planned silver grades

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## LOCATION

Cerro Vanguardia is a gold-silver mine located in Santa Cruz Province, southern Patagonia, Argentina, approximately 110km north-northwest of the coastal town of San Julián. The mining lease encompasses an area of approximately 540km<sup>2</sup>. Access to the area is by aircraft from Buenos Aires to Comodoro Rivadavia or Rio Gallegos and subsequently by road to the mine site. The ore bodies comprise a series of hydrothermal vein deposits (low-sulphidation deposit) containing gold and large quantities of silver, produced as a by-product. Cerro Vanguardia uses conventional open-pit mining with a doubled bench height of 20m and underground methods. Open-pit mining is distributed between multiple operating pits, typically three to five at any one time; depending on the plant feed requirements. Currently, there are three underground mines which are operated at same time. The underground workings, which began production in 2010, account for around 20% of total CVSA production. Waste dumps and heap-leach stockpiles are located adjacent to each pit. Plant grade ore feed is trucked to either the long-range or the short-range stockpiles in order to smooth out the head grades and avoid recovery losses due to higher than planned silver grades. The metallurgical plant, CIL process, has a daily capacity of 3,000 tonnes and includes a cyanide recovery facility. The new heap-leach facility started the production in the last quarter of 2012.

## GEOLOGY

Cerro Vanguardia is located in the core of the 60,000km<sup>2</sup> Deseado Massif, one of the most-extensive volcanic complexes in southern Patagonia, Argentina. The Deseado Massif is an extensive rhyolite province of Middle to Upper Jurassic age deposited over Paleozoic low-grade metamorphic basement rocks. These rocks are exposed in erosional windows through overlying Cretaceous sediments and Tertiary to Quaternary basalts. The Middle to Upper Jurassic ignimbrites and volcanic rocks from Chon Aike Formation hosts a low-sulphidation epithermal type gold and silver deposit. The thickness of the ignimbrite sequence is estimated to have exceeded 1,000m, but some lateral variations have been identified across the district. Epithermal Au-Ag bearing structures cut across all Jurassic rocks in the stratigraphy. The two main ignimbrite units, Masiva-Lajosa and Granosa, host the majority of mineralised veins. The Masiva-Lajosa ignimbrite occurs at the top of the sequence whilst the Granosa ignimbrite occurs towards the bottom. These two ignimbrites are separated by two thinner, polymictic ignimbrite units (Brechosa and Brechosa Base) and a sequence of stratified crystal to ash-rich tuffs (Estratificada unit). The base of the sequence is a mixed unit of stratified ignimbrite intercalated with fine-grained tuffs (Estratificada Inferior ignimbrite). The mineralisation is concentrated in steeply-dipping quartz veins that cut the flat-lying ignimbrites and volcaniclastic rocks. The Cerro Vanguardia district contains around 100 gold and silver-bearing epithermal veins for a cumulative exposed vein strike extension of more than 240km. Fifty seven veins are currently known to contain economic gold and silver mineralisation. All veins at Cerro Vanguardia consist mainly of quartz and adularia containing minor electrum, native gold, silver sulphides and native

silver as fine-grained disseminations. Vein textures are mainly characterised by colloform-crustiform banding, pseudomorphic quartz-lattice textures, massive-to-vuggy quartz veins and vein breccias.  $^{40}\text{Ar}/^{39}\text{Ar}$  dating on adularia from the Osvaldo Diez vein yielded ages of  $153.4 \pm 1.46$  Ma,  $152.9 \pm 2.75$  Ma and  $155.1 \pm 3.0$  Ma, while the age of the thick sequence of ignimbrites hosting the veins has been dated between 166 to 150 Ma.

#### EXPLORATION

The objectives for the 2013 drilling programme were as follows:

- increase the Mineral Resource;
  - add more low-grade mineralisation for heap-leach operation; and
  - identify and define new exploration targets based on geological mapping and local ground magnetic surveys.
- The 2013 exploration programme included 35,126m of DD, 25,562m of RC and more than 3,000m of trenching and channel sampling. Exploration this year put emphasis on the search for and development of the Mineral Resource of the northern border of the main central zone and the southern part of the north zone. Localised ground magnetic surveys were used to target some of the drilling in those areas. The main veins drilled during 2013 were Serena, Luciana, Melisa, Vanguardia 1A, Vanguardia 2 and Vanguardia 3. Serena vein is located on the northern border of the central area. The finding of new blind Serena ore shoots was an example of successful exploration following integration of regional and local geological and geophysical information. The newly-found mineralisation at this part of Serena vein starts at about 70m below surface and extends down dip for more than 200m. The Luciana vein is located in

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**CERRO VANGUARDIA**

the north of the central area and mineralisation is associated with several quartz veins, yielding well-mineralised intervals to a depth of 300m. Vanguardia 1A, Vanguardia 2 and Vanguardia 3 are located in the northern area, and mineralisation extends from surface to a depth of approximately 200m. These three veins have multiple branches and represent good heap-leach material targets. The additional Mineral Resource generated was separated into full-grade vein material and low-grade heap-leach material.

**PROJECTS**

Cerro Vanguardia currently mines from multiple open pits that are up to 200m deep. The highest grade and thickest veins were mined first to maximise the project’s net present value. Mining costs and strip ratios have increased as grades have decreased over the years.

Higher gold prices have extended the life of Cerro Vanguardia, but at higher stripping ratios and operating costs. The recent startup of the heap leach turned low-grade material associated with some veins into new exploration targets. A study to start mining open pits of exclusively low-grade ore for heap leach is ongoing.

Mapping and exploration also focused on discovering domes and other potential bulk-tonnage, low-grade deposits not previously investigated within the district. A northern extension of the 1:5000 geological map of the deposit was completed. This mapping was part of a three-year plan to extend the district map so as to improve the geological knowledge and the understanding of the volcanic units hosting the mineralisation.

The underground mining at Cerro Vanguardia complements the current open-pit production. The tonnage from the open pits will decrease to an average of 800,000tpa as the highest stripping ratio open pits are replaced by underground operations. The underground mines are expected to increase their production to 230,000tpa. There are currently two veins being mined from underground: Mangas and Osvaldo Diez, and several more projects planned such as Atila, Cuncuna, Liliana, Loma del Muerto, Natalia, Verónica and Zorro.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Cerro Vanguardia

Measured

12 x 5, 3 x 15

–  
–  
–  
–

Indicated

40 x 40

—

—

—

Inferred

80 x 80

—

—

—

Grade/Ore Control            12 x 5, 3 x 15

—

—

—

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

Cerro Vanguardia

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Vein Resources (Open pit)

Measured

1.75

5.94

10.42

0.33

Indicated

11.47

5.83

66.92

2.15

Inferred

2.05

5.16

10.58

0.34

Total

15.28

5.76

87.92

2.83

Heap leach

Measured

11.02

0.59

6.55  
0.21  
Indicated  
16.76  
0.50  
8.33  
0.27  
Inferred  
3.26  
0.49  
1.60  
0.05  
Total  
31.04  
0.53  
16.48  
0.53  
Vein Resources (Underground)  
Measured  
0.19  
7.62  
1.47  
0.05  
Indicated  
2.00  
9.92  
19.82  
0.64  
Inferred  
0.35  
7.82  
2.75  
0.09  
Total  
2.54  
9.45  
24.04  
0.77  
Cerro Vanguardia  
Total  
48.86  
2.63  
128.44  
4.13  
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## CERRO VANGUARDIA

**continued***Exclusive Mineral Resource***as at 31 December 2013****Tonnes****Grade****Contained gold****Cerro Vanguardia****Category****million****g/t****Tonnes****Moz**

Measured

3.62

2.29

8.30

0.27

Indicated

26.68

2.08

55.58

1.79

Inferred

5.66

2.64

14.93

0.48

Cerro Vanguardia

Total

35.95

2.19

78.80

2.53

The Exclusive Mineral Resource is primarily located between the pit design and the Mineral Resource shell and exists due to the

difference in the economic parameters that have been used. In marginal deposits, where the grades of Au and Ag are above the

Mineral Resource cut-off but below the Ore Reserve cut-off, significant zones of Exclusive Mineral Resource will be generated. Very

deep Mineral Resource will also not be converted in the near term to Ore Reserve and is therefore listed as Exclusive Mineral Resource.

*Inclusive Mineral Resource by product: Silver (Ag)*

**as at 31 December 2013****Tonnes****Grade****Contained silver****Cerro Vanguardia****Category****million****g/t**

**Tonnes**

**Moz**

Measured

12.97

25.82

334.88

10.77

Indicated

30.23

62.40

1,886.25

60.64

Inferred

5.66

66.98

379.00

12.19

Cerro Vanguardia

Total

48.86

53.22

2,600.13

83.60

*Mineral Resource below infrastructure*

There is no Mineral Resource reported below infrastructure.

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Cerro Vanguardia**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Vein Resources (Open pit)

Proved

0.70

6.20

4.37

0.14

Probable

4.40

5.61

24.66

0.79

Total

5.10

5.69

29.03

0.93

Heap leach

Proved

9.48

0.58

5.53

0.18

Probable

1.42

0.52

0.73

0.02

Total

10.89

0.58

6.27

0.20

Vein Resources (Underground)

Proved

0.09

8.18

0.73

0.02

Probable

1.49  
8.60  
12.81  
0.41  
Total  
1.58  
8.57  
13.54  
0.44  
Cerro Vanguardia  
Total  
17.57  
2.78  
48.84  
1.57  
*Ore Reserve modifying factors*

**31 December 2013**

**Cerro Vanguardia**

**Gold**

**price**

**ARS/oz**

**Cut-off**

**value**

**g/t Au**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

**on g/t)**

**MCF**

**%**

**MetRF**

**%**

Heap leach

6,186

0.35

—

—

100.0

100.0

100.0

100.0

100.0

61.3

Vein Resources (Open pit)

6,186

3.39

45.0

—

100.0

100.0

97.0

96.0

93.0

94.3

Vein Resources (Underground)

6,186

3.90

30.0

—

100.0

100.0

97.0

96.0

93.0

94.3

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**Cerro Vanguardia**

**Tonnes**

**Moz**

**Comment**

Vein Resources (Open pit)

0.22

10.70

2.34

0.08

Represents 7% of open pit schedule

Heap leach

0.01

0.71  
 0.00  
 0.00  
 Represents 1% of heap leach schedule  
 Vein Resources (Underground)  
 0.30  
 8.56  
 2.57  
 0.08  
 Represents 15% of underground schedule  
 Total  
 0.52  
 9.38  
 4.91  
 0.16  
 The Inferred Mineral Resource that has been included in the pit design is not included in the Ore Reserve statement. This Mineral Resource is normally located in the deep and lateral zones of the Mineral Resource models. In order for ore from the Inferred Mineral Resource to be included in the production plan, it must be upgraded by infill drilling.  
 4.72  
 -0.25  
 -0.61  
 -0.06  
 0.28  
 0.04  
 0.00  
 0.00  
 4.13  
 Ounces  
 (millions)  
 4.8  
 4.7  
 4.6  
 4.5  
 4.4  
 4.3  
 4.2  
 4.1  
 4.0  
 3.9  
 3.8  
 3.7  
 2012  
 Deple-  
 tion  
 Gold  
 price  
 Cost  
 Explo-  
 ration

Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Cerro Vanguardia**

**Mineral Resource reconciliation: 2012 to 2013**

2.03  
-0.28  
0.09  
-0.33  
0.00  
0.06  
0.00  
0.00  
1.57

Ounces  
(millions)

2.1  
2.0  
1.9  
1.8  
1.7  
1.6  
1.5  
1.4  
2012  
Other  
2013

**Cerro Vanguardia**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

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0  
2  
4  
6  
8  
10  
12  
14  
16  
18  
20  
Tonnes above  
cut-off (millions)  
Average  
grade  
above  
cut-off (g/t)  
Cut-off grade (g/t)  
35  
30  
25  
20  
15  
10  
5  
0  
3.0  
2.5  
2.0  
1.5  
1.0  
0.5  
0.0  
Tonnes above cut-off  
Ave grade above cut-off  
**Cerro Vanguardia**  
**Grade tonnage curve – Underground (metric)**  
0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
Tonnes  
above  
cut-off

(millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

18

16

14

12

10

8

6

4

2

16

14

12

10

8

6

4

2

0

Tonnes above cut-off

Ave grade above cut-off

**Cerro Vanguardia**

**Grade tonnage curve – Surface (metric)**

CERRO VANGUARDIA

**continued**

*Ore Reserve by-product: Silver (Ag)*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained silver**

**Cerro Vanguardia**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

10.27

20.44

209.93

6.75

Probable

7.30

97.24

710.08

22.83

Cerro Vanguardia

Total

17.57

52.36

920.00

29.58

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Juan Paredes

MAusIMM

227 738

17 years

PhD (Geology)

Ore Reserve

Jorge Sanguin

MAusIMM

310 925

21 years

BEng (Mining)

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## COUNTRY OVERVIEW

AngloGold Ashanti's operations in Brazil comprise AngloGold Ashanti Córrego do Sítio Mineração (AGA Mineração) in the Quadrilátero

Ferrífero, Minas Gerais and Mineração Serra Grande in Goiás state. AGA Mineração consists of several operations, namely Cuiabá,

Lamego, Córrego do Sítio as current operating mines and Nova Lima Sul as a conceptual project.

AGA Mineração

Cuiabá mine is the largest gold producer in Brazil, and has been in operation since 1984. The mine is hosted in a greenstone

belt environment and consists of gold mineralisation in massive to disseminated sulphides (mainly pyrite, subordinate arsenopyrite

and pyrrhotite). The main mineralisation host rock is Banded Iron Formation (BIF), sealed by graphite schists and metabasic rocks

alternating in the hangingwall and footwall depending on the position in the folded structure. Mining levels are 60m to 66m apart

vertically, the deepest development at Cuiabá is currently at 1,111m below surface. Shaft facilities are currently at the last loading level

at Level 11 (about 1,200m depth).

Córrego do Sítio is a new mine, comprising two sulphide underground operations, currently Cachorro Bravo,

Laranjeiras and Carvoaria

located at CdSI and Sangue de Boi located at CdSII, and open-pit oxide operations (currently Rosalino, Carvoaria and Laranjeiras).

The entire Córrego do Sítio complex comprises 23 mineral deposits reported as Mineral Resource plus some exploration targets being

developed. Currently the Córrego do Sítio complex is the largest Mineral Resource within the Brazilian assets. In Brazil's world-famous

Iron Quadrangle, the Nova Lima Sul project consists of the Raposos Mine, Morro da Glória Mine (both underground mines) and Luzia

da Mota oxide Mineral Resource.

Serra Grande

Since July 2012, Mineração Serra Grande S.A (Serra Grande) has been a wholly-owned AngloGold Ashanti company.

The mine

complex is located in the municipality of Crixás, in the central portion of Brazil, 400km from the Capital, Brasília, and about 350km

from the state capital of Goiás, Goiânia.

## MINERAL RESOURCE ESTIMATION

The Cuiabá dataset consists of channel samples and drill-hole samples. The 3D modelling and estimation is performed with two

estimation domains, namely the thick mineralisation, consisting of Fonte Grande Sul (FGS) and Serrotinho (SER), and the narrow-vein

domain consisting of Balancão, Galinheiro and Canta Galo. All channel and drill-hole samples are used in the 3D geological models

and identify rock types in order to incorporate lithological proportions into the grade estimates. Conditional

Simulation is applied to

estimate the uncertainty in the block models and classify the Mineral Resource into Measured, Indicated and Inferred, following a

standard internal AngloGold Ashanti method.

Lamego shows similar rock assemblage but higher structural complexity than Cuiabá. The BIF which contains the mineralisation is

more structurally deformed and is sometimes described as 'metachert'. Lamego is part of the Cuiabá complex – they are 7km apart,

with existing infrastructure to truck the ore by sealed road to Cuiabá. The Lamego run-of-mine (ROM) product is treated at Cuiabá's gravity gold plant. The sulphide concentrates from both mines are transported to the Queiroz plant complex for the last process of the metallurgical recovery which consists of a roaster, which produces gold and sulphuric acid. The estimation method applied at Lamego is Ordinary kriging and classification of the Mineral Resource is also based on simulation techniques. CdS mineralisation occurs in a greenstone belt geological environment, associated with quartz and sulphides (mainly arsenopyrite) in a structurally-controlled corridor approximately 16 – 20km in strike length and about 500m vertical extent. The Mineral Resource is estimated by Ordinary Kriging, and classified using geostatistical Conditional Simulation techniques.

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Raposos Mine in the Nova Lima project was estimated by the geostatistical UC technique, and both Morro da Glória and Luzia da

Mota were estimated by Ordinary Kriging.

The Serra Grande Mineral Resource is estimated by Ordinary Kriging.

#### ORE RESERVE ESTIMATION

The gold price, projected operational performance and costs as well as metallurgical recoveries are taken into consideration in

determining the Ore Reserve. Mining parameters such as the mining method, minimum mining width, MCF, dilution and recovery are

all applied in the process.

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## OVERVIEW

The wholly-owned AGA Mineração mining complex is located in south-eastern Brazil, in the state of Minas Gerais. It lies south and

east of the city of Belo Horizonte and has operations in the municipalities of Nova Lima, Sabará and Santa Bárbara. This area hosts

numerous other historic and current gold mining operations, as well as open-pit limestone and iron ore operations.

Reorganisation of AGA Mineração was completed during the first half of 2010 and the new company is called AngloGold Ashanti

Córrego do Sítio Mineração (commonly referred to as AGA Mineração). The aim was to capture the operating and financial synergies

of the numerous mining operations in this historical mining district. The company now encompasses the mining operations at Cuiabá,

Lamego, Queiroz, Córrego do Sítio and the former São Bento Mine, which is part of the Córrego do Sítio Complex.

AGA Mineração has mining rights over 61,864ha and ore is sourced from the Cuiabá and Lamego underground mines and processed

at the Cuiabá and Queiroz plants, while the Córrego do Sítio open pit mine has a heap-leaching facility. A conceptual study on the

Nova Lima Sul project, which involves the re-opening of the mothballed Raposos mine, is in progress. All these operations are primarily

gold mines, while sulphur (for the production of sulphuric acid) is a by-product of the Cuiabá and Lamego mining operations.

In 2013 over than US\$19 million was invested in exploration aiming to add Mineral Resource and convert Mineral Resource to

Ore Reserve, as well as improving the understanding of geological potential. More than 91,000m was drilled from underground

and surface.

## MINERAL RESOURCE

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**AGA Mineração**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

11.25

6.11

68.76

2.21

Indicated

16.68

5.42

90.47

2.91

Inferred

37.97

5.60

212.73

6.84

AGA Mineração

Total

65.90

5.64

371.95

11.96

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

AGA Mineração

Category

million

g/t

Tonnes

Moz

Measured

6.29

6.08

38.27

1.23

Indicated

9.63

5.21

50.15

1.61

Inferred

37.68

5.62

211.56

6.80

AGA Mineração

Total

53.59

5.60

299.98

9.64

*Mineral Resource below infrastructure*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

AGA Mineração

Category

million

g/t

Tonnes

Moz



Measured

0.78

4.74

3.72

0.12

Indicated

11.30

4.91

55.44

1.78

Inferred

35.15

5.45

198.69

6.39

AGA Mineração

Total

47.23

5.46

257.85

8.29

*Inclusive Mineral Resource by-product: Sulphur (S)*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained Sulphur**

**AGA Mineração**

**Category**

**million**

**%S**

**Mt Pounds million**

Measured

6.39

5.4

0.34

757.00

Indicated

7.60

5.6

0.43

941.00

Inferred

12.96

6.3

0.82

1,805.00

AGA Mineração

Total

26.95

5.9

1.59

3,502.00

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**AGA Mineração**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Proved

4.98

5.08

25.33

0.81

Probable

7.85

4.58

35.97

1.16

AGA Mineração

Total

12.84

4.78

61.30

1.97

*Ore Reserve by-product: Sulphur (S)*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained Sulphur**

**AGA Mineração**

**Category**

**million**

**%S**

**Mt Pounds million**

Proved

3.69

4.3

0.16

350.00

Probable

4.86

4.6

0.22

494.00

AGA Mineração

Total

8.56

4.5  
 0.38  
 844.00  
*Ore Reserve below infrastructure*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**AGA Mineração**  
**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**

Proved

0.51

3.62

1.83

0.06

Probable

3.11

4.74

14.74

0.47

AGA Mineração

Total

3.62

4.58

16.57

0.53

AGA Mineração Ore Reserve modifying factors and Inferred Mineral Resource in business plan are reported by individual operations in later sections.

11.79

-0.46

-0.11

0.00

0.64

-0.06

0.15

0.00

11.96

Ounces

(millions)

12.01

1.9

11.8

11.7

11.6

11.5

11.4

11.3  
11.2  
11.1

2012

Deple-  
tion

Gold  
price

Cost

Explo-  
ration

Metho-  
dology

Other

Acquisition/

Disposal

2013

**AGA Mineração**

**Mineral Resource reconciliation: 2012 to 2013**

2.33

-0.40

0.11

-0.02

0.00

-0.11

0.05

0.00

1.97

Ounces

(millions)

2.35

2.30

2.25

2.20

2.15

2.10

2.05

2.00

1.95

1.90

1.85

2012

Other

2013

**AGA Mineração**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion

Model

change

Economics

New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal  
AGA MINERAÇÃO

**continued**

0.00 0.25 0.50

1.00

0.75

1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00

Tonnes

above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

6.0

5.5

5.0

4.5

4.0

3.5

3.0

2.5

2.0

9

8

7

6

5

4

3

2

1

Tonnes above cut-off

Ave grade above cut-off

**AGA Mineração**

**Grade tonnage curve – Surface (metric)**

0.0

0.5

1.0

1.5

2.0

2.5

3.0

3.5

4.0

4.5

5.0

Tonnes

above

cut-off

(millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

8.0

7.5

7.0

6.5

6.0

5.5

5.0

4.5

4.0

80

75

70

65

60

55

50

45

40

35

30

25

Tonnes above cut-off

Ave grade above cut-off

**AGA Mineração**

**Grade tonnage curve – Underground (metric)**

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## LOCATION

Córrego do Sítio (CdS) is located 60km east of the city of Belo Horizonte, which is in the Minas Gerais State of Brazil. The southern

portion of this mining complex is referred to as Córrego do Sítio I (CdS I) whilst the northern portion (formerly known as São Bento)

has been renamed Córrego do Sítio II (CdS II).

The mining method for CdS I mine is sub-level caving with rock fill. Each panel consists of 3 levels, with secondary development of

300m from the cross cut to NE direction and 300m from cross cut to SW direction, and stopes of 15m height. The mining sequence is

predominantly bottom/up, though top/down sequences also apply, depending on the position of the primary development in relation

to the secondary development. According to geotechnical guidance, a sill pillar of 4m height is designed between panels, and 4m rib

pillars are used each 30m along the strike.

The blast drilling for stopes is executed via fandrilling in ascending and descending directions. The loading and hauling operations

occur with front-end loaders (LHDs) of 8 tonnes capacity and articulated trucks of 30 tonnes capacity, with a current production rate

of 42,000 tonnes per month.

## GEOLOGY

CdS is located in the eastern part of the lower to middle greenschist facies Archaean Rio das Velhas greenstone belt.

The CdS I and

CdS II gold deposits and associated targets are located in a gold trend that extends for about 14km in a north-easterly direction, from

Grota Funda (CdS I areas) in the south to Jambreiro (São Bento/CdS II areas) in the north. The main gold targets and deposits are

distributed over three trends, namely the CdS trend, the Donana Trend and the Cristina Trend.

The CdS deposits consist of narrow northeast/southwest elongated lenses of mineralisation dipping at 20° to 30°. CdS is an orogenic

type deposit and comprises many hydrothermal lodes with quartz veins and low sulphide content disseminated in the wall rocks.

The deposits are narrow, elongated and folded. In general, the mineralisation consists of sericitic zones and quartz veinlets. The gold

occurs as microscopic or sub microscopic inclusions in arsenopyrite and sometimes an iron-antimony sulphide berthierite (FeSb

2

S

4

).

Other typical sulphide minerals are pyrrhotite, pyrite and chalcopyrite.

## AGA MINERAÇÃO

### **continued**

Córrego do Sítio

Aeromagnetic survey – Córrego do Sítio

MINERAL RESOURCE AND ORE RESERVE REPORT

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**EXPLORATION**

In 2013, more than 34,000m of drilling was executed along CdS trends. The main results came from São Bento mine by the revaluation of São Bento database augmented by deep-hole drilling that, together, confirmed high-grade mineralisation at depth. Exploration was directed on four fronts:

- to support the production plan of the mines;
- to assess high-grade mineralised targets;
- to evaluate the potential of near mine areas; and
- to evaluate the full geological potential of the site.

To support the production plan, a drilling campaign was conducted on the oxidised ore, aiming at Mineral Resource conversion from

Inferred Mineral Resource to Indicated Mineral Resource in areas planned to be mined in the next two years. At underground mines

the drilling also was focused on Mineral Resource conversion at Sangue de Boi, Carvoaria, Laranjeiras and Cachorro Bravo orebodies.

To access high-grade zones and the near-mine areas the geological database was reviewed aiming to improve the understanding of

the CdS II (São Bento) potential. Many drill holes were re-logged and re-sampled. The geological model also was reviewed to support

a future drilling plan. To confirm the potential, one deep hole was executed intercepting high-grade mineralisation below 1,600m

depth. At CdS I the review of Carvoaria geological model was initiated to help in locating higher-grade zones.

To assess the full geological potential of the site, an airborne survey (Magnetic-Radiometric) was completed covering whole CdS area.

Based on the geophysical results the structural geology model is being revaluated to generate new exploration targets.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

m (-x-)

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

AGA Mineração –

Córrego do Sítio

Measured

25 x 25

–

–

–

–

Indicated

30 x 25,

50 x 30,  
50 x 50

—  
—  
—  
—  
—

Inferred

25 x 40,  
30 x 25,  
40 x 100,  
50 x 30,  
50 x 50,  
100 x 50,  
100 x 100,  
200 x 200

—  
—  
—  
—

Grade/Ore Control            3 x 3,  
5 x 4

—  
—  
—  
—  
—

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AGA MINERAÇÃO

**continued**

Córrego do Sítio

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Córrego do Sítio**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

CdS I (Cachorro Bravo)

Measured

1.21

7.09

8.61

0.28

Indicated

0.60

6.84

4.12

0.13

Inferred

0.62

7.13

4.40

0.14

Total

2.43

7.04

17.12

0.55

CdS I (Carvoaria)

Measured

0.12

12.49

1.50

0.05

Indicated

0.59

11.55

6.77

0.22

Inferred

0.44

8.77

3.84

0.12

Total  
1.14  
10.58  
12.11  
0.39  
CdS I (Secondary Orebodies)  
Measured  
0.01  
2.72  
0.03  
0.00  
Indicated  
1.13  
4.84  
5.47  
0.18  
Inferred  
3.93  
3.87  
15.23  
0.49  
Total  
5.07  
4.09  
20.72  
0.67  
CdS I (Laranjeiras)  
Measured  
1.27  
5.38  
6.85  
0.22  
Indicated  
1.09  
5.57  
6.09  
0.20  
Inferred  
2.81  
6.89  
19.33  
0.62  
Total  
5.17  
6.24  
32.28  
1.04  
CdS I (Transitional)  
Measured  
0.27  
6.45

1.75  
0.06  
Indicated  
1.13  
4.41  
4.96  
0.16  
Inferred  
0.89  
2.80  
2.49  
0.08  
Total  
2.29  
4.03  
9.21  
0.30  
CdS I (Oxides)  
Measured  
1.38  
4.10  
5.67  
0.18  
Indicated  
1.90  
3.83  
7.29  
0.23  
Inferred  
1.97  
2.81  
5.54  
0.18  
Total  
5.26  
3.52  
18.49  
0.59  
CdS II (Pinta Bem)  
Measured  
—  
—  
—  
—  
Indicated  
0.03  
1.85  
0.06  
0.00  
Inferred  
0.17

3.60  
0.62  
0.02  
Total  
0.20  
3.33  
0.68  
0.02  
CdS II (Sangue de Boi)  
Measured  
0.05  
6.99  
0.36  
0.01  
Indicated  
0.74  
6.32  
4.70  
0.15  
Inferred  
1.66  
5.91  
9.82  
0.32  
Total  
2.46  
6.06  
14.88  
0.48  
CdS II (Sao Bento Mine Resources)  
Measured  
—  
—  
—  
—  
Indicated  
0.51  
6.83  
3.48  
0.11  
Inferred  
4.12  
5.91  
24.36  
0.78  
Total  
4.63  
6.01  
27.84  
0.90  
CdS II (Pari)

Measured

—  
—  
—  
—

Indicated

—  
—  
—  
—

Inferred

2.68

3.15

8.44

0.27

Total

2.68

3.15

8.44

0.27

CdS II (Secondary Orebodies)

Measured

—  
—  
—  
—

Indicated

—  
—  
—  
—

Inferred

0.25

3.64

0.92

0.03

Total

0.25

3.64

0.92

0.03

MINERAL RESOURCE AND ORE RESERVE REPORT

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*Inclusive Mineral Resource* continued  
**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Córrego do Sítio**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

CdS II (Transitional)

Measured

–

–

–

–

Indicated

0.00

2.92

0.01

0.00

Inferred

0.08

3.64

0.31

0.01

Total

0.09

3.62

0.32

0.01

CdS II (Oxides)

Measured

–

–

–

–

Indicated

0.39

3.51

1.38

0.04

Inferred

1.24

3.42

4.23

0.14

Total

1.63

3.44

5.61  
 0.18  
 Córrego do Sítio  
 Total  
 33.30  
 5.06  
 168.62  
 5.42  
*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Córrego do Sítio**  
**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**  
 Measured

2.84  
 5.88  
 16.67  
 0.54

Indicated

5.77  
 5.30  
 30.58  
 0.98

Inferred

20.86  
 4.77  
 99.54  
 3.20

Córrego do Sítio  
 Total

29.47  
 4.98  
 146.79  
 4.72

The Exclusive Mineral Resource includes all of the CdS areas. It also includes the Sangue de Boi, Cachorro Bravo, Laranjeiras and Carvoaria underground deposits. The Inferred Mineral Resource that has been included in the oxide pit shells and is also part of the Exclusive Mineral Resource.

**ORE RESERVE**  
*Ore Reserve*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**

**Córrego do Sítio**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

CdS I (Cachorro Bravo)

Proved

0.36

4.68

1.71

0.05

Probable

0.25

4.29

1.08

0.03

Total

0.62

4.52

2.79

0.09

CdS I (Carvoaria)

Proved

0.10

7.17

0.69

0.02

Probable

0.63

6.27

3.96

0.13

Total

0.73

6.39

4.65

0.15

CdS I (Laranjeiras)

Proved

0.28

4.49

1.25

0.04

Probable

0.34

4.15

1.42

0.05

Total

0.62

4.30  
2.67  
0.09  
CdS I (Oxides)  
Proved  
0.49  
2.64  
1.30  
0.04  
Probable  
0.99  
2.10  
2.08  
0.07  
Total  
1.49  
2.28  
3.38  
0.11  
CdS II (Sangue de Boi)  
Proved  
0.05  
4.90  
0.26  
0.01  
Probable  
0.74  
4.74  
3.49  
0.11  
Total  
0.79  
4.76  
3.75  
0.12  
CdS II (Oxides)  
Proved  
—  
—  
—  
—  
Probable  
0.04  
2.46  
0.09  
0.00  
Total  
0.04  
2.46  
0.09  
0.00

Córrego do Sítio

Total

4.28

4.05

17.33

0.56

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AGA MINERAÇÃO

**continued**

Córrego do Sítio

*Ore Reserve modifying factors*

**31 December 2013**

Córrego do Sítio

**Gold**

**price**

**BRL/oz**

**Cut-off**

**value**

**g/t Au**

**Stoping**

**width**

**cm**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

**on g/t)**

**MCF**

**%**

**MetRF**

**%**

CdS I (Oxides)

2,551

0.70

—

30.0

0.1

100.0

100.0

100.0

100.0

95.0  
 88.0  
 CdS II (Oxides)  
 2,551  
 0.65  
 –  
 30.0  
 0.1  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 92.0  
 87.0  
 CdS I (Cachorro Bravo)  
 2,551  
 3.42  
 321.0  
 30.0  
 –  
 92.0  
 107.0  
 100.0  
 100.0  
 90.0  
 87.0  
 CdS I (Carvoaria)  
 2,551  
 3.42  
 318.0  
 30.0  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 90.0  
 87.0  
 CdS I (Laranjeiras)  
 2,551  
 3.42  
 316.0  
 30.0  
 –  
 92.0  
 107.0  
 100.0  
 100.0  
 90.0  
 94.3  
 CdS II (Sangue de Boi)

2,551  
 4.33  
 321.0  
 10.0  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 92.0  
 88.0

*Inferred Mineral Resource in business plan  
 as at 31 December 2013*

**Tonnes  
 million  
 Grade  
 g/t  
 Contained gold  
 Córrego do Sítio  
 Tonnes  
 Moz  
 Comment**

CdS I (Oxides)  
 0.45  
 2.11  
 0.96  
 0.03

–  
 CdS I (Cachorro Bravo)  
 0.32  
 4.64  
 1.50  
 0.05

–  
 CdS I (Carvoaria)  
 0.42  
 5.36  
 2.24  
 0.07

–  
 CdS I (Laranjeiras)  
 2.20  
 4.36  
 9.59  
 0.31

–  
 CdS II (Oxides)  
 0.02  
 3.20  
 0.05  
 0.00



—  
CdS II (Sangue de Boi)

0.65

5.03

3.28

0.11

—  
Total

4.06

4.34

17.61

0.57

The Inferred Mineral Resource has been included in the mine design, but not in the mine plan. Inferred Mineral Resource has been

located in the mining panels in the lower areas of some sulphide deposits such as Cachorro Bravo, Laranjeiras, Carvoaria and Sangue de Boi.

**COMPETENT PERSONS**

**Category**

**Competent Person**

**Professional  
organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Leonardo Hiram Nunez

MAusIMM

312 268

8 years

BSc (Geology)

MSc (Mineral Resource Evaluation)

Ore Reserve

Renato Queiroz de Castro

MAusIMM

312 329

9 years

BSc (Mining Engineering)

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## AGA MINERAÇÃO

### **continued**

Cuiabá

#### LOCATION

Cuiabá Mine is located near Sabará, southeast of the city of Belo Horizonte within the mining district referred as the Iron Quadrangle.

This region is the second largest producer of iron, gold and manganese in Brazil. The first mining works in the area were carried out

by artisanal miners starting in 1740. The mine was acquired by Saint John Del Rey Mining Company Ltd in 1834.

Research work and

drift development were resumed in 1977, culminating with the reopening of the mine in 1985. In 1996, the company became a wholly-

owned subsidiary of the Anglo American Group, and in 1999, its ownership was transferred to the holding company AngloGold (now

AngloGold Ashanti), where it remains to this day.

The Cuiabá Expansion project was approved in 2005 and ramp-up ore production started in 2007. The refrigeration plant was started-

up in 2010 to allow mining below Level 16. Since 2011, Cuiabá Mine has changed the mining method from cut-and-fill to long-hole;

aiming for more productivity, selectivity and safer conditions.

#### GEOLOGY

Cuiabá mine has gold mineralisation associated with sulphides and quartz veins in banded iron formation (BIF) and volcanic sequences.

The ore appears strongly stratiform due to the selective sulphidation of the iron-rich layers. Steeply-plunging shear zones tend to

control the ore shoots, which commonly plunge parallel to intersections between the shears and other structures.

Apparent intersection of thrust faults with tight isoclinal folds in a ductile environment tends to control the mineralisation structures.

The host rocks are primarily BIF and secondarily mafic volcanics (mainly basaltic). Mineralisation is believed to be due to the interaction

of low salinity, carbon dioxide rich gold-bearing fluids with the high-iron BIF, basalts and carbonaceous graphitic schists. Sulphide

mineralisation consists of pyrite and pyrrhotite with subordinate arsenopyrite and chalcopyrite; the latter tends to occur as a late-stage

fracture fill and is not associated with gold mineralisation. Wallrock alteration is typically carbonate, potassic and silicic, showing clear

zonation in the underground environment. The ore is mainly concentrated in the silicic and sulphidation zones, inside the BIF or in

potassic (and sericitic) zones near the basalts. The main deposits at Cuiabá are as follows:

- normal limb: Fonte Grande Sul and Serrotinho; and
- overturned limb: Balancão, Galinheiro and Canta Galo.

Viana

Serrotinho

Surucucu

Galinheiro

Extensão

Galinheiro Sul

Galinheiro FW

Balancão

Canta Galo

Fonte Grande

Fongte Grande Sul

NV

Scale

0 50 100 150m

Cuiabá geological map

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## EXPLORATION

In 2013 almost 29,000m of drilling was completed. This investment is part of a fast-track exploration programme that aims to

investigate the down plunge continuity of the main mineralised zones below Level 21 and to define the potential of satellite deposits

along the entire geological structure. The exploration programme was divided into underground and surface drilling.

Underground

drilling was executed with two rigs, focused on Mineral Resource addition in the Serrotinho deposit bellow Level 17 and Mineral

Resource conversion for Fonte Grande Sul, Galinheiro and Balancão between Levels 16-17. Surface drilling aims to confirm the

continuity of main deposits (Fonte Grande Sul, Serrotinho, Galinheiro and Balancão) below Level 21 to support the production plan.

Deep drilling has been executed with two rigs which can drill down to 2,600m (NQ) and 3,300m (HQ). In deep drilling, wedging has

been employed to control the natural deviation that affects trajectory of the drill hole as well as to drill daughter holes from parent holes.

For 2014 exploration will be reinforced by the addition of one more underground drill rig to execute deeper holes.

Apart from the

addition and conversion of Mineral Resource for the main deposits, a drilling campaign will be executed for satellite deposits, mainly

Galinheiro Footwall and Viana.

## PROJECTS

The Conceptual Study for Cuiabá Deep is in progress, including the following studies: exploration, rock engineering, transport

alternatives, infrastructure, tailing dam and metallurgy. An output of the Conceptual Study will be a set of recommendations that must

be addressed in order to sustain mine operations.

Additionally, a simulation exercise considering different alternatives for the mine transport system in the Cuiabá Mine is being carried

out, considering four alternatives to determine the most cost-effective system for deepening the mine. In accordance with AngloGold

Ashanti's guidelines, in the short term the focus is on carrying out engineering studies to optimise operating costs and improve the

asset value.

## MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

### **Type of drilling**

#### **Mine/Project**

#### **Category**

#### **Spacing**

#### **m (-x-)**

#### **Diamond**

#### **RC**

#### **Blast-hole Channel**

#### **Other**

#### **Comments**

AGA Mineração –

Cuiabá

Measured

30 x 60

—  
—  
—

Drillhole inclination  
reviewed to reflect  
current value

Indicated  
30 x 60

—  
—  
—  
—

Inferred  
80 x 120

—  
—  
—  
—

Grade/Ore Control            5 x 5

—  
—  
—  
—

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AGA MINERAÇÃO

**continued**

Cuiabá

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Cuiabá**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Main Deposits

Measured

1.46

11.12

16.23

0.52

Indicated

0.94

9.15

8.63

0.28

Inferred

5.10

9.09

46.38

1.49

Total

7.50

9.49

71.24

2.29

Narrow Veins

Measured

1.50

5.67

8.52

0.27

Indicated

4.02

5.31

21.35

0.69

Inferred

4.06

6.12

24.84

0.80

Total  
 9.58  
 5.71  
 54.71  
 1.76

Secondary areas

Measured

0.72

6.37

4.58

0.15

Indicated

0.17

6.78

1.15

0.04

Inferred

0.32

6.08

1.92

0.06

Total

1.20

6.35

7.64

0.25

Cuiabá

Total

18.29

7.30

133.59

4.29

*Exclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Cuiabá**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

1.43

8.51

12.16

0.39

Indicated

1.24

6.66



8.24  
 0.27  
 Inferred  
 9.47  
 7.72  
 73.14  
 2.35  
 Cuiabá  
 Total  
 12.14  
 7.70  
 93.54  
 3.01

This Exclusive Mineral Resource is Inferred Mineral Resource that is in the process of being upgraded with conversion drilling.

The Exclusive Mineral Resource is located below infrastructure, starting on Level 17 (at Fonte Grande Sul and Serrotinho) and Level 14

(at Balancão, Galinheiro and Canta Galo). In addition, secondary areas consisting of old stoping panels and satellite deposits are also

considered Exclusive Mineral Resource.

**ORE RESERVE**

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Cuiabá**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Main Deposits

Proved

1.07

9.11

9.75

0.31

Probable

0.71

7.74

5.53

0.18

Total

1.79

8.56

15.28

0.49

Narrow Veins

Proved

1.18

4.81  
5.66  
0.18  
Probable  
3.17  
4.73  
15.01  
0.48  
Total  
4.35  
4.75  
20.67  
0.66  
Cuiabà  
Total  
6.13  
5.86  
35.95  
1.16

*Ore Reserve modifying factors*

**31 December 2013**

**Cuiabà**

**Gold**

**price**

**BRL/oz**

**Cut-off**

**value**

**g/t Au**

**Stoping**

**width**

**cm**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

(based  
on g/t)

MCF

%

MetRF

%

Main Orebodies

2,551

5.11

800.0

8.0

—

100.0

100.0

88.0

92.0

94.5

93.0

Narrow Veins

2,551

3.81

400.0

0.4

—

100.0

100.0

88.0

92.0

94.5

93.0

MINERAL RESOURCE AND ORE RESERVE REPORT 2013

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*Inferred Mineral Resource in business plan*  
**as at 31 December 2013**

**Tonnes  
million**

**Grade  
g/t**

**Contained gold  
Cuiabá**

**Tonnes Moz**

**Comment**

Main Deposits

0.11

6.18

0.67

0.02

Part of deposit FGS Levels 15 and 16 and SER  
deposit Levels 15, 16 and 17

Narrow Veins

0.28

5.53

1.54

0.05

Part of deposits BAL and GAL from Level 12 to 15

Total

0.39

5.71

2.21

0.07

Inferred Mineral Resource is not transformed into Ore Reserve, but may be included for the purpose of defining the business plan.

**COMPETENT PERSONS**

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Rodrigo Martins

MAusIMM

311 050

9 years

BSc (Geology)

MSc (Geology)

Ore Reserve

Paulo Peruzzo

MAusIMM

312 703

24 years

BSc (Mining Engineering)

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AMERICAS

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## LOCATION

Lamego is located in the north-western part of the Iron Quadrangle metallogenetic province, close to Cuiabá gold mine. The mine is located to the east of the city of Belo Horizonte, which is in the Minas Gerais State in the south-eastern region of Brazil. The mining method is a combination of cut-and-fill and room-and-pillar, which springs from the need to leave pillars in stopes that have a large mining area, exceeding the 20-m span designed by the geotechnical studies. It is also a method that permits selectivity, but it has constraints in terms of productivity. Recently, detailed infill drilling provided information for a new method. The trial of a 'long-blind-hole-stoping' bulk mining method is in progress.

## GEOLOGY

The gold mineralisation at Lamego is characterised by deposits associated with two horizons of chemical sedimentary rocks: Banded

Iron Formation (BIF) and metachert (MCH), and also with shear zones containing abundant quartz veinlets. The proportions of these lithotypes vary substantially from one deposit to another. In the BIF, sulphide mineralisation is associated with gold, whilst in the MCH and quartz veins the gold occurs either as native gold or in sulphides. The mineralisation is characterised by sulphidation in the form of disseminated sulphide bands or as fracture filling and, more rarely, as massive sulphide hosted in BIF/MCH.

Sulphide bands are rare in MCH. The plunge of the mineralised zones coincides with both the fold axis of the first two structural events and the mineral stretching lineation.

The Arco da Velha deposit is located on the eastern side of a large fold and extends for 250m along the strike. In the north-eastern portion the mineralisation is concentrated in the MCH, whilst in the south-western portion it is concentrated in the BIF.

Carbonaceous phyllite and chlorite-sericite schists occur in the hangingwall contact, while hydrothermally-altered meta-andesite occurs in the footwall.

The Cabeça de Pedra deposit is located in the hinge region of the large Lamego structure. The area which has shown the best economic potential contains BIF and MCH (80% of the area consists of BIF and the remaining 20% is MCH). The presence of faulting makes the stratigraphy complex in some areas. The carbonaceous phyllite and chlorite/sericite schists normally occur in the hangingwall and meta-andesites in the footwall.

Carruagem is the main deposit and it is located close to the junction of two fold limbs in the northeast portion of the major structure.

It is a boudinaged body with two large disruptions in the structure (pinch and swell), followed by eastward displacement. The gold mineralisation is mainly associated with hydrothermal zones within the BIF.

## EXPLORATION

In 2013 18,500m of drilling focused on Mineral Resource conversion as completed. Exploration at Lamego Mine was focused on the Carruagem deposit. A surface drilling campaign was completed to confirm the continuity of mineralisation at Level 5 which will support mine development in that area. Other surface drilling was executed to test changes in the plunge of Carruagem below Level 7.

Underground drilling was executed aimed at Mineral Resource conversion for Carruagem around Level 6 and 6.01 and similarly Queimada for Level 5.

Exploration in 2014 is planned to be reinforced with the arrival of one underground rig that will be dedicated to Mineral Resource addition and conversion for the Queimada deposit. It will also aim to confirm the continuity of Arco da Velha on the reverse limb. Finally, surface drilling of the down-plunge extents of the Carruagem deposit below Level 7 is planned.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

AGA Mineração –

Lamego

Measured

20 x 10

–

–

–

Grid spacing 10 x 12 at

Level 5.1

Indicated

125 x 25

–

–

–

–

–

Inferred

300 x 50

–

–

–

–

–

Grade/Ore Control                      2 x 3

–

–

–

–

AGA MINERAÇÃO

**continued**

Lamego

MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Lamego**  
**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**  
 Arco da Velha

Measured  
 0.09  
 5.05  
 0.47  
 0.01

Indicated  
 0.29  
 4.26  
 1.23  
 0.04

Inferred  
 0.38  
 3.34  
 1.26  
 0.04

Total  
 0.76  
 3.90  
 2.96  
 0.10

Cabeça de Pedra

Measured  
 0.30  
 4.26  
 1.26  
 0.04

Indicated  
 1.13  
 3.57  
 4.04  
 0.13

Inferred  
 0.62  
 4.56  
 2.81  
 0.09

Total  
 2.04  
 3.97

8.11  
0.26  
Carruagem  
Measured  
2.15  
4.58  
9.83  
0.32  
Indicated  
0.65  
4.81  
3.15  
0.10  
Inferred  
1.41  
5.05  
7.13  
0.23  
Total  
4.22  
4.77  
20.12  
0.65  
Secondary areas  
Measured  
0.17  
5.02  
0.86  
0.03  
Indicated  
0.38  
5.87  
2.26  
0.07  
Inferred  
1.09  
3.90  
4.23  
0.14  
Total  
1.64  
4.48  
7.35  
0.24  
Lamego  
Total  
8.66  
4.45  
38.53  
1.24  
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SECTION ONE

*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Lamego**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**

Measured  
 1.49  
 4.83  
 7.19  
 0.23

Indicated  
 1.65  
 4.24  
 6.99  
 0.22

Inferred  
 3.20  
 4.46  
 14.26  
 0.46

Lamego  
 Total  
 6.34  
 4.49  
 28.44  
 0.91

**ORE RESERVE**

*Ore Reserve*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Lamego**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**

Arco da Velha  
 Proved  
 0.09  
 2.79  
 0.24

0.01  
 Probable

0.17  
2.98  
0.52  
0.02  
Total  
0.26  
2.92  
0.76  
0.02  
Cabeca de Pedra  
Proved  
0.08  
3.30  
0.25  
0.01  
Probable  
0.34  
3.03  
1.04  
0.03  
Total  
0.42  
3.08  
1.29  
0.04  
Carruagem  
Proved  
1.28  
3.28  
4.21  
0.14  
Probable  
0.46  
3.81  
1.75  
0.06  
Total  
1.74  
3.42  
5.96  
0.19  
Lamego  
Total  
2.42  
3.31  
8.02  
0.26  
*Ore Reserve modifying factors*  
**31 December 2013**  
**Lamego**  
**Gold**

**price**  
**BRL/oz**  
**Cut-off**  
**value**  
**g/t Au**  
**Stoping**  
**width**  
**cm**  
**Dilution**  
**%**  
**Dilution**  
**g/t**  
**%**  
**RMF**  
**(based**  
**on**  
**tonnes)**  
**%**  
**RMF**  
**(based**  
**on g/t)**  
**%**  
**MRF**  
**(based**  
**on**  
**tonnes)**  
**%**  
**MRF**  
**(based**  
**on g/t)**  
**MCF**  
**%**  
**MetRF**  
**%**  
 Arco da Velha  
 2,551  
 2.57  
 350.0  
 5.0  
 –  
 83.8  
 69.3  
 105.8  
 87.0  
 94.5  
 93.0  
 Cabeça de Pedra  
 2,551  
 2.91  
 350.0  
 5.0

–  
 83.8  
 69.3  
 105.8  
 87.0  
 94.5  
 93.0  
 Carruagem  
 2,551  
 2.57 1,500.0  
 5.0

–  
 83.8  
 69.3  
 105.8  
 87.0  
 94.5  
 93.0

*Inferred Mineral Resource in business plan  
 as at 31 December 2013*

**Tonnes  
 million  
 Grade  
 g/t  
 Contained gold  
 Lamego  
 Tonnes Moz  
 Comment**

Cabeca de Pedra  
 0.21  
 3.05  
 0.63  
 0.02

–  
 Carruagem  
 0.13  
 3.08  
 0.41  
 0.01

–  
 Total  
 0.34  
 3.06  
 1.05  
 0.03

Inferred Mineral Resource is not converted into Ore Reserve, but may be included for the purpose of defining the business plan.

**COMPETENT PERSONS**

**Category  
 Competent Person  
 Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Rodrigo Martins

MAusIMM

311 050

9 years

BSc (Geology)

MSc (Geology)

Ore Reserve

Renato Queiroz de

Castro

MAusIMM

312 329

9 years

BSc (Mining Engineering)

AGA MINERAÇÃO

**continued**

Lamego

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AMERICAS

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## AGA MINERAÇÃO

### **continued**

Nova Lima Sul

### LOCATION

The Nova Lima Sul project is located in the western portion of the Rio das Velhas greenstone belt, and all the exploration targets are within a 16km radius of the Queiroz metallurgical plant. The project was recently incorporated by Cuiabá-Queiroz brownfields project due to new organisational structure in the Iron Quadrangle region. Nova Lima Sul exploration targets comprise mothballed operations (Raposos underground mine), old mines (Mina Grande, Morro da Glória, Bicalho, Faria, Bela Fama), as well as old prospects (Luzia da Mota, Limoeiro) and several old surface workings (Saboeiro Rasgão, Urubu and Luzia's Mina Grande). The main exploration goal is to add to and convert the Mineral Resource in order to fill the Queiroz plant's spare capacity.

### GEOLOGY

The Nova Lima Sul targets are situated in the south-western portion of the Iron Quadrangle in the Minas Gerais state of Brazil. The area is located in the volcanic sedimentary sequence of the Nova Lima Group (Rio das Velhas Supergroup), within the Rio das Velhas greenstone belt. The Nova Lima Group hosts the main gold mines and mineral occurrences in the Iron Quadrangle and consists of a basal tholeiitic-komatiitic volcanic unit with abundant chemical sedimentary rocks, which is overlain by a volcaniclastic unit with associated felsic volcanic rocks. This is in turn overlain by an upper clastic unit. The mineralised deposits in the Rio das Velhas greenstone belt are structurally controlled and are associated with hydrothermal alterations along D2 thrust shear zones, on a regional scale. The mineralisation is epigenetic and the most common mineralisation styles at Nova Lima Sul are massive, banded and disseminated sulphides hosted in banded iron formations (BIF) and lapa seca (albitised hydrothermal rocks). Mapped deposit dimensions vary in thickness from around 0.5m to 20m and can be more than 5,000m in length (along plunge direction). The plunge is defined by the stretching lineation and it is parallel to the fold axis of the first two regional deformation events.

### Geology of Raposos

The Raposos sequence is interpreted as a ductile thrust that occurred during the first deformation event. The main mineralised area is associated with an anticline of the same event. The stratigraphic sequence, repeated by folds, has ultramafics at the base, overlain by komatiitic basalts, basalts and andesites with layers of BIF. Pelites and metavolcaniclastic occur at the top of the sequence. The BIF is oxide facies (magnetite and quartz), with carbonatisation in the mineralised areas. The mineralisation is primarily located in the BIF and surrounded by concentric hydrothermal alteration zones consisting of sericitisation, carbonatisation and chloritisation.

### Geology of Morro da Glória

In the Morro da Glória area the rocks consist of komatiitic ultramafics, graphite phyllite, felsic metavolcaniclastic associated with metapelites and several layers of BIF.

The large-scale folds at Raposos and Morro da Glória are anticlines and the mineralisation is associated with these folds and shear zones, surrounded by concentric hydrothermal alteration zones consisting of sericitisation, carbonisation and chloritisation. BIF is oxide facies (magnetite and quartz), with carbonatisation in the mineralised areas. The gold is associated with sulphides and quartz veins in the BIF and altered schists.

#### EXPLORATION

In 2013 no exploration was completed in the Nova Lima Sul region.

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MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

AGA Mineração –

Nova Lima Sul

Measured

15 x 15,

30 x 30

–

–

–

Surface channel sampling  
and DD plus 34 Level open  
at Raposos mine

Indicated

30 x 30,

60 x 60

–

–

–

Surface channel sampling  
and DD plus 34 Level open  
at Raposos mine

Inferred

60 x 60,

100 x 100

–

–

–

Channel sampling in the  
levels at Raposos mine  
and DD

Grade/Ore Control                      3 x 3

–

–

–

–

–

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**  
**Nova Lima Sul**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Morro da Glória  
 Measured  
 –  
 –  
 –  
 –  
 Indicated  
 –  
 –  
 –  
 –  
 Inferred  
 1.26  
 6.52  
 8.21  
 0.26  
 Total  
 1.26  
 6.52  
 8.21  
 0.26  
 Raposos  
 Measured  
 0.18  
 7.01  
 1.29  
 0.04  
 Indicated  
 0.41  
 6.85  
 2.80  
 0.09  
 Inferred  
 2.25  
 6.44  
 14.50  
 0.47  
 Total  
 2.84  
 6.53  
 18.59  
 0.60  
 Luzia da Mota  
 Measured

0.35  
2.72  
0.96  
0.03  
Indicated  
0.56  
2.75  
1.54  
0.05  
Inferred  
0.63  
3.03  
1.90  
0.06  
Total  
1.54  
2.86  
4.41  
0.14  
Nova Lima Sul  
Total  
5.65  
5.53  
31.21  
1.00

The Nova Lima Sul project currently does not have any declared Ore Reserve and the Exclusive and Inclusive Mineral Resource numbers are therefore identical.

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Rodrigo Martins

MAusIMM

311 050

9 years

BSc (Geology)

MSc (Geology)

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AMERICAS

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## LOCATION

Since May 2012, Serra Grande has been wholly owned by AngloGold Ashanti and controls, or has an interest or agreements in, approximately 48,207ha in and around the Crixás mining district in the north-western area of the Goiás in central Brazil. Serra Grande is located 5km from the city of Crixás and 420km from the Brazilian capital, Brasilia. The Serra Grande operation comprises three underground mines, namely Mina III (Orebody IV), Mina Nova (including Pequizão) and Palmeiras, and one open pit (100m at depth), which represents the outcrop of mineralised Superior (massive sulphides) and Inferior (quartz vein with visible gold) zones. The processing circuit is equipped with grinding, leaching, filtration, precipitation and smelting facilities, and is currently able to process 1.20Mtpa, expected to increase to 1.28Mtpa with operational improvements in 2014. Three mining methods are used in underground mines: cut and fill, sub-level stoping and room and pillar.

## GEOLOGY

The Serra Grande gold deposits are hosted in a typical greenstone belt sequence. The host rocks belong to the Crixás Group of the Upper Archean in the Crixás greenstone belt. The Crixás greenstone belt is surrounded by granitic gneiss terrains from the Anta and Caiamar complexes and metasedimentary rocks from the Santa Terezinha Group, which is part of the magmatic arc of Goiás. Two main deformation events have been identified in the region. The first event is a thrust event (east over west, called D1). This event was responsible for stacking and inverting the stratigraphic sequence. The second event (D2) was the thrusting of the Santa Terezinha sequence over the Crixás greenstone belt, folding the rocks (F2) and generating the structures that control the gold mineralisation, generally parallel to the fold axis. The mineralisation is associated with quartz veins, massive to disseminated sulphides in metasedimentary, metavolcaniclastic rocks and metabasalts, with different degrees of hydrothermal alteration. The mineralisation is controlled by regional shear-thrust structures (named Structure II, III, IV and V and Palmeiras), and the mineralisation occurs as stacked lenses, generally concentrated in the same high deformation positions (with folds and disruptions) in the mentioned structures. Geometry of the mineralised deposits is typically complex, with pinch and swell, folded and boudinage shapes, dipping from 10° to 25° and with greatest continuity along northwest-plunging structures (azimuth true 290). Greenstone belt regional tectonics consists of a dome and keel structure and Cajueiro deposit was defined into this structure in 2012, 7km from the current operations. Encouraging drilling intersections added to other exploration works demonstrate potential for Crixás North greenstone belt related targets. In Structure II the mineralisation is arsenopyrite associated with quartz as veinlets in carbonaceous metapelite as seen in the new deposit, Cajueiro. In Structure III, the mineralisation is located in quartz veins that are hosted in carbonaceous schists, representing the highest gold grades (>8 g/t, with free gold), as seen in Mina III (Inferior zone) and Ingá. This structure is also associated with



massive and disseminated sulphides (mainly pyrrhotite and arsenopyrite) that occur in a sequence of hydrothermally-altered schists.

The mineralisation of Structure IV comprises quartz veinlets and disseminated sulphide (pyrrhotite) hosted in graphite schists as at

Pequizão. The mineralised zones are hosted in sericite and chlorite schists with massive and disseminated sulphide concentrated in

folded zones. The ore shoots plunge to the northwest and the dips vary between 6° and 35°. Palmeiras structure is associated with

hydrothermal alteration of metabasalts, with sericite, chlorite, carbonate and massive sulphides (pyrrhotite).

The main producing areas are the Palmeiras Mine in the southern portion of the mine camp, Pequizão accessed from Mina Nova, Mina III

(orebody IV) and the open pit (outcrop of Mina III). Exploration strategy is focusing on high-grade targets. In 2013 new high-grade

mineralisation (average > 8g/t) was identified beneath Pequizão. This new target, named Ingá, is in preliminary exploration stage and

shows visible gold in the quartz vein of Structure III, the same structure that hosts Mina III, and has been declared as new Inferred

Mineral Resource in 2013.

Regional greenstone tectonics are being reassessed and a dome and keel (saddle) regional structure has been identified. Efforts are

being undertaken to map the greenstone belt in more detail to confirm this idea. Once the implications are better understood this

model could suggest the repetition of the mineralisation towards the NW. Structures II, III, IV and V seem to deflect towards the NW

and even N-NE, generating new prospective areas and explaining old anomalies previously poorly understood.

SERRA GRANDE

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## EXPLORATION

The fast-track exploration programme at Serra Grande has added 1.5Moz of new Inferred Mineral Resource to the Serra Grande portfolio in the past three years. Over the next two years exploration will seek to add further high-grade ore, to increase the average grade of the Ore Reserve and further extend the life of the operation. This programme, which began in 2011 and continued in 2013, is aligned with the strategy of adding new high-grade Mineral Resource in new targets, such as Inga and Crixás North, as well as extending the life of currently mined deposits such as Pequizão, Palmeiras, Orebody IV and Mina Nova. In 2013, 58,000m of drilling was completed, and added to Serra Grande portfolio at an average grade of 8.19g/t (Inga Mineral Resource). In Serra Grande, the currently known deposits generally were thought to have mineralisation concentrated between depths of 200 and 400m. However, this theory was challenged and in 2013 new high grade intercepts were obtained in the quartz vein of Structure III, at a depth of 650m, just beneath the current Structure IV of the Pequizão deposit. This new target is named Ingá and is being drilled on a grid 100 x 50m. It is in the initial stage of exploration, but the first positive results with high grades in quartz veins (>8g/t), potentially similar to the visible gold in gold-bearing quartz veins of Mina III, are encouraging. In parallel, new regional targets are being generated through geochemistry, geophysics and geological mapping. These bring important new drilling targets towards the south and north extensions of the greenstone belt. More information will be collected by the scheduled exploration in 2014 and 2015.

## PROJECTS

Based on the first results from the Inga Inferred Mineral Resource, a scoping study is being developed to identify possible future economic mining options. Consequently, the mining and metallurgical teams have started to study options to develop declines and horizontal drifts from current infrastructure of either Mina III or Mina Nova, as well as analysing mining methods and mining recovery based on a first preliminary study. The preliminary mine design has been generated on the Inferred Mineral Resource model.

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MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Serra Grande

Measured

10 x 10,

20 x 10

–

–

Other: percussion drilling

Indicated

10 x 20,

20 x 50

–

–

–

–

Inferred

50 x 50,

50 x 100,

100 x 50

–

–

–

–

–

Grade/Ore Control                      2 x 2

–

–

–

–

–

*Inclusive Mineral Resource*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Serra Grande**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Mina Nova

Measured

3.01

3.41

10.27

0.33

Indicated

1.57

3.11

4.89

0.16

Inferred

2.23

3.31

7.40

0.24

Total

6.82

3.31

22.56

0.73

Mina III

Measured

1.15

4.66

5.34

0.17

Indicated

1.05

4.62

4.85

0.16

Inferred

1.82

4.88

8.89

0.29

Total

4.02

4.75

19.08

0.61

Palmeiras

Measured

0.30

6.84

2.06

0.07

Indicated

0.35

5.58  
1.94  
0.06  
Inferred  
0.86  
4.88  
4.19  
0.13  
Total  
1.51  
5.44  
8.19  
0.26  
Pequizao  
Measured  
0.68  
5.50  
3.77  
0.12  
Indicated  
1.38  
4.71  
6.50  
0.21  
Inferred  
4.50  
3.83  
17.25  
0.55  
Total  
6.56  
4.19  
27.51  
0.88  
Cajueiro  
Measured  
—  
—  
—  
—  
Indicated  
—  
—  
—  
—  
Inferred  
1.22  
2.89  
3.52  
0.11  
Total

1.22  
2.89  
3.52  
0.11  
Open pit  
Measured  
0.28  
3.20  
0.88  
0.03  
Indicated  
0.34  
3.11  
1.04  
0.03  
Inferred  
0.13  
1.88  
0.24  
0.01  
Total  
0.74  
2.93  
2.16  
0.07  
Inga  
Measured  
—  
—  
—  
—  
Indicated  
—  
—  
—  
—  
Inferred  
1.18  
8.19  
9.65  
0.31  
Total  
1.18  
8.19  
9.65  
0.31  
Total stockpiles  
Measured  
0.19  
1.65  
0.31

0.01  
Indicated

—  
—  
—  
—

Inferred

—  
—  
—  
—

Total

0.19

1.65

0.31

0.01

Serra Grande

Total

22.23

4.18

92.98

2.99

SERRA GRANDE

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

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*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Serra Grande**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**

Measured  
 0.17  
 5.99  
 1.03  
 0.03

Indicated  
 1.31  
 3.60  
 4.72  
 0.15

Inferred  
 9.67  
 4.04  
 39.07  
 1.26

Serra Grande  
 Total  
 11.15  
 4.02  
 44.83  
 1.44

The Exclusive Mineral Resource is located very close to the Serra Grande site, mostly inside the operational mine footprint. The Mineral Resource can be divided into three categories:

- Inferred Mineral Resource of operating mines, every year partially reclassified through conversion drilling (infill) in accordance of the production plan (BP2014). Represents 44% of total;
- Resources not feasible economically for the current year BP2014, representing 19% of Exclusive Mineral Resource; and
- Resources that need economic studies representing around 37% of the Exclusive Mineral Resource. The exception to the location is the Cajueiro deposit, located 10km from the Serra Grande site.

*Mineral Resource below infrastructure*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**



**Serra Grande**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Measured

–

–

–

–

Indicated

–

–

–

Inferred

10.94

4.46

48.82

1.57

Serra Grande

Total

10.94

4.46

48.82

1.57

2.79

-0.18

-0.01

0.00

0.31

0.08

0.00

0.00

2.99

Ounces

(millions)

3.00

2.95

2.90

2.85

2.80

2.75

2.70

2.65

2.60

2.55

2012

Deple-

tion

Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013

**Serra Grande**

**Mineral Resource reconciliation: 2012 to 2013**

0.76  
-0.14  
-0.01  
-0.01  
-0.03  
0.00  
-0.01  
-0.00  
0.57  
Ounces  
(millions)

0.78  
0.74  
0.70  
0.66  
0.62  
0.58  
0.54  
2012  
Other  
2013

**Serra Grande**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New  
ounces  
from  
Projects  
Scope  
Change  
Acquisition/  
Disposal

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ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**Serra Grande**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Mina Nova

Proved

1.80

2.22

3.99

0.13

Probable

0.42

2.76

1.16

0.04

Total

2.22

2.32

5.15

0.17

Mina III

Proved

0.49

3.37

1.65

0.05

Probable

0.83

3.34

2.78

0.09

Total

1.32

3.35

4.43

0.14

Palmeiras

Proved

0.26

3.84

1.02

0.03

Probable

0.28  
3.09  
0.87  
0.03  
Total  
0.54  
3.45  
1.88  
0.06  
Pequizao  
Proved  
0.43  
3.85  
1.67  
0.05  
Probable  
0.92  
3.72  
3.40  
0.11  
Total  
1.35  
3.76  
5.07  
0.16  
Open pit  
Proved  
0.25  
2.97  
0.75  
0.02  
Probable  
—  
—  
—  
—  
Total  
0.25  
2.97  
0.75  
0.02  
Total stockpiles  
Proved  
0.19  
1.65  
0.31  
0.01  
Probable  
—  
—  
—

—  
Total  
0.19  
1.65  
0.31  
0.01  
Serra Grande  
Total  
5.87  
3.00  
17.59  
0.57

*Ore Reserve modifying factors*

**31 December 2013**

**Serra Grande**

**Gold**

**price**

**BRL/oz**

**Cut-off**

**value**

**g/t Au**

**Stoping**

**width**

**cm**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

**on g/t)**

**MCF**

**%**

**MetRF**

**%**

**Mina III**

2,551  
2.47  
250.0  
15.0  
—  
100.0  
100.0  
100.0  
100.0  
95.0  
92.1  
Mina Nova  
2,551  
2.12  
250.0  
7.0  
—  
100.0  
100.0  
100.0  
100.0  
95.0  
92.1  
Palmeiras  
2,551  
2.10  
200.0  
12.0  
—  
100.0  
100.0  
100.0  
100.0  
95.0  
92.1  
Pequizao  
2,551  
2.14  
350.0  
12.0  
—  
100.0  
100.0  
100.0  
100.0  
95.0  
92.1  
Open pit  
2,551  
1.47  
500.0

7.0

—

100.0

100.0

100.0

100.0

95.0

92.1

*Inferred Mineral Resource in business plan*

Approximately 22% of the Inferred Mineral Resource to which Serra Grande's technical team considers it possible to apply the mining

parameters with reasonable safety and reliability, has been included in the company's LOM.

*Ore Reserve below infrastructure*

There is no Ore Reserve reported below infrastructure.

SERRA GRANDE

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT 2013

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Diogo Afonso Costa

MAusIMM

311 574

11 years

BSc (Geology)

Ore Reserve

Wanderlucio Gomes Martins

MAusIMM

311 568

13 years

BSc (Mining Engineering)

0

1

2

3

4

5

6

7

8

9

10

Tonnes

above

cut-off (millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

13

12

11

10

98

8

7

6

5

4

3  
2  
1  
0.8  
0.7  
0.6  
0.5  
0.4  
0.3  
0.2  
0.1  
0.0

Tonnes above cut-off  
Ave grade above cut-off

**Serra Grande**

**Grade tonnage curve – Surface (metric)**

0.0  
0.5  
1.0  
1.5  
2.0  
2.5  
3.0  
3.5  
4.0  
4.5  
5.0

Tonnes  
above  
cut-off  
(millions)

Average  
grade  
above  
cut-off (g/t)

Cut-off grade (g/t)

8.0  
7.5  
7.0  
6.5  
6.0  
5.5  
5.0  
4.5  
4.0  
3.5  
22  
20  
18  
16  
14

12  
10  
8  
6  
4  
2

Tonnes above cut-off

Ave grade above cut-off

**Serra Grande**

**Grade tonnage curve – Underground (metric)**

Stacking behaviour of major ore bodies at Serra Grande

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## COLOMBIA

### COUNTRY OVERVIEW

Systematic regional greenfields exploration has been undertaken by AngloGold Ashanti and its joint venture partners (B2Gold, Glencore

International and Mineros S.A.) in Colombia since 2004. AngloGold Ashanti has consolidated its tenement position from roughly

100,000km<sup>2</sup> in 2009 to 13,855km<sup>2</sup> at the end of 2013 through a variety of structures, including joint ventures and the relinquishing of

non-prospective areas.

At Gramalote (51% AngloGold Ashanti, 49% B2Gold), the joint venture partners renegotiated their agreement, resulting in AngloGold

Ashanti assuming management of the project through a project pre-feasibility study team.

At the wholly-owned La Colosa project, brownfields exploration drilling has resumed after area adjustment permitting for new platforms

has been successfully completed. Pre-feasibility development studies have been focusing on infrastructure site facility scenarios.

AngloGold Ashanti secured regional district scale opportunities surrounding La Colosa and is continuing with regional targeting of

similar gold-rich porphyry mineralisation.

### MINERAL RESOURCE ESTIMATION

#### Gramalote

At Gramalote, about 103,744m of drilling (74,652m at Gramalote Central and 11,249m at the Trinidad area and 17,843m at Monjas

West area) was used to support the estimation of Inferred, Indicated and Measured Mineral Resource. Mineral Resource modeling

was performed using a geological model based on alteration, vein abundance and gold grade. Assay gold grades composited to

2-metre down-hole intervals and outliers are capped based on the distribution observations using probability plots by each estimation

domains. The geostatistical technique of UC was used to estimate block grades and quantify the effect of selective mining. All available

geological drill hole and mapping information, both surface and underground, has been validated for use in the modelling process.

#### La Colosa

At La Colosa, some 109,000m of drilling was used to support the estimation of an Inferred Mineral Resource. Gold grades were

estimated using Ordinary Kriging. Kriging was performed into a block size of 50m x 50m x 10m using lithological domains (wireframes)

in a grade-based mineralisation envelope and also for the waste surrounding the mineralisation. All available geological drill hole,

surface sampling and mapping information has been validated for use in the modelling process.

### MINERAL RESOURCE AND ORE RESERVE REPORT 2013

## LOCATION

The Gramalote property is located on the eastern flank of the Cordillera Central near the town of Providencia and San Jose del Nus

in the municipality of San Roque, northwest of the Department of Antioquia, Colombia. It is approximately 230km northwest of the

Colombian capital of Bogota and 124km northeast of Medellin which is the regional capital of Antioquia Department, with a population

of more than two million people. The municipalities of San Roque and Maceo are within 20km of the project site.

## GEOLOGY

The Gramalote gold deposit is hosted in the late-Cretaceous Antioquia Batholith. This intrusive covers an area of approximately

7,200km

2

, and composes the core of the Central Cordillera at the Antioquia Department. The Antioquia Batholith is composed of

92% tonalite and granodiorite, with the remaining 8% comprising two subordinate rock types: granodiorite to quartz-monzonite

and gabbro.

Gramalote is interpreted to be an intrusive-hosted structurally-controlled stockwork gold and silver deposit. Gold mineralisation is

controlled by northeast-southwest trending shear zones and north-northwest to south-southeast trending shear extensional zones

affecting the tonalites and granodiorites of the Antioquia Batholith. Mineralisation is associated with stockwork veining, particularly

quartz with fine-pyrite veins, quartz-carbonate veins, and quartz with coarse pyrite veins.

The deposit is completely hosted by medium- to coarse-grained biotite +/- hornblende tonalite and granodiorite.

Detailed lithology,

alteration and structural mapping within the Gramalote Ridge area emphasizes the homogeneity of the tonalite intrusive with more than

95% of the rock mass comprised of tonalite-granodiorite. Alteration assemblages related to mineralisation are variable and are closely

linked to the structural evolution of the area.

The Gramalote Project comprises three distinct deposits, Central Gramalote, Trinidad and Monjas West within a greater mineral

tenement block of some 35,000 hectares exclusively retained under license by the joint venture.

The main zone of mineralisation defined by drilling has been traced along strike to the northeast for approximately 1,100m.

Mineralisation occurs within several zones that periodically coalesce both along strike and down-dip. Zones vary in width from tens of

metres to 200 metres in true width with vertical to sub-vertical dips to the south-southeast. The Trinidad mineralised zone is located

approximately three km north-northwest of the Gramalote Ridge. Monjas West is located 2.6km along the westward strike extension

of the Gramalote Ridge zone. The style of alteration and mineralisation of both satellite deposits is similar to the Gramalote Ridge area.

A total of 464 drill holes (plus an underground tunnel) have been completed at Gramalote Ridge and the nearby exploration targets

totalling 130,783m. AngloGold Ashanti drilled a total of 46 diamond drill holes (13,063m) and completed a 240m horizontal exploration

tunnel in 2006 and 2007. B2Gold drilled an additional 89 diamond drill holes (29,978 metres), of which 66 were in the Gramalote Ridge

area (21,967m), and took additional channel samples in the tunnel in 2008. Gramalote Colombia Limited drilled a total of 82,092m distributed among 253 diamond drill holes and 5,650m of RC drilling distributed in 76 holes drilled in Gramalote Hill on a drilling pattern of 12.5m x 12.5m as a grade control trial. Based upon regional and property scale mapping, Gramalote Ridge and surrounding zones of interest are located between two WNW-trending macro-scale curved lineaments which splay off the Palestina fault to the east and transect the Antioquia Batholith. These include the Nus River lineament and the El Socorro lineament. Differential movement along the Nus and El Socorro lineaments is thought to have generated NNW, NS and NE striking tensional dilation within the tonalite, reflected in the formation of stockwork style as well as sheeted quartz and quartz carbonate veins.

#### EXPLORATION

Exploration strategy during 2013 was focused on two deposits, Gramalote Central, where a drilling programme aimed to confirm potential Mineral Resource was carried out and Monjas West where a drilling programme was designed to confirm and upgrade the Inferred Mineral Resource. In addition to these, sterilisation, infrastructure, hydrogeology and geotechnical drilling were performed. Based on lithological continuity, similar structural setting and mineralisation style and the presence of historical artisanal mining extending along the entire area, the further exploration potential in the district is judged to be high. There is a large tenement position that has only been explored over less than 15% of its area. GCL is advancing a comprehensive exploration programme led by geophysical and geochemical surveys to assist in defining exploration targets that are expected to confirm the existing Mineral Resource and expand the known mineralisation endowment.

#### GRAMALOTE

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2.55  
0.00  
-0.11  
0.00  
0.75  
-0.10  
0.00  
0.00  
3.09  
Ounces  
(millions)  
3.2  
3.1  
3.0  
2.9  
2.8  
2.7  
2.6  
2.5  
2.4  
2.3  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal  
2013  
**Gramalote**  
**Mineral Resource reconciliation: 2012 to 2013**  
0.00  
0.25  
0.50  
0.75  
1.00  
1.25  
1.50  
1.75  
2.00  
Tonnes  
above  
cut-off  
(millions)

Average  
grade  
above  
cut-off (g/t)  
Cut-off grade (g/t)

3.0  
2.5  
2.0  
1.5  
1.0  
0.5  
0.0  
350  
300  
250  
200  
150  
100  
50  
0

Tonnes above cut-off  
Ave grade above cut-off

**Gramalote**

**Grade tonnage curve – Surface (metric)**

GRAMALOTE

**continued**

MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

Gramalote

Measured

25x25

–

–

–

–

–

Indicated

50x50

–

–

–



—  
 —  
 Inferred  
 100x100  
 —  
 —  
 —  
 —  
 —  
 Grade/Ore Control                      12x12  
 —  
 —  
 —  
 —

Test Grade Control pattern  
 completed to confirm the UC  
 parameters, these drill holes were  
 not included in the official model

*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**Gramalote**  
**Category**  
**million**  
**g/t**

**Tonnes**  
**Moz**  
 Main Zone  
 Measured  
 14.80  
 0.79  
 11.62  
 0.37  
 Indicated  
 50.52  
 0.59  
 29.75  
 0.96  
 Inferred  
 64.74  
 0.43  
 27.58  
 0.89  
 Total  
 130.06  
 0.53  
 68.95  
 2.22  
 Trinidad

Measured

—  
—  
—  
—

Indicated

—  
—  
—  
—

Inferred

45.50

0.41

18.72

0.60

Total

45.50

0.41

18.72

0.60

Monjas West

Measured

—  
—  
—  
—

Indicated

2.38

0.55

1.32

0.04

Inferred

12.00

0.59

7.07

0.23

Total

14.38

0.58

8.39

0.27

Gramalote

Total

189.94

0.51

96.06

3.09

All the Mineral Resource is exclusive and below infrastructure.

**MINERAL RESOURCE AND ORE RESERVE REPORT 2013**

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Claudio Devaux

MAusIMM

315 689

26 years

BSc (Geology)

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## LOCATION

The project is located 150km west of Colombia's capital city, Bogota, and 30km west of the major town of Ibague, which is the capital of the Tolima department and the location of local government entities monitoring the project. Mineralisation at La Colosa was discovered by AngloGold Ashanti's Colombian greenfields exploration team in 2006. Drilling commenced in 2007 and a conceptual study was completed in 2008. Pre-feasibility studies commenced in September 2008 and are ongoing. The project is wholly owned by AngloGold Ashanti.

## GEOLOGY

The La Colosa project is centered on a late Miocene (8.1 Ma) multiphase diorite porphyry gold complex intruded into reduced Paleozoic metasedimentary rocks. Although the porphyry system is generally copper-poor, a 0.1 – 0.2% Cu anomaly associated with Mo > 150 ppm occurs laterally and at depth. The highest grade gold mineralisation is closely associated with a suite of early porphyry intrusions/ breccias with potassic and sodic-calcic alteration, high intensity of Au-sulphide veinlets and sulphur values generally exceeding 2.5 %.

The multiphase diorite porphyry gold complex can be divided into three phases (early, intermineral and late) and is elliptical in shape with a known maximum north-south axis of at least 1,200m. The complex strikes N10W with a dip of 75° east-northeast, the contacts are mostly structurally bound. Intermineral and late dacitic dikes extend both north and south into the foliated schistose hornfels. Extension drilling better defined the porphyry contacts and high grade mineralisation along structural corridors. Additional upside for mineralisation occurs at the NW extension of the porphyry and structurally controlled along the La Colosa creek fault complex.

San Antonio is a separate much smaller porphyry centre 1.2km south of La Colosa and characterised by hydrothermal and intrusion

breccias associated with inter-mineral diorites and a late dacite stock.

### Alteration and mineralisation

The paragenesis of the main alteration starts with pervasive sodic-calcic alteration overprinted by potassic alteration and in turn, cut by a sodic-calcic event. Potassic alteration, biotite and subordinate K-feldspar, occurs mainly as a pervasive replacement of the porphyries, especially the early phases. The second sodic-calcic alteration clearly overprints the potassic assemblage and is largely confined to irregular, centimetre-scale patches and well-defined veinlets.

The early and intermineral porphyry appear to have been altered and mineralised at the time of their intrusion, since there is scant evidence of veinlets crossing intrusive contacts. The gold content generally declines from early to intermineral diorite and is lowest for late dacite porphyry.

The veinlets at La Colosa appear to span the potassic to sodic-calcic alteration events. The earliest veinlets are composed of quartz, biotite, K-feldspar, albite, actinolite, magnetite, pyrite, pyrrhotite plus minor chalcopyrite and molybdenite. The veinlets may be either quartz or magnetite dominant, quartz-rich veinlets have the characteristics of both A- and B-types in porphyry copper systems.

The main control of the bulk gold grade in the porphyry complex is the intrusive phase in which the mineralisation is hosted. Early intrusive phases present higher and more-consistent gold grades (average >0.9g/t). The inter-mineral diorite has average gold grades of less than 0.7g/t, the late dacite phase generally has only >0.3g/t gold grades close to the contact with early diorite phases.

The limited high-grade zone in the northeast forming the >1.5g/t envelope is centered on north-south striking, steeply-dipping eastward faults within a >100m wide zone of deformation. Hydrothermal alteration indicative for elevated gold grades vectors towards a weak sericite-illite-carbonate overprint.

Gold deportment and geometallurgy

Geometallurgical studies related to comminution modeling focused on obtaining hardness parameters. This metallurgical data has been correlated with multi-element assay and spectral mineralogical data to obtain proxies for metallurgical parameters.

#### EXPLORATION

The La Colosa Mineral Resource is located in a forest reserve as defined by the Colombian Government. An area of 6.39ha has been temporarily extracted within a boundary of 515ha allowing for drill platforms, access and camp sites. An area exchange forest

extraction programme allows for an additional 141 platforms to be prepared.

The current exploration strategy is to define the overall limits of the deposit.

The drilling programme is ongoing and a total of 109,114m (276 holes) has been drilled to support the estimation of the Inferred

Mineral Resource. The overall increase in the Mineral Resource at La Colosa is related to mineralisation found at the Belgica hornfels-diorite contact zone and extension of known mineralisation at depth.

LA COLOSA

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An oxide potential has been recognised and is related to secondary enrichment, mostly occurring in the north and northeast of the extracted exploration area.

**PROJECTS**

The Mineral Resource drilling plan for 2014 will focus on:

- extension drilling at La Colosa NW;
- infill drilling of the high-grade starter pit area;
- oxide drilling at La Colosa ridge; and
- oxide drilling at P10 east of La Colosa fault.

Additional drilling will be carried out for hydrogeological and geotechnical studies.

A detailed structural geological model is required for starter-pit (and backfill) areas in the metamorphic rocks and for defining the limits

of mineralisation in higher-grade sectors. This work was initiated in 2011 and is on-going. The La Colosa porphyry centre appears

to be related to a north-east opening graben structure. High-grade intercepts are related to northwest-southeast brittle structures.

The average drill spacing of 100m x 100m has been reviewed for Mineral Resource classification. Conversion to Indicated Mineral

Resource will require the construction of additional platforms, permission for which was obtained in the last temporary forest extraction solution.

**MINERAL RESOURCE**

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

La Colosa

Measured

–

–

–

–

–

–

Indicated

–

–

–

–

–

–  
 Inferred  
 100 x 100  
 –  
 –  
 –  
 –  
 –  
 –  
 Grade/Ore Control  
 –  
 –  
 –  
 –  
 –  
 –

*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**La Colosa**  
**Category**  
**million**  
**g/t**  
**Tonnes**  
**Moz**  
 Open pit  
 Measured

–  
 –  
 –  
 –  
 Indicated

–  
 –  
 –  
 –  
 Inferred  
 1,039.49  
 0.84  
 872.55  
 28.05  
 La Colosa  
 Total  
 1,039.49  
 0.84  
 872.55  
 28.05

The La Colosa Mineral Resource is reported at a cut-off grade of 0.3g/t. The mineralisation has been classified as an Inferred Mineral



Resource on the basis of an average drill-hole spacing of 100m x 100m. All the Mineral Resource is exclusive and below infrastructure.

LA COLOSA

**continued**

MINERAL RESOURCE AND ORE RESERVE REPORT

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COMPETENT PERSONS

**Category**

**Competent Person**

**Professional**

**organisation**

**Membership**

**number**

**Relevant**

**experience**

**Qualification**

Mineral Resource

Rudolf Jahoda

MAusIMM

990 544

22 years

MSc (Mining Geology)

PhD (Geology)

0.00 0.25 0.50 0.75 1.00 1.25 1.50

2.00

1.75

2.25 2.50 2.75 2.80

Tonnes

above

cut-off

(millions)

Average

grade

above

cut-off (g/t)

Cut-off grade (g/t)

4.0

3.5

3.0

2.5

2.0

1.5

1.0

0.5

0.0

1,600

1,400

1,200

1,000

800

600

400

200

0

Tonnes above cut-off

Ave grade above cut-off

**La Colosa**

**Grade tonnage curve – Surface (metric)**

26.84

0.00

-4.10

0.00

5.32

0.00

0.00

0.00

28.05

Ounces

(millions)

29.0

28.0

27.0

26.0

25.0

24.0

23.0

22.0

21.0

2012

Deple-

tion

Gold

price

Cost

Explo-

ration

Metho-

dology

Other

Acquisition/

Disposal

2013

**La Colosa**

**Mineral Resource reconciliation: 2012 to 2013**

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## COUNTRY OVERVIEW

AngloGold Ashanti currently operates one mine in the United States of America near Cripple Creek, Colorado. The Cresson Mine is operated by the Cripple Creek and Victor Gold Mining Company (CC&V), a wholly-owned subsidiary of AngloGold Ashanti Ltd.

CC&V currently controls over 85% of the patented claims within the district and 100% of the land containing the 2012 Mineral Resource. The Ore Reserve and Mineral Resource are stated at 100% ownership basis, although portions of the Ore Reserve are subject to third-party royalties that vary according to individual agreements with the underlying property owner.

## MINERAL RESOURCE ESTIMATION

A single unified Mineral Resource model has been developed for the entire district. The unified model encompasses all known deposits and drilling within the CC&V property. The estimation method is Multiple Indicator Kriging (MIK) and the primary variable estimated is the recoverable gold.

An estimated iron and oxide block model is utilised to interpolate block-specific coefficients for input into the metallurgical recovery function. The method for calculating nominal shake leach values is a regression technique using geologically-logged categorical variables. Updated drill-hole information is used throughout. The drill-hole database is thoroughly reviewed before each Mineral

Resource estimation and the estimation domains are based on lithology and structural domains for each deposit.

## ORE RESERVE ESTIMATION

The Ore Reserve pit designs were based on Lerchs-Grossmann (LG) optimisations of the Mineral Resource model. The LG algorithm

applies economic values to individual blocks and then generates a pit shell based on geotechnical constraints. Successive nested

shells are generated until the economic limits of the pit are established. These shells are then used as a template for final mine design.

Pit slope designs for all deposits were based on geotechnical studies and range between 32° and 57°. All pits were designed using a

35 feet (10.7m) bench height except South Cresson, which utilises 20 feet (6.1m).

## UNITED STATES OF AMERICA

*Used with permission.*

Pen and ink drawing of the historic

Portland II headframe by the late

Cherry Hunter.

## MINERAL RESOURCE AND ORE RESERVE REPORT 2013

## CC&V

### LOCATION

The mining operations at CC&V are located in central Colorado, USA, approximately 25km east of Colorado Springs.

The mining

district is located between the communities of Cripple Creek, to the northwest, and Victor, in the south.

The district is known for its historic underground mining activities which produced nearly 20 million ounces of gold from narrow, high-

grade, sheeted vein systems that contained gold-telluride mineralisation.

Currently, the mining activities are large, low-grade open-pit operations that utilise shovels and haul trucks to efficiently move as much

material as possible. CC&V has produced nearly 4.5Moz of gold since 1995.

### GEOLOGY

The dominant geological feature of the district is a 34Ma to 28Ma diatreme-intrusive that erupted through

Precambrian rocks. The

diatreme-intrusive complex is 6.4km long, 3.2km wide and consists of diatremal breccia that has been intruded by

stocks, dykes and

discordant breccias. Diatremal breccia lithologies include breccias composed exclusively of volcanic, Precambrian or sedimentary

material or any combination of the three. Early intrusions are predominantly within these alkaline

phonolite-phonotephrite series of

rocks and were followed by later lamprophyres. All rocks have undergone minor structural deformation and a

complex history of

hydrothermal alteration. Gold mineralisation, dated between 27.8Ma and 26.6Ma, is hosted in all rock types and constrained in veins.

The mineralisation can also be disseminated or can occur in structurally-controlled deposits. Primary ore minerals include microscopic

native gold, native gold with pyrite and gold tellurides. Silver is present but has minimal economic importance.

### EXPLORATION

Exploration activities during 2013 focused on three different programmes:

- upgrading of the Mineral Resource to allow for conversion to Ore Reserve for the low-grade, heap-leach operations;
- further definition of higher-grade zones within the open-pit design shells; and
- 

drill testing of high-grade zones that lie outside the pit designs, but could be mined by underground methods.

Nearly 44,000m were drilled during 2013, which included approximately 36,000m of RC drilling and 8,000m of DD.

### PROJECTS

The exploration activities were conducted under the Mine Life Extension-2 (MLE-2) project as well as the Underground project. MLE-2

is evaluating the extension of the mine life by adding low-grade, heap-leach tonnes to the Ore Reserve with the construction of a plant

to process high-grade zones of mineralisation that are intersected during the open-pit mining activity. The

underground programme is

exploring for an additional Mineral Resource that is suitable for mining underground to supplement plant feed.

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**continued**

MINERAL RESOURCE

*Details of average drill-hole spacing and type in relation to Mineral Resource classification*

**Type of drilling**

**Mine/Project**

**Category**

**Spacing**

**m (-x-)**

**Diamond**

**RC**

**Blast-hole Channel**

**Other**

**Comments**

CC&V

Measured

5 x 6,

30 x 30

–

–

\*Blasthole drilling primary.

In some cases RC is primary, diamond drill core is used for confirmation of RC drilling results, metallurgical testing and geotechnical high wall design.

Indicated

45 x 45

–

–

–

RC primary, diamond drill core is used for confirmation of RC drilling results, metallurgical testing and geotechnical high wall design.

Inferred

75 x 75

–

–

–

Grade/Ore

Control

5 x 6

–

–

\*Blasthole drilling primary, RC & diamond drilling

included.

\* *Angled RC drilling implemented in 2013 for selective mining of mill ore.*

MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

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*Inclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**CC&V**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**

Cresson  
 Measured  
 93.36

0.65  
 60.89  
 1.96

Indicated  
 75.72  
 0.59

44.83  
 1.44  
 Inferred

21.30  
 0.59  
 12.57

0.40  
 Total  
 190.38

0.62  
 118.29  
 3.80

South Cresson  
 Measured  
 20.82

0.80  
 16.68  
 0.54

Indicated  
 7.77  
 0.97

7.55  
 0.24  
 Inferred

2.68  
 1.27  
 3.39

0.11  
 Total  
 31.27

0.88

27.62

0.89

Wild Horse

Measured

6.13

0.61

3.77

0.12

Indicated

3.16

0.63

2.01

0.06

Inferred

0.94

0.53

0.50

0.02

Total

10.23

0.61

6.27

0.20

Wild Horse Extension

Measured

35.13

1.16

40.81

1.31

Indicated

14.17

0.84

11.88

0.38

Inferred

1.09

0.55

0.60

0.02

Total

50.38

1.06

53.29

1.71

Altman

Measured

17.25

1.06

18.35

0.59

Indicated

11.47  
1.00  
11.50  
0.37  
Inferred  
4.16  
1.05  
4.36  
0.14  
Total  
32.89  
1.04  
34.21  
1.10  
Globe Hill  
Measured  
40.70  
0.59  
24.05  
0.77  
Indicated  
36.15  
0.61  
22.12  
0.71  
Inferred  
10.14  
0.75  
7.59  
0.24  
Total  
86.98  
0.62  
53.76  
1.73  
Ironclad  
Measured  
9.13  
0.58  
5.30  
0.17  
Indicated  
11.88  
0.53  
6.28  
0.20  
Inferred  
9.18  
0.51  
4.68  
0.15

Total  
30.20  
0.54  
16.26  
0.52  
Schist Island  
Measured  
26.08  
0.70  
18.13  
0.58  
Indicated  
12.85  
0.61  
7.89  
0.25  
Inferred  
1.76  
0.47  
0.83  
0.03  
Total  
40.69  
0.66  
26.85  
0.86  
Stockpiles  
Measured  
0.64  
1.09  
0.70  
0.02  
Indicated  
—  
—  
—  
—  
Inferred  
—  
—  
—  
—  
Total  
0.64  
1.09  
0.70  
0.02  
CC&V  
Total  
473.66  
0.71

337.24

10.84

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*Exclusive Mineral Resource*  
**as at 31 December 2013**

**Tonnes**  
**Grade**  
**Contained gold**  
**CC&V**  
**Category**  
**million**

**g/t**  
**Tonnes**  
**Moz**

Measured

127.24

0.67

85.85

2.76

Indicated

112.52

0.63

70.38

2.26

Inferred

51.24

0.67

34.50

1.11

CC&V

Total

291.00

0.66

190.74

6.13

The Exclusive Mineral Resource material lies immediately outside the designed shells that hold the Ore Reserve. The mineralised zones are generally extensions of those seen within the Ore Reserve shells and additional drilling will allow for some of the Mineral Resource to be converted to Ore Reserve.

12.90

-0.58

-0.66

-0.57

0.21

-0.78

0.00

0.00

10.84

Ounces

(millions)

13.0

12.5

12.0

12.0  
11.5  
11.0  
10.5  
10.0  
2012  
Deple-  
tion  
Gold  
price  
Cost  
Explo-  
ration  
Metho-  
dology  
Other  
Acquisition/  
Disposal

2013

**CC&V**

**Mineral Resource reconciliation: 2012 to 2013**

5.88  
-0.69  
-0.01  
-0.50  
0.00  
0.02  
0.00  
0.00  
4.71  
Ounces  
(millions)

6.0

5.8

5.6

5.4

5.2

4.8

4.6

4.4

2012

Other

2013

**CC&V**

**Ore Reserve reconciliation: 2012 to 2013**

Deple-  
tion  
Model  
change  
Economics  
New

ounces

from

Projects

Scope

Change

Acquisition/

Disposal

CC&V

**continued**

ORE RESERVE

*Ore Reserve*

**as at 31 December 2013**

**Tonnes**

**Grade**

**Contained gold**

**CC&V**

**Category**

**million**

**g/t**

**Tonnes**

**Moz**

Cresson

Proved

22.97

1.00

22.93

0.74

Probable

12.14

0.91

11.09

0.36

Total

35.11

0.97

34.03

1.09

South Cresson

Proved

18.21

0.74

13.50

0.43

Probable

4.72

0.84

3.97

0.13

Total

22.93

0.76



17.47  
0.56  
Wild Horse Extension  
Proved  
28.08  
1.16  
32.52  
1.05  
Probable  
10.00  
0.81  
8.11  
0.26  
Total  
38.08  
1.07  
40.62  
1.31  
Globe Hill  
Proved  
35.50  
0.60  
21.28  
0.68  
Probable  
27.66  
0.60  
16.60  
0.53  
Total  
63.16  
0.60  
37.87  
1.22  
Schist Island  
Proved  
16.61  
0.72  
11.90  
0.38  
Probable  
6.12  
0.64  
3.91  
0.13  
Total  
22.73  
0.70  
15.81  
0.51  
Stockpiles

Proved

0.64

1.09

0.70

0.02

Probable

—

—

—

—

Total

0.64

1.09

0.70

0.02

CC&V

Total

182.65

0.80

146.50

4.71

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*Ore Reserve modifying factors*

**31 December 2013**

**CC&V**

**Gold**

**price**

**US\$/oz**

**Cut-off**

**value**

**g/t Au**

**Dilution**

**%**

**Dilution**

**g/t**

**%**

**RMF**

**(based**

**on**

**tonnes)**

**%**

**RMF**

**(based**

**on g/t)**

**%**

**MRF**

**(based**

**on**

**tonnes)**

**%**

**MRF**

**(based**

**on g/t)**

**MCF**

**%**

**MetRF**

**%**

Cresson

1,100

0.12

2.5

–

93.0

96.0

102.0

96.0

100.0

43.0 to 95.0\*

Globe Hill

1,100

0.16

2.5

–

100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 43.0 to 95.0\*  
 Schist Island  
 1,100  
 0.16  
 2.5  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 43.0 to 95.0\*  
 South Cresson  
 1,100  
 0.12  
 2.5  
 –  
 100.0  
 100.0  
 100.0  
 100.0  
 100.0  
 43.0 to 95.0\*  
 Wild Horse Extension  
 1,100  
 0.16  
 2.5  
 –  
 100.0  
 95.2  
 100.0  
 97.0  
 100.0  
 43.0 to 95.0\*

*All ore control, plant and Mineral Resource model numbers use recoverable grade.*

*\* Recovery factor varies according to ore type.*

*Inferred Mineral Resource in business plan*

**as at 31 December 2013**

**Tonnes**

**million**

**Grade**

**g/t**

**Contained gold**

**CC&V**

**Tonnes Moz**

**Comment**

Cresson

0.31

0.99

0.31

0.01

—

South Cresson

0.89

1.29

1.15

0.04

—

Wild Horse Extension

0.44

0.56

0.25

0.01

—

Globe Hill

5.76

0.57

3.29

0.11

—

Schist Island

0.49

0.49

0.24

0.01

—

Total

7.89

0.66

5.23

0.17

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0.0  
 0.2  
 0.1  
 0.4  
 0.3  
 0.5  
 0.7 0.8  
 0.6  
 0.9 1.0  
 1.1  
 1.2  
 1.3 1.4  
 Tonnes  
 above  
 cut-off (millions)  
 Average  
 grade  
 above  
 cut-off (g/t)  
 Cut-off grade (g/t)  
 4.0  
 3.5  
 3.0  
 2.5  
 2.0  
 1.5  
 1.0  
 0.5  
 0.0  
 600  
 500  
 400  
 300  
 200  
 100  
 0

Tonnes above cut-off  
 Ave grade above cut-off

**CC&V**

**Grade tonnage curve – Surface (metric)**

CC&V

**continued**

The Inferred Mineral Resource in the business plan is approximately 4.3% of the Proved and Probable Ore Reserve tonnes and 3.6% of the Proved and Probable Ore Reserve ounces of gold.

The Inferred Mineral Resource is not used in the optimisation process for the Ore Reserve shells. The Inferred Mineral Resource is generally located near the surface of pits that have not yet been mined. Some of this material is also found at the bottom of the Ore Reserve pits where the drill density is not as

quite as uniform as in other areas.

COMPETENT PERSONS

**Category**

**Competent Person**

**Professional  
organisation**

**Membership  
number**

**Relevant  
experience**

**Qualification**

Mineral Resource

Tim Brown

MAusIMM

226 857

27 years

BSc (Geology)

MBA

MSc (Geology)

Ore Reserve

Greg Gibson

SME

4134135 RM

10 years

BSc (Mining Engineering)

MSc (Mining Engineering)

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MINERAL RESOURCE AND ORE RESERVE REPORT **2013**

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## DEFINITIONS

### MINERAL RESOURCE

The JORC Code, 2012 edition, definition of a Mineral Resource is as follows:

A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such

form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location,

quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or

interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in

order of increasing geological confidence, into Inferred, Indicated and Measured categories.

All reports of Mineral Resources must satisfy the requirement that there are reasonable prospects for eventual economic extraction

(i.e. more likely than not), regardless of the classification of the Mineral Resource. Portions of a deposit that do not have reasonable

prospects for eventual economic extraction are not included in a Mineral Resource.

The Mineral Resource is estimated using all drilling and sampling information along with a detailed geological model.

The geological models are based on various combinations of core logging, mapping, geophysics, geochemistry and geological

understanding that have been developed for each deposit. Most of the AngloGold Ashanti deposits have been the subject of research

by world experts in the relevant class of gold deposits.

The grade estimation for each deposit has been developed over the life of the mine and is constantly reviewed in terms of grade control

information and reconciliation with the metallurgical plant. In general, the deep South African mines utilise a process of Compound Log

Normal Macro Co-Kriging for the estimation of the Mineral Resource, while the open pits and shallow underground mines generally

use recoverable Mineral Resource models, estimated using Uniform Conditioning or Multiple Indicator Kriging.

In order to comply with the economic requirement of the definition of Mineral Resource, all AngloGold Ashanti Mineral Resources

are constrained at an upside gold price, with all other parameters being kept the same as used for estimation of the Ore Reserve. In

the underground gold mines, scoping studies are conducted on all coherent blocks of ground that lie above the calculated Mineral

Resource cut-off. These studies include all cost and capital requirements to access the block. In the case of open pit operations,

pit optimisations are conducted at the Mineral Resource gold price and all material outside these shells is excluded from the Mineral

Resource, unless it is potentially mineable from underground.

It is the opinion of AngloGold Ashanti that the Mineral Resource represents a realistic view of an upside potential to the Ore Reserve.

In interpreting the Mineral Resource it is critical to factor in the following:

- The Mineral Resource is quoted *in situ* and has not been corrected for dilution, mining losses or recovery.
- The Mineral Resource includes a high percentage of Inferred material, which, following further exploration drilling may be converted to an Indicated or Measured Mineral Resource.
-

Many of the areas lying in the exclusive Mineral Resource are currently being actively drilled and are the subject of economic and technical studies. It can, however, not be assumed at this stage that the company has intent to mine these areas. Mineral Resource classification is based on the '15% Rule'. A Measured Mineral Resource should be expected to be within 15% of the quarterly metal estimate at least 90% of the time, while for an Indicated Mineral Resource estimate the annual metal estimate should be within 15% of the metal estimated at least 90% of the time. For an Inferred Mineral Resource the annual error may for 90% of the time, be greater than 15%.

The process and methodology of classification are at the discretion of the Competent Person and involves expressing the '15%

Rule' as a required level of information, in tangible terms the spacing of the drill hole or tunnel spacing in a particular deposit.

Techniques such as conditional simulation or even an empirical reconciliation-based approach are employed.

However, all operations

are responsible for demonstrating, through reconciliation, that their classification system conforms to the 15% rule set out above.

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## DEFINITIONS

### **continued**

The Inferred Mineral Resource category is intended to cover situations in which a mineral concentration or occurrence has been

identified and limited measurements and sampling have been completed, but in which the data are insufficient to allow the geological

or grade continuity to be interpreted with confidence. Due to the uncertainty that may be attached to some Inferred Mineral Resources,

it cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated or Measured Mineral

Resource after continued exploration.

AngloGold Ashanti quotes its Mineral Resource as inclusive of the Ore Reserve. However, in this document the exclusive Mineral

Resource is also quoted. The exclusive Mineral Resource is defined as the inclusive Mineral Resource less the Ore Reserve before

dilution and other factors are applied.

The exclusive Mineral Resource consists of the following components:

- Inferred Mineral Resource within the optimised shell;
- Other Inferred Mineral Resource;
- Measured and Indicated Mineral Resource that lies between the Life of Mine pit shell/mine design and the Mineral Resource pit shell. This material will become economic if the gold price increases; and
- Mineral Resource where the technical studies to engineer an Ore Reserve have not yet been completed.

### ORE RESERVE

The JORC Code, 2012 edition, definition of an Ore Reserve is as follows:

An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting

materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at

Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate

that, at the time of reporting, extraction could reasonably be justified.

The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable

product, a

clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

In the underground operations, the Ore Reserve is based on a full mine design and in the case of open pits on a pit optimisation

followed by a final pit design. The Ore Reserve is reported according to tonnage, mean grade(s), and contained metal inclusive of

mining dilution, mining ore losses and mine call factors. These modifying factors are based on measurements, rather than estimates.

Tonnage and grade estimates for surface stockpile materials that meet Ore Reserve criteria are itemised separately.

Only the Ore Reserve included for treatment in the business plan production schedule is considered in the Ore Reserve statement.

Inferred Mineral Resource is not included in the Ore Reserve statement.

For all new projects, an audited pre-feasibility (as a minimum requirement) must have been completed that demonstrates the viability of the project and meets the company's investment requirements. This study must be signed off at the appropriate executive level in order to demonstrate an intent on the part of the company to proceed to feasibility and ultimately to implement the project.

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## GLOSSARY OF TERMS

### ALL TERMS

**BIF:** Banded Ironstone Formation. A chemically formed iron-rich sedimentary rock.

**By-products:** Any potentially economic or saleable products that emanate from the core process of producing gold, including silver, uranium and sulphuric acid.

**Calc-silicate rock:** A metamorphic rock consisting mainly of calcium-bearing silicates such as diopside and wollastonite, often formed by metamorphism of impure limestone or dolomite.

**Capital expenditure:** Total capital expenditure on tangible assets which includes stay-in-business and project capital.

**Carbon-in-leach (CIL):** Gold is leached from a slurry of ore with cyanide in agitated tanks and adsorbed on to activated carbon granules at the same time (i.e. when cyanide is introduced in the leach tank, there is already activated carbon in the tank and there is no distinction between leach and adsorption stages). The carbon granules are separated from the slurry and treated in an elution circuit to remove the gold.

**Carbon-in-pulp (CIP):** Gold is leached conventionally from a slurry of ore with cyanide in agitated tanks. The leached slurry then passes into the CIP circuit where activated carbon granules are mixed with the slurry and gold is adsorbed on to the activated carbon. The gold-loaded carbon is separated from the slurry and treated in an elution circuit to remove the gold.

**Comminution:** The crushing and grinding of ore to make gold available for physical or chemical separation. (See also “Milling”).

**Contained gold:** The total gold content (tonnes multiplied by grade) of the material being described.

**Cut-off grade – surface mines (COG):** The minimum grade at which a unit of ore will be mined to achieve the desired economic outcome.

**Dense media separation (DMS):** Using high density liquids to separate ore.

**Depletion:** The decrease in quantity of ore in a deposit or property resulting from extraction or production.

**Development:** The process of accessing a deposit through shafts and/or tunnelling in underground mining operations.

**Electro-winning:** A process of recovering gold from solution by means of electrolytic chemical reaction into a form that can be smelted easily into gold bars.

**Elution:** Recovery of the gold from the activated carbon into solution before zinc precipitation or electro-winning.

**Feasibility Study:** A comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the

study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study (JORC 2012).

Flotation: Concentration of gold and gold-hosting minerals into a small mass by various techniques (e.g. collectors, frothers, agitation, air-flow) that collectively enhance the buoyancy of the target minerals, relative to unwanted gangue, for recovery into an over-flowing froth phase.

Full grade ore (FGO): Ore material with sufficient grade to carry the full operating cost. FGO cut-off is the break-even grade where cost is representative of all costs to carry the full operation excluding direct mining cost.

Gold produced: Refined gold in a saleable form derived from the mining process.

Grade: The quantity of gold contained within a unit weight of gold-bearing material generally expressed in grams per metric tonne (g/t), or ounces per short ton of ore (oz/t).

Indicated Mineral Resource:

That part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve (JORC 2012).

Inferred Mineral Resource: That part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade

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**continued**

(or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration (JORC 2012).

Induced Polarisation (IP): A geophysical technique widely used in the exploration for deposits.

Leaching: Dissolution of gold from crushed or milled material, including reclaimed slime, prior to adsorption on to activated carbon or direct zinc precipitation.

Life of Mine (LOM): Number of years that the operation is planning to mine and treat ore, as taken from the current mine plan.

Marginal ore (MO): Ore material with grade below the FGO cut-off that can be economically treated at the end of mine life when overhead and mining costs are reduced. MO cut-off is the break-even grade where cost is representative of the reduced cost that will be experienced after mining has ended.

Measured Mineral Resource: That part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve (JORC 2012).

Metallurgical plant: A processing plant designed to treat ore and extract gold (and in some cases often valuable by-products).

Milling: A process of reducing broken ore to a size at which concentrating can be undertaken (See also 'Comminution').

Mine call factor (MCF): The ratio, expressed as a percentage, of the total quantity of recovered and unrecovered mineral product after processing with the amount estimated in the ore based on sampling. The ratio of contained gold delivered to the metallurgical plant divided by the estimated contained gold of ore mined based on sampling.

Metallurgical recovery factor (MetRF): A measure of the



efficiency in extracting gold from the ore deposit.

Mineral deposit: A mineral deposit is a concentration (or occurrence) of material of possible economic interest in or on the Earth's crust.

Mineral Reserve: 'Ore Reserve' is preferred under the JORC Code but 'Mineral Reserve' is in common use in other countries and reporting codes (i.e. SAMREC) and is generally accepted and regarded as synonymous.

Mining recovery factor (MRF): This factor reflects a mining efficiency factor relating the recovery of material during the mining process and is the variance between the tonnes called for in the mining design and what the plant receives. It is expressed in both a grade and tonnage number.

Modifying Factors: Considerations used to convert Mineral Resources to Ore Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

Net present value (NPV): The difference between the present value of cash inflows and the present value of cash outflows.

Ounce (oz) (troy): Imperial measure of mass specifically used for precious metals and still the standard measure of mass in the gold industry. A kilogram is equal to 32.1507 troy ounces. A troy ounce is equal to 31.1035 grams.

Pay limit: The grade of a unit of ore at which the revenue from the recovered mineral content of the ore is equal to the total cash cost including Ore Reserve Development and stay-in-business capital. This grade is expressed as an *in-situ* value in grams per tonne or ounces per short ton (before dilution and mineral losses).

Precipitate: The solid product formed when a change in solution chemical conditions results in conversion of some pre-dissolved ions into solid state.

Preliminary Feasibility study (Pre-Feasibility Study): A comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based

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on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study (JORC 2012).

Probable Ore Reserve: The economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve. A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit (JORC2012).

Proved Ore Reserve: The economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors (JORC2012).

Reclamation: In the South African context, reclamation describes the process of reclaiming slimes (tailings) dumps using high-pressure water cannons to form a slurry which is pumped back to the metallurgical plants for processing.

Recovered grade: The recovered mineral content per unit of ore treated.

Reef: A gold-bearing horizon, sometimes a conglomerate band that may contain economic levels of gold. Reef can also be any significant or thick gold bearing quartz vein.

Refining: The final purification process of a metal or mineral to a saleable form.

Region: Defines the operational management divisions within AngloGold Ashanti, namely South Africa, Continental Africa (DRC, Ghana, Guinea, Mali, Namibia and Tanzania), Australasia (Australia) and the Americas (Argentina, Brazil, Colombia and the United States of America).

Rehabilitation: The process of returning disturbed land to a stable, productive or self-sustaining condition requiring no ongoing maintenance to meet the post-mining land use objectives and taking into account beneficial uses of the site and surrounding land. Rehabilitation objectives are generally defined in environmental permits but are typically amended during the operational phase of projects through stakeholder engagement processes to ensure post mining land uses are congruent with surrounding and regional land use plans.

Rehabilitation methods can vary by location owing to the extent of disturbance and geo-climatic factors and include, among others, the processes of Remediation, Revegetation and Restoration, to address issues such as soil, ground and surface water, contamination, soil erosion and revegetation.

Resource modification factor (RMF): This factor is applied when there is an historic reconciliation discrepancy in the Resource model. For example between the Resource Model tonnage and the Grade Control Model tonnage. It is expressed

in both a grade and tonnage number.

Seismic event: A sudden inelastic deformation within a given volume of rock that radiates detectable seismic energy.

Shaft: A vertical or subvertical excavation used for accessing an underground mine; for transporting personnel, equipment and supplies; for hoisting ore and waste; for ventilation and utilities; and/or as an auxiliary exit.

Smelting: A pyro-metallurgical operation in which gold precipitate from electro-winning or zinc precipitation is further separated from impurities.

SMU: The smallest unit that can be mined at a particular operation with the equipment available at that site, reflecting the intended or proposed mining selectively.

Stay-in-business capital: Capital expenditure to maintain existing production assets. This includes replacement of vehicles, plant and machinery, Ore Reserve development and capital expenditure related to safety, health and the environment.

Stope: Underground excavation where the mineralised deposit is extracted.

Stoping: The process of excavating ore underground.

Stripping ratio: The ratio of waste tonnes to ore tonnes mined calculated as total tonnes mined less ore tonnes mined divided by ore tonnes mined.

Tailings: Finely ground rock of low residual value from which valuable minerals have been extracted.

Tailings storage facilities: Dam facilities designed to store discarded tailings.

Tonne: Used in metric statistics. Equal to 1,000 kilograms (the International System Units (SI) mass unit).

Tonnage: Quantity of material measured in tonnes.

Waste: Material that contains insufficient mineralisation for consideration for future treatment and, as such, is discarded.

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o

Degrees

kt

Thousand tonnes or tons

,

Minutes

kg/t

Kilograms per tonne

\$

United States dollars

km

Kilometres

3D

Three-dimensional space

LIB

Long inclined borehole

AC

Aircore drilling

LOM

Life of Mine

Ag

Silver

M or m

Metre or million, depending on the context

AGA

AngloGold Ashanti

m

2

Square metre

AGK

Ashanti Goldfields Kilo

MCF

Mine Call Factor

ARS

Argentine peso

MetRF

Metallurgical Recovery Factor

ASX

Australian Securities Exchange

MIb

Million pounds

Au

Contained gold

Moz

Million ounces

AUD

Australian dollars

MRF

Mining Recovery Factor

Avg.

Average

mRL  
Metres relative level  
BAL  
Balancão  
Mt  
Million tonnes (metric)  
BP  
Business plan  
Mtpa  
Million tonnes per annum  
BRL  
Brazilian real  
NPV  
Net present value  
capex  
Capital expenditure  
oz  
Ounces (troy)  
CdS  
Córrego do Sítio  
R or ZAR  
South African rand  
CLR  
Carbon Leader Reef  
RC  
Reverse circulation drilling  
cm  
Centimetres  
RMF  
Resource Modification Factor  
cm.g/t  
Centimetre grams per tonne  
S  
Sulphur  
C Reef  
Crystalkop Reef  
SAMREC  
The South African Code for the Reporting of  
Exploration Results, Mineral Resources and  
Mineral Reserves  
DD  
Diamond drilling  
SER  
Serrotinho deposit  
DRC  
Democratic Republic of the Congo  
SMU  
Selective mining unit  
DMS  
Dense Media Separation  
SSP

Sadiola Sulphide Project

ESIA

Environmental and social impact assessment

t

Tonnes (metric)

EM

Electromagnetic

tpa

Tonnes per annum

FGS

Fonte Grande Sul

TSF

Tailings storage facility

g

Grams

tph

Tonnes per hour

GC

Grade control

tpm

Tonnes per month

g/t

Grams per tonne

U

3

O

8

Uranium Oxide

ha

Hectare

UC

Uniform conditioning

JORC

Australasian Code for Reporting Exploration  
Results, Mineral Resources and Ore Reserves

VCR

Ventersdorp Contact Reef

JSE

Johannesburg Stock Exchange Limited

VR

Vaal Reef

kg

Kilograms

XRF

X-ray fluorescence

µm

Microns

ABBREVIATIONS

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7141/13

ANGLOGOLD ASHANTI LIMITED

Registration No. 1944/017354/06

Incorporated in the Republic of South Africa

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ISIN:

ZAE000043485

JSE:

ANG

LSE:

AGD

NYSE:

AU

ASX:

AGG

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AngloGold Ashanti posts information that is important to investors on the main page of its website at www.anglogoldashanti.com and under the “Investors” tab on the main page. This information is updated regularly. Investors should visit this website to obtain important information about AngloGold Ashanti.

[WWW.ANGLOGOLDASHANTI.COM](http://WWW.ANGLOGOLDASHANTI.COM)

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Mineral Resource  
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Report 2013

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

AngloGold Ashanti Limited

Date: April 03, 2014

By:

/s/ M E SANZ PEREZ

Name: M E Sanz Perez

Title: Group General Counsel and Company

Secretary