

MINERAL RESOURCE AND ORE RESERVE REPORT 2016



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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.



### HOW TO USE THIS REPORT

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#### ABOUT THIS REPORT

The Mineral Resource and Ore Reserve for AngloGold Ashanti Limited (AngloGold Ashanti) are reported in accordance with the minimum standards described by the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code, 2016 edition), and also conform to the standards set out in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

# THE 2016 SUITE OF REPORTS INCLUDES:

>IR Integrated Report

>SDR Sustainable
Development Report

>R&R Mineral Resource and Ore Reserve Report

>AFS Annual Financial Statements

>OPS Operational Profiles

>NOM Notice of Annual General Meeting and Summarised Financial Information (Notice of Meeting) he reporting criteria as outlined in the reporting codes have been used in the preparation of internal competent person reports (CPR) for each operation, from which the numbers stated in this report have been drawn. Reporting is also in accordance with Section 12 of the Johannesburg Stock Exchange Listings Requirements

The Mineral Resource as reported is inclusive of the Ore Reserve component unless otherwise stated. Note also that all Mineral Resource and Ore Reserve listed in this document are attributable to AngloGold Ashanti unless otherwise stated.

Information is presented by operating region, country, mine and project. The following tables and graphs are used to illustrate details across AngloGold Ashanti's operations during 2016:

Infrastructure maps; legal aspects and tenure; inclusive Mineral Resource and Ore Reserve comparison by region, country, mine and project; details of average drill hole/sampling spacing and type; geological cross sections, Mineral Resource sensitivities; 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 details of appointed Competent Persons. Topics for brief discussion include regional overview; country overview; introduction; geology; exploration; projects and estimation.

#### GUIDE TO REPORTING

AngloGold Ashanti publishes a suite of reports to record its overall performance annually. While the Integrated Report 2016 is our primary report, it should be read in conjunction with this report, the Mineral Resource and Ore Reserve Report 2016, as well as the other reports making up our full suite of reports for the year.



Our primary platform for reporting is our online reporting website www.aga-reports.com

The full suite of reports is available on our annual report portal at www.aga-reports.com and also on our corporate website, www. anglogoldashanti.com.

For terminology used in this report, please refer to the glossary of terms on page 256.

#### FOR NOTING

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

- Production is expressed on an attributable basis unless otherwise indicated
- 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
- Mine, operation and business unit are used interchangeably
- Rounding off of numbers may result in computational discrepancies
- To reflect that figures are not precise calculations and that there is uncertainty in their estimation AngloGold Ashanti reports tonnage and content in terms of two decimals: similarly by-products are reported to no decimals
- Throughout this report the metric system of measurement is used

#### SECTION 1

# INTRODUCTION

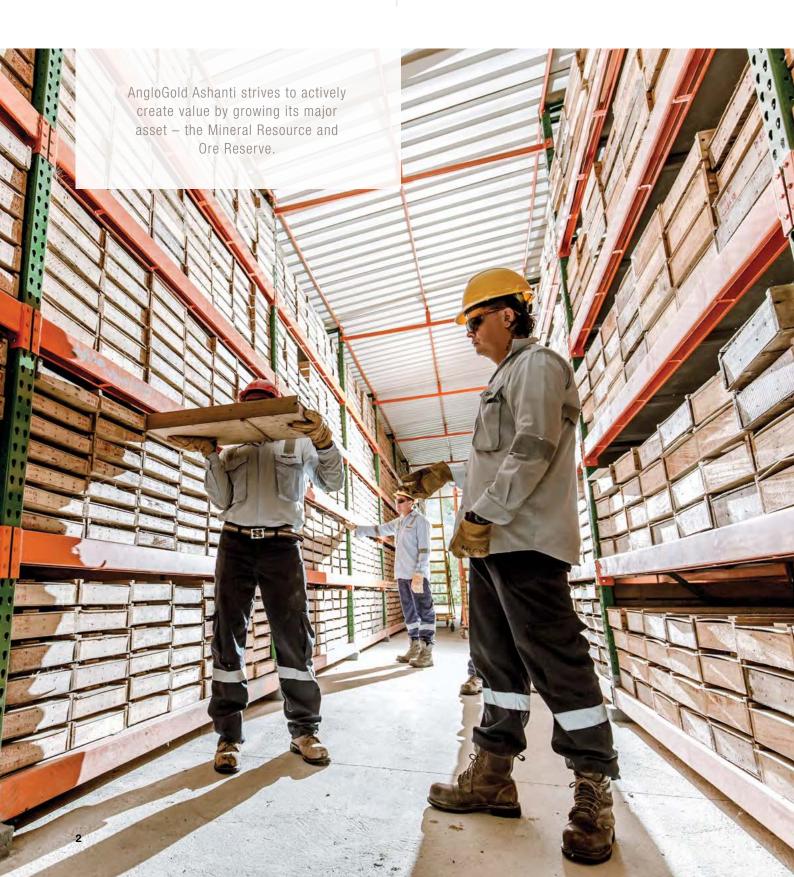


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#### GROUP PROFILE

# OPERATIONS AND ADVANCED GREENFIELD PROJECTS

# OUR OPERATIONS ARE GROUPED REGIONALLY AS FOLLOWS:

South Africa / Vaal River, West Wits and Surface Operations

**Continental Africa** / Democratic Republic of the Congo, Ghana, Guinea, Mali and Tanzania

Australasia / Australia

Americas / Argentina, Brazil and Colombia

#### **LEGEND**

Operations O Advanced greenfield projects



#### **AMERICAS**

- 1 Argentina Cerro Vanguardia (92.5%)
- 2 Brazil Serra Grande AGA Mineração
- 3 Colombia
  Gramalote (51%)
  La Colosa
  Quebradona (92.72%)

#### CONTINENTAL AFRICA

- **4 Guinea** Siguiri (85%)
- 5 Mali Morila (40%) <sup>(1)</sup> Sadiola (41%)
- 6 Ghana Iduapriem Obuasi (3)
- 7 DRC Kibali (45%) (1)
- 8 Tanzania Geita

#### SOUTH AFRICA

- 9 South Africa Vaal River Kopanang Moab Khotsong
  - West Wits Mponeng TauTona

Surface Operations (2)

#### **AUSTRALASIA**

10 Australia Sunrise Dam Tropicana (70%)

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

- (1) Both Morila and Kibali are managed and operated by Randgold Resources Limited
- (2) Surface Operations includes Mine Waste Solutions (MWS)
- (3) Obuasi is currently in care and maintenance

#### CORPORATE GOVERNANCE

The Mineral Resource and Ore Reserve for AngloGold Ashanti are reported in accordance with the minimum standards described by the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code, 2016 edition), and also conform to the standards set out in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

AngloGold Ashanti achieves this through ensuring the principles of integrity, transparency and materiality are central to the compilation of this report and through using the reporting criteria and definitions as detailed in the SAMREC code. In complying with revisions to the SAMREC 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 once again 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 disclosure it has in previous years in order to comply with the transparency requirements of the code.

AngloGold Ashanti has established a Mineral Resource and Ore Reserve Steering Committee (RRSC), which is responsible for setting and overseeing the company's Mineral Resource and Ore Reserve governance framework and for ensuring that it meets the company's goals and objectives while complying with all relevant regularity codes. Its membership and terms of references are mandated under a policy document signed off by the Chief Executive Officer.

Over more than a 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 or project will be reviewed by an independent third party on average once every three years:

- Mineral Resource and Ore Reserve at South African Surface Operations
- Mineral Resource and Ore Reserve at AGA Mineração Córrego do Sítio
- Mineral Resource and Ore Reserve at Sadiola

The external reviews were conducted by AMEC, Optiro and Snowden respectively. Certificates of sign-off have been received for the first two audits from the companies conducting the external reviews to state that the Mineral Resource and/or Ore Reserve comply with the SAMREC and JORC Codes. A signed NI 43-101 report was provided in the case of Sadiola.

In addition, numerous internal Mineral Resource and Ore Reserve process reviews were completed by suitably qualified Competent Persons from within AngloGold Ashanti and no significant deficiencies were identified. The Mineral Resource and Ore Reserve are underpinned by appropriate Mineral Resource Management processes and protocols that ensure adequate corporate governance. These procedures have been developed to be compliant with the guiding principles of the Sarbanes-Oxley Act of 2002 (SOX).

AngloGold Ashanti makes use of a web based group reporting database called the Mineral Resource and Ore Reserve Reporting System (R3) for the compilation and authorisation of Mineral Resource and Ore Reserve reporting. It is a fully integrated system for the reporting and reconciliation of Mineral Resource and Ore Reserve that supports various regulatory reporting requirements including the SEC and the JSE under SAMREC. AngloGold Ashanti uses R3 to ensure a documented chain of responsibility exists from the Competent Persons at the operations to the company's RRSC.

AngloGold Ashanti has also developed an enterprise-wide risk management tool that provides consistent and reliable data that allows for visibility of risks and actions across the group. This tool is used to facilitate, control and monitor material risks to the Mineral Resource and Ore Reserve, thus ensuring that the appropriate risk management and mitigation plans are in place.

#### 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 SAMREC or JORC Codes. All Competent Persons are employed by AngloGold Ashanti, except for Kibali and Morila, 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 and all Ore Reserves have been confirmed to be covered by the required mining permits or there exists a realistic expectation that these permits will be issued. This is detailed within this report.

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. VA Chamberlain has 29 years' experience in exploration and mining and is employed full-time by AngloGold Ashanti and can be contacted at the following address: 76 Rahima Moosa Street, Newtown, 2001 South Africa.

#### THE YEAR IN REVIEW

AngloGold Ashanti strives to actively create value by growing its major asset — the Mineral Resource and Ore Reserve. This drive is based on active, well-defined brownfields and greenfields exploration programmes, innovation in both geological modelling and mine planning and continual optimisation of the asset portfolio.

#### **GOLD PRICE**

The following local prices of gold were used as a basis for estimation in the December 2016 declaration:

	Local prices of gold								
	Gold price US\$/oz	South Africa ZAR/kg	Australia AUD/oz	Brazil BRL/oz	Argentina ARS/oz				
2016 Ore Reserve	1,100	530,000	1,500	4,041	14,969				
2015 Ore Reserve	1,100	431,000	1,436	3,360	10,143				
2016 Mineral Resource	1,400	663,819	1,817	4,414	21,531				
2015 Mineral Resource	1,400	450,000	1,704	3,501	10,788				

The SAMREC and JORC Codes require the use of reasonable economic assumptions. These include long-range commodity price and exchange rate forecasts, these are reviewed annually and are prepared in-house using a range of techniques including historic price averages.

The Mineral Resource sensitivities shown in the detail of this report use a base of \$1,400/oz and a range of \$200/oz, unless stated otherwise.

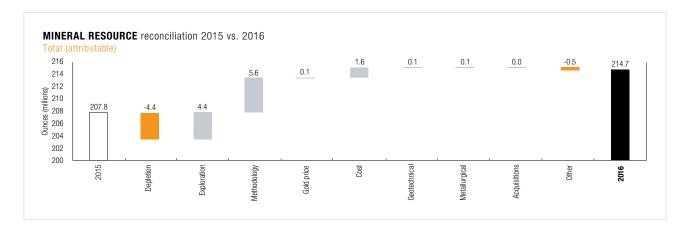
#### MINERAL RESOURCE

The total Mineral Resource increased from 207.8 million ounces (Moz) in December 2015 to 214.7Moz in December 2016. A gross annual increase of 11.3Moz occurred before depletion, while the net increase after allowing for depletion is 6.9Moz. Changes in economic assumptions from December 2015 to December 2016 resulted in a 1.7Moz increase to the Mineral Resource, whilst exploration and modelling resulted in an increase of 10.0Moz. Depletion from the Mineral Resource for the year totalled 4.4Moz. The Mineral Resource has been estimated at a gold price of US\$1,400/oz (2015: US\$1,400/oz).

#### **MINERAL RESOURCE**

		Moz
Mineral Resource	ce as at 31 December 2015	207.8
Depletions		(4.4)
	Sub-total	203.4
Additions		
Obuasi	A new geological model, the revalidated database and a revised estimation methodology resulted in the significant increase	5.5
Mponeng	Surface and underground exploration of the VCR horizon added significant Mineral Resource	2.2
Tropicana	Exploration additions in Havana South, Tropicana and Boston Shaker and additional increases due to a drop in mining costs	1.5
Sunrise Dam	Increase due to successful exploration drilling, gold price increase and methodology changes	1.3
AGA Mineração	Mainly the result of open pit gains at Rosalino, some underground additions at Cuiabá and CdS, positive results from surface drilling at Carvoaria and reduced costs at Lamego	1.2
Siguiri	Attributed to cost reduction, infill drilling at Seguélén, Bidini, Tubani and Kami and the inclusion of mineralised waste	0.9
Geita	Gains due to updates of the underground Mineral Resource models and a decrease in costs	0.9
Other	Additions less than 0.5Moz	0.9
	Sub-total	217.8
Reductions		
Moab Khotsong	Changes due to a Mineral Resource clean-up, a value drop and a revised structural interpretation	(1.0)
Kibali	Change due to a revised geological model and the constraining of the underground Mineral Resource into optimised stope shapes	(0.8)
TauTona	Mainly due to value changes and transfers out of Mineral Resource	(0.6)
Kopanang	Resulting from movements out of Mineral Resource and a value drop resulting from a revised estimation approach	(0.6)
Other	Reductions less than 0.5Moz	(0.1)
Mineral Resource	ce as at 31 December 2016	214.7

# THE YEAR IN REVIEW (CONTINUED)

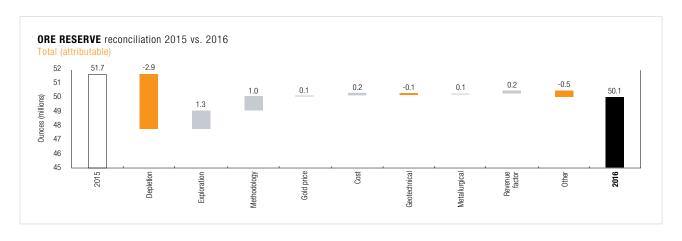


#### ORE RESERVE

The AngloGold Ashanti Ore Reserve reduced from 51.7Moz in December 2015 to 50.1Moz in December 2016. This gross annual decrease of 1.6Moz includes depletion of 3.9Moz. The balance of 2.3Moz additions in Ore Reserve, resulted from changes in economic assumptions between 2015 and 2016 of 0.2Moz, whilst exploration and modelling changes resulted in further additions of 2.3Moz. Other factors resulted in a 0.3Moz decrease. The Ore Reserve has been estimated using a gold price of US\$1,100/oz (2015: US\$1,100/oz).

#### **ORE RESERVE**

		Moz
Ore Reserve as	at 31 December 2015	51.7
Depletions		(3.9)
	Sub-total	47.8
Additions		
Tropicana	Introduction of the Long Island project philosophy and costs and the HA04 pit	1.1
AGA Mineração	Ore Reserve variation due to change in costs and revenue factor as well as minor mining method	0.6
	and revised estimation techniques changes	
Siguiri	Mainly due to model changes	0.5
Sunrise Dam	Increase due to revised drill spacing requirements. Vogue orebody had large increase due to the	0.4
	drill spacing change and additional diamond drilling	
Other	Additions less than 0.3Moz	0.9
	Sub-total	51.3
Reductions		
Kibali	Decrease is the result of a new geological model	(0.3)
Other	Reductions less than 0.3Moz	(0.9)
Ore Reserve as	at 31 December 2016	50.1



#### **BY-PRODUCTS**

Several by-products will be recovered as a result of processing of the gold Ore Reserve. These include 56.0kt of uranium oxide from the South African operations, 0.42Mt of sulphur from Brazil and 18.2Moz of silver from Argentina.

	Local prices were used as a basis for estimation of the by-products								
	Silver US\$/oz	Silver ARS/oz	Uranium ZAR/Ib	Copper US\$/lb	Molybdenum US\$/lb				
2016 Ore Reserve	13.82	188.09	422	2.16	5.00				
2015 Ore Reserve	14.06	129.63	384	3.00	10.00				
2016 Mineral Resource	22.94	352.82	620	2.90	9.25				
2015 Mineral Resource	23.12	178.26	520	3.50	15.00				



# GROUP OVERVIEW

#### MINERAL RESOURCE BY COUNTRY (ATTRIBUTABLE) INCLUSIVE OF ORE RESERVE

Gold		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
South Africa	Measured	151	1.99	301	10
	Indicated	902	1.99	1,794	58
	Inferred	29	15.04	436	14
	Total	1,082	2.34	2,531	81
Democratic Republic of Congo	Measured	8	2.66	21	1
	Indicated	53	3.25	172	6
	Inferred	21	2.33	48	2
	Total	81	2.96	241	8
Ghana	Measured	3	0.82	2	0
	Indicated	208	4.29	890	29
	Inferred	54	5.99	322	10
	Total	264	4.59	1,215	39
Guinea	Measured	25	0.64	16	1
	Indicated	143	0.84	120	4
	Inferred	57	0.95	55	2
	Total	226	0.85	191	6
Mali	Measured	0	2.37	0	0
	Indicated	61	1.58	96	3
	Inferred	8	1.63	13	0
	Total	69	1.58	109	4
Tanzania	Measured	_	_	_	_
	Indicated	41	2.99	122	4
	Inferred	22	4.87	106	3
	Total	62	3.64	228	7
Australia	Measured	31	1.08	33	1
	Indicated	113	2.02	230	7
	Inferred	49	1.92	95	3
	Total	193	1.85	357	11
Argentina	Measured	9	1.80	16	1
	Indicated	21	3.20	69	2
	Inferred	4	2.78	10	0
	Total	34	2.78	95	3
Brazil	Measured	24	5.88	139	4
	Indicated	23	5.81	136	4
	Inferred	46	5.89	270	9
	Total	93	5.87	544	18
Colombia	Measured	17	0.79	13	0
	Indicated	999	0.80	796	26
	Inferred	859	0.42	359	12
	Total	1,875	0.62	1,168	38
Total	Measured	267	2.03	542	17
	Indicated	2,564	1.73	4,424	142
	Inferred	1,148	1.49	1,713	55
	Total	3,980	1.68	6,678	215

#### MINERAL RESOURCE BY COUNTRY (ATTRIBUTABLE) EXCLUSIVE OF ORE RESERVE

Gold		Tonnes	Grade	Contained go	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
South Africa	Measured	14	14.24	204	7
	Indicated	227	3.64	826	27
	Inferred	12	14.58	175	6
	Total	253	4.76	1,205	39
Democratic Republic of Congo	Measured	1	3.27	4	0
	Indicated	25	2.17	55	2
	Inferred	21	2.33	48	2
	Total	47	2.27	107	3
Ghana	Measured	0	3.91	0	0
	Indicated	147	4.52	664	21
	Inferred	54	5.99	322	10
	Total	201	4.91	987	32
Guinea	Measured	_	_	_	_
	Indicated	66	0.84	56	2
	Inferred	57	0.95	54	2
	Total	123	0.89	110	4
Mali	Measured	-	_	_	_
	Indicated	20	1.69	34	1
	Inferred	8	1.63	13	0
	Total	28	1.67	47	2
Tanzania	Measured	_	_	_	_
	Indicated	24	2.49	60	2
	Inferred	22	4.87	106	3
	Total	46	3.61	166	5
Australia	Measured	8	0,67	5	0
	Indicated	72	1.85	133	4
	Inferred	49	1.92	95	3
	Total	129	1.80	233	7
Argentina	Measured	4	2.10	8	0
	Indicated	19	2.61	49	2
	Inferred	3	1.69	5	0
	Total	26	2.43	62	2
Brazil	Measured	15	6.51	100	3
	Indicated	14	5.88	80	3
	Inferred	45	5.91	267	9
	Total	74	6.03	447	14
Colombia	Measured	17	0.79	13	0
	Indicated	999	0.80	796	26
	Inferred	859	0.42	359	12
	Total	1,875	0.62	1,168	38
Total	Measured	59	5.64	335	11
	Indicated	1,613	1.71	2,752	88
	Inferred	1,130	1.28	1,444	46
	Total	2,802	1.62	4,532	146

# GROUP OVERVIEW (CONTINUED)

#### **ORE RESERVE BY COUNTRY (ATTRIBUTABLE)**

Gold		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
South Africa	Proved	139	0.57	79	3
	Probable	689	1.02	703	23
	Total	828	0.94	782	25
Democratic Republic of Congo	Proved	2	1.90	4	0
	Probable	30	4.17	125	4
	Total	32	4.03	128	4
Ghana	Proved	3	0.76	2	0
	Probable	64	3.55	226	7
	Total	67	3.43	228	7
Guinea	Proved	25	0.64	16	1
	Probable	69	0.86	60	2
	Total	95	0.80	76	2
Mali	Proved	0	2.37	0	0
	Probable	38	1.57	59	2
	Total	38	1.57	59	2
Tanzania	Proved	-	_	-	-
	Probable	16	3.73	61	2
	Total	16	3.73	61	2
Australia	Proved	23	1.23	28	1
	Probable	42	2.32	97	3
	Total	64	1.94	124	4
Argentina	Proved	6	1.47	9	0
	Probable	4	4.85	21	1
	Total	10	2.88	29	1
Brazil	Proved	6	3.85	23	1
	Probable	10	4.41	45	1
	Total	16	4.20	68	2
Total	Proved	204	0.79	161	5
	Probable	962	1.45	1,396	45
	Total	1,165	1.34	1,557	50



# RECONCILIATION OF MINERAL RESOURCE

#### RECONCILIATION OF INCLUSIVE MINERAL RESOURCE (GOLD CONTENT MOZ)

RECONCILIATION OF INC	LUSIVE MINE	ERAL RESOL	JRCE (GOLD CO	ONTENT MOZ	<u>2</u> )					
	Previous year	Depletion	Exploration	Metho- dology	Gold price	Cost	Geo- technical	Metal- lurgical	Other	
South Africa Region										
Kopanang	4.012	(0.154)	(0.125)	(0.195)	-	(0.272)	-	-	-	
Moab Khotsong	18.870	(0.378)	(0.955)	-	-	(0.045)	-	-	_	
Vaal River Surface	4.261	(0.297)	0.028	-	-	_	0.031	-	0.001	
Mine Waste Solutions	2.280	(0.074)	0.118	_	-	-	-	0.002	0.004	
Mponeng	48.086	(0.304)	3.064	(0.748)	_	_	-	-	(0.069)	
TauTona West Wits Surface	3.476 1.569	(0.224) (0.042)	(0.213)	0.094	- -	(0.128)	- 0.022	- -	(0.335)	
Total	82.555	(1.472)	1.917	(0.849)	_	(0.444)	0.053	0.002	(0.399)	
Continental Africa Region		()		(3.3.1.)		(,			()	
Kibali	8.894	(0.337)	0.092	(0.678)	_	_	_	_	(0.239)	
Tuban	0.001	(0.001)	0.002	(0.07.0)					(0.200)	
Iduapriem	5.621	( 0.259)	0.278	(0.066)	-	(0.014)	_	_	0.001	
Obuasi	28.017	-	_	5.472	-	-	-	-	-	
Siguiri	5.501	(0.247)	(0.089)	(0.148)	-	0.791	_	0.067	0.273	
Morila	0.174	(0.032)	0.012	_	_	_	_	_	0.016	
Sadiola	3.238	(0.080)	0.013	_	-	0.173	_	(0.003)	(0.006)	
Geita	6.879	(0.488)	0.006	0.630	-	0.303	-	-	(0.012)	
Total	58.325	(1.443)	0.313	5.209	-	1.253	_	0.064	0.033	
Australasia Region										
Sunrise Dam	4.855	(0.250)	0.572	0.457	0.241	-	_	_	-	
Tropicana	4.399	(0.240)	1.276	(0.419)	-	0.597	_	_	-	
Total	9.254	(0.490)	1.848	0.038	0.241	0.597	-	-	-	
Americas Region										
Cerro Vanguardia	3.329	(0.303)	0.024	0.018	_	(0.008)	-	-	-	
AGA Mineração	13.268	(0.490)	0.106	1.210	(0.150)	0.189	-	-	(0.190)	
Serra Grande	3.429	(0.166)	0.251	_	_	_	_	_	0.036	
Gramalote	3.475	_	_	_	-	_	_	_	_	
La Colosa	28.464	_	_	_	-	-	_	_	_	
Quebradona	5.661	_	(0.067)	_	_	_	_	_	_	
Total	57.625	(0.958)	0.315	1.227	(0.150)	0.181	_	_	(0.153)	
Grand Total	207.758	(4.363)	4.393	5.626	0.091	1.588	0.053	0.066	(0.519)	

Acquisition/	Current			
disposal	year	Net diff	%	Comments
-	3.266	(0.75)	(19)	Changes due to geological structure changes, movement of material out of Mineral Resource and a value drop in the 460W ED
-	17.494	(1.38)	(7)	Changes due to a Mineral Resource clean-up, a value drop based on new sampling and a revised structural interpretation. Tonnage decrease further as a
-	4.024	(0.24)	(6)	result of changes in the stope width  Normal depletions and additions from ongoing production. Revision to the
-	2.331	0.05	2	Kopanang Paydam Mineral Resource model  Normal depletions and Harties 1, Buffels 1 and MWS 5 Mineral Resource model updates as a result of additional drill information
-	50.028	1.94	4	New VCR surface and underground exploration boreholes enabled the upgrading of the Mineral Resource. Changes in the geological model resulted in lower grade estimates on the Elsburg facies of the VCR and the Driefontein facies of the CLR
_	2.670	(0.81)	(23)	Mainly due to depletions, value changes and transfers out of Mineral Resource
-	1.549	(0.02)	(1)	Movement is mainly due to depletions. Additions are from plant residues as well as low grade stockpiles from Mponeng mine
_	81.362	(1.19)	(1)	ac low grade descripted from imperioring filling
-	7.732	(1.16)	(13)	Change due to a revised geological model and the constraining of the underground Mineral Resource into optimised stope shapes
-	5.561	(0.06)	(1)	Infill drilling at Block 7&8 resulted in upgrades from Inferred to Indicated Mineral Resource and resulted in a net gain due to wider ore zones
-	33.489	5.47	20	New geological models, the revalidated database and a revised estimation methodology resulted in the significant increase
-	6.148	0.65	12	Attributed to cost reduction, infill drilling at Seguélén, Bidini, Tubani and Kami and the inclusion of mineralised waste
-	0.171	(0.00)	(2)	Mainly due to depletions
-	3.336	0.10	3	Reduced processing cost resulted in lower cut-off grades. These changes have had significant impact on the satellite pits. Infill drilling at Tabakoto and FN satellit pits resulted in exploration gains
-	7.318	0.44	6	Depletion offset by gains due to revisions of the underground Mineral Resource model at Geita Hill and a decrease in costs
-	63.755	5.43	9	
-	5.875	1.02	21	Increased due to successful exploration drilling, gold price increase and methodology changes which offset depletion
-	5.613	1.21	28	Exploration additions in Havana South, Tropicana and Boston Shaker and mining cost decrease due to in-pit dumping and lateral waste haulage
	11.488	2.23	24	
_	3.059	(0.27)	(8)	Decrease primarily due to depletion
_	13.944	0.68	5	Mainly the result of open pit gains at Rosalino, some underground additions at Cuiabá and CdS, positive results from surface drilling at Carvoaria and reduced costs at Lamego
_	3.551	0.12	4	Exploration gains due to drilling at Inga and Minas III
_	3.475	-	-	No changes
_	28.464	_	_	No changes
0.018	5.613	(0.05)	(1)	Minor changes due to five additional boreholes and the attributable percentage increased from 92.42% to 92.72%
0.018	58.105	0.48	1	
0.010				

# RECONCILIATION OF ORE RESERVE

#### RECONCILIATION OF ORE RESERVE (GOLD CONTENT MOZ)

RECONCILIATION OF URI	E NESENVE	(GOLD COM	TENT MUZ)								
as at 31 December 2016	Previous year	Depletion	Explo- ration	Metho- dology	Gold price	Cost	Geo- technical	Metal- lurgical	Revenue factor	Other	
South Africa Region	your	Dopicuon	ration	uology	priod	3551	toonmour	rai gioai	ruotor	Othlor	
Kopanang	0.757	(0.116)	(0.023)	(0.083)	_	_	(0.033)	_	_	(0.011)	
roparang	0.101	(0.110)	(0.020)	(0.000)			(0.000)			(0.011)	
Moab Khotsong	5.259	(0.303)	(0.087)	_	_	_	0.132	_	-	_	
Vaal River Surface	4.053	(0.227)	0.028	_	_	-	0.027	0.045	-	0.007	
Mine Waste Solutions	2.101	(0.073)	0.263	-	_	-	-	-	-	0.001	
Mponeng	12.738	(0.253)	0.073	(0.080)	_	_	0.003	_	_	_	
TauTona	1.052	(0.166)	(0.039)	_	-	_	(0.098)	_	-	0.013	
West Wits Surface	0.176	(0.034)			_	_	0.005	0.023	_	0.001	
Total	26.136	(1.170)	0.215	(0.162)	_	_	0.036	0.068	_	0.011	
Continental Africa Region	n										
Kibali	4.771	(0.317)	(0.295)	_	_	_	_	_	_	(0.032)	
Iduapriem	2.265	(0.259)	_	0.041	_	_	_	_	(0.206)	0.001	
Obuasi	5.744	-	-	0.127	_	_	(0.015)	_	_	(0.366)	
Siguiri	2.091	(0.179)	0.391	(0.038)	-	0.111	_	0.052	0.131	(0.117)	
Morila	0.111	(0.011)	_	_	_	_	_	_	_	0.008	
Sadiola	1.686	(0.059)	-	-	-	0.141	-	-	-	0.029	
Geita	2.596	(0.442)	(0.044)	(0.034)	-	(0.226)	-	-	0.168	(0.052)	
Total	19.264	(1.267)	0.053	0.096	_	0.027	(0.015)	0.052	0.093	(0.528)	
Australasia Region											
Sunrise Dam	1.251	(0.269)	0.324	0.034	-	(0.009)	-	-	-	0.012	
Tropicana	1.834	(0.318)	0.103	1.042	_	_	_	_	_	(0.001)	
Total	3.085	(0.587)	0.426	1.076		(0.009)	_	_	_	0.011	
Americas Region											
Cerro Vanguardia	1.224	(0.303)	0.067	(0.028)	-	(0.015)	_	-	_	-	
AGA Mineração	1.557	(0.452)	0.400	0.013	_	0.149	(0.032)	(0.007)	0.040	0.053	
Serra Grande	0.424	(0.156)	0.182	-	0.075	0.014	(0.113)	-	0.054	(0.004)	
Total	3.205	(0.910)	0.649	(0.015)	0.075	0.149	(0.144)	(0.007)	0.095	0.049	
Grand Total	51.691	(3.934)	1.343	0.995	0.075	0.167	(0.124)	0.113	0.188	(0.456)	

Acquisition/ disposal	Current year	Net diff	%	Comments
-	0.493	(0.26)	(35)	The main changes are due to revisions to the geological model and the application of a Mineral Resource discount factor based on the historical reconciliation
-	5.001	(0.26)	(5)	Normal depletions and minor changes due to exploration and mine design modifications
-	3.934	(0.12)	(3)	Due to depletion and additions as a result of model changes based on new drilling information which increased gold grade
-	2.292	0.19	9	Due to depletion and additions as a result of model changes based on new drilling information which increased gold grade
_	12.481	(0.26)	(2)	Minor changes due to depletion
-	0.762	(0.29)	(28)	Due to a change in the mining strategy at the Savuka section which resulted in a large portion of its Ore Reserves being excluded
-	0.172	(0.00)	(2)	Depletion and an increase from the tailing storage facilities
_	25.134	(1.00)	(4)	
-	4.128	(0.64)	(13)	Decrease is the result of depletion and a new geological model
-	1.843	(0.42)	(19)	Depletion and revisions to conversion factors
-	5.489	(0.25)	(4)	Revised mining method from underhand drift and fill to longhole open stoping. Reintroduction of sill pillars in Block 11 and 8L
-	2.443	0.35	17	Mainly due to model changes
-	0.108	(0.00)	(2)	Mainly due to depletions
-	1.798	0.11	7	Increase primarily due to change in costs structure of the satellite pits to the SSP project costs
-	1.967	(0.63)	(24)	Changes in economic parameters and depletions had a significant negative impact. Star and Comet Cut 3 was reported as an underground Ore Reserve, a first for Geita
-	17.776	(1.49)	(8)	
-	1.344	0.09	7	Increase due to revised drill spacing requirements. Vogue orebody had large increase due to the drill spacing change and additional diamond drilling.
 	2.659	0.83	45	Introduction of the Long Island project and the HA04 pit
-	4.003	0.92	30	
-	0.946	(0.28)	(23)	Primarily due to depletion and changes in mining method which will reduce the planned dilution
-	1.722	0.17	11	Ore Reserve variation due to change in costs and revenue factor as well as minor mining method and revised estimation changes
 _	0.478	0.05	13	Ore Reserve variation due to exploration changes mainly at Mina III, Pequizão and Ingá, higher local gold prices and lower costs (exchange rate) which were offset by revised dilution and recoveries at Mina III
 -	3.146	(0.06)	(2)	
 _	50.060	(1.63)	(3)	

#### SECTION 2

# SOUTH AFRICA



Regional overview / 17

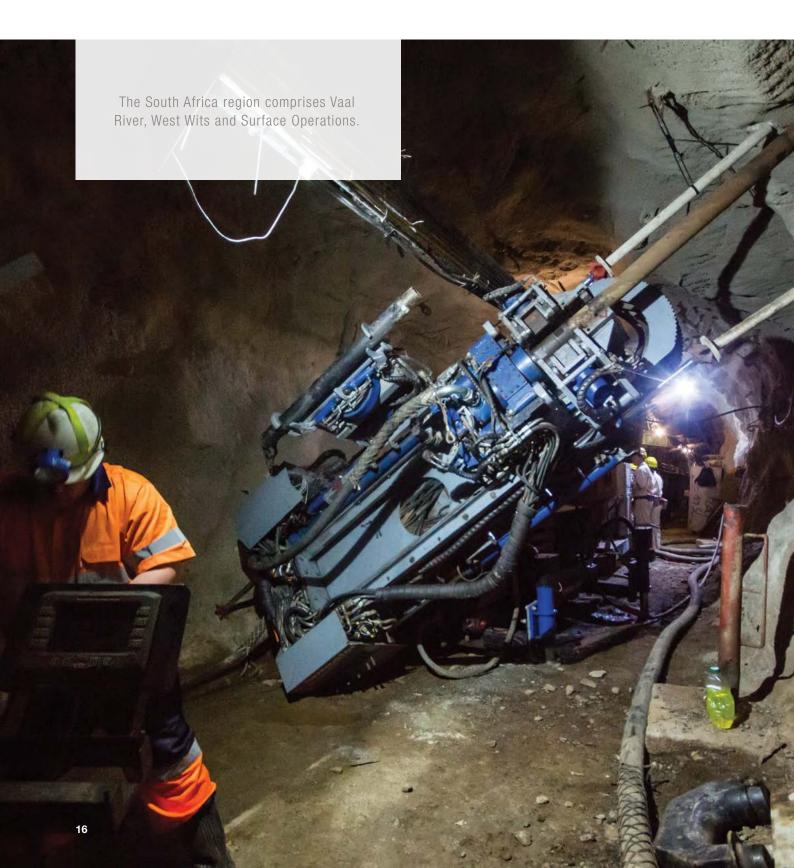
Mponeng / 38

Kopanang / 22

TauTona / 48

Moab Khotsong / 28

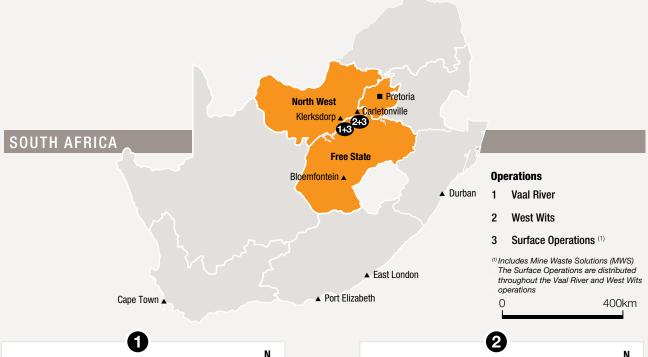
Surface Operations / 56

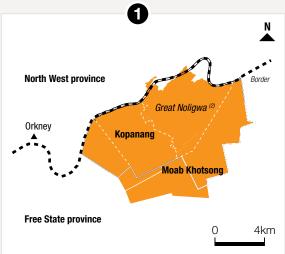


# SOUTH AFRICA



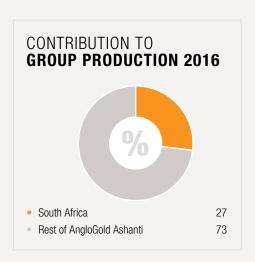


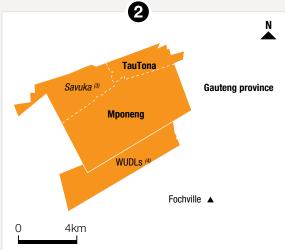




Vaal River Kopanang Moab Khotsong (2)

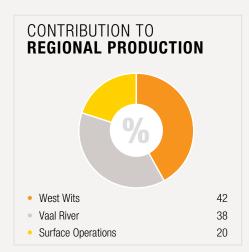
<sup>&</sup>lt;sup>(2)</sup> Great Noligwa was included in the Moab Khotsong operation in 2014





2 West Wits Mponeng (4) TauTona (3)

<sup>(3)</sup> Savuka was included in the TauTona operation in 2013 <sup>(4)</sup> WUDLS is reported as part of Mponeng



Regional Overview

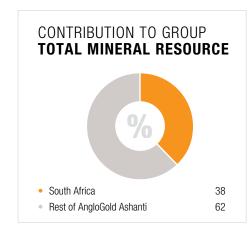
#### **KEY STATISTICS**

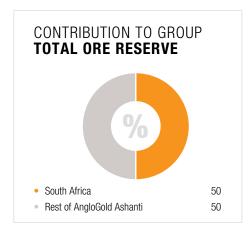
	Units	2016	2015	2014
Operational performance				
Tonnes treated/milled	Mt	39.6	36.8	38.4
Recovered grade (1)	oz/t	0.219	0.225	0.239
	g/t	7.51	7.70	8.19
Gold production	000oz	967	1,004	1,223
Total cash costs	\$/oz	896	881	849
Total production costs	\$/oz	1,089	1,091	1,087
All-in sustaining costs (2)	\$/oz	1,081	1,088	1,064
Capital expenditure	\$m	182	206	264

<sup>(1)</sup> Refers to underground operations only.

As at December 2016, AngloGold Ashanti's operations in South Africa had a total Mineral Resource (inclusive of the Ore Reserve) of 81.4Moz (2015: 82.6Moz) and an Ore Reserve of 25.1Moz (2015: 26.1Moz).

This is equivalent to around 38% and 50% of the group's Mineral Resource and Ore Reserve respectively. The South African operations produced 967Moz of gold in 2016, or 27% of group production.





AngloGold Ashanti's South Africa operations comprise four deep level underground mines and three surface processing operations, collectively referred to as Surface Operations.

All four underground mines are 100% owned by AngloGold Ashanti. The mining operations are all located within the Witwatersrand Basin and are in two mining districts, the Vaal River and West Wits operations.

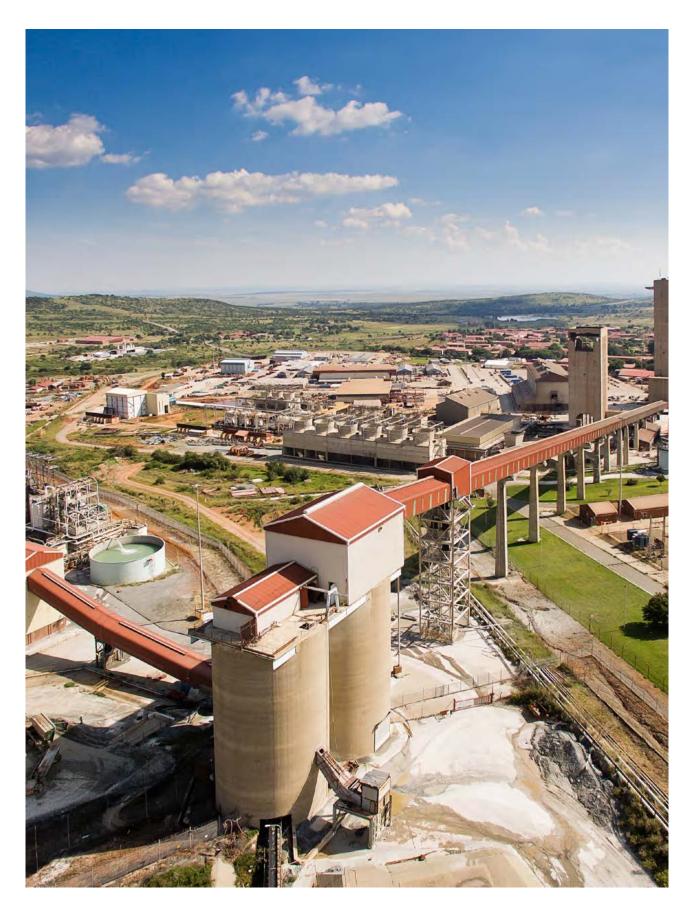
- The Vaal River operations consist of the Kopanang and Moab Khotsong mines (Great Noligwa has been incorporated with Moab Khotsong) and are situated near the town of Klerksdorp. The primary reefs mined by these operations are the Vaal Reef (VR) and the secondary Crystalkop Reef (CR).
- The West Wits operations consist of the Mponeng and TauTona mines (Savuka mine being part of TauTona) and 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).

At the South African underground operations a sequential and/or scattered grid mining method is employed to extract the gold from the deep, narrow, tabular orebodies. The grid is pre-developed through a series of haulages and crosscuts. Stoping takes place by means of breast mining using conventional drill and blast techniques. The smallest mining unit (SMU) is 100m x 100m.

The surface operations can be found in both districts and include the Vaal River Surface, Mine Waste Solutions (MWS) and the West Wits Surface processing operations They rework and retreat the low grade stockpiles and tailings storage facilities (TSF) which result from the mining and processing of the primary and secondary reef horizons.

<sup>(2)</sup> Excludes stockpile write-offs.





Regional Overview

#### **INCLUSIVE MINERAL RESOURCE**

South Africa		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	151	1.99	301	10
	Indicated	902	1.99	1,794	58
	Inferred	29	15.04	436	14
	Total	1,082	2.34	2,531	81

#### **EXCLUSIVE MINERAL RESOURCE**

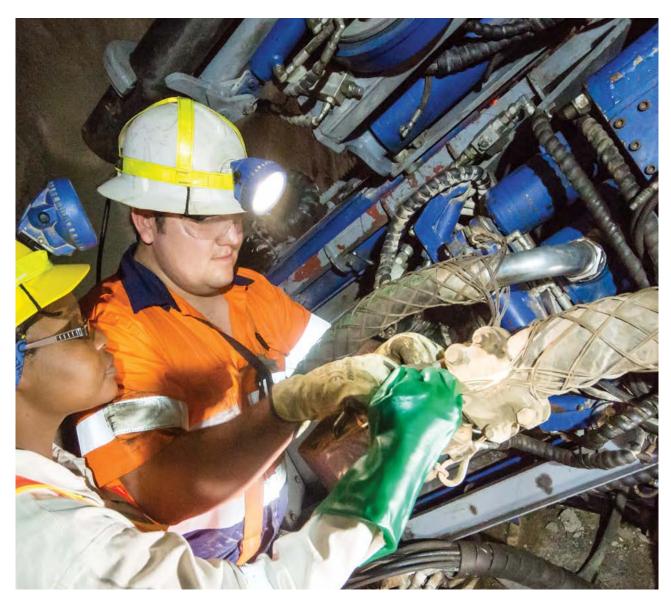
South Africa as at 31 December 2016	 Category	Tonnes million	Grade g/t	tonnes	ed gold Moz
	Measured	14	14.24	204	7
	Indicated	227	3.64	826	27
	Inferred	12	14.58	175	6
	Total	253	4.76	1,205	39

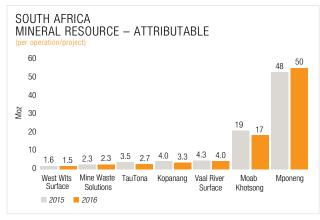
#### **ORE RESERVE**

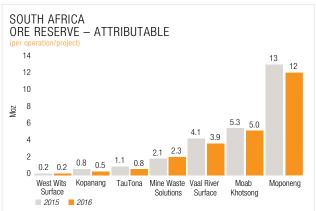
South Africa		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	139	0.57	79	3
	Probable	689	1.02	703	23
	Total	828	0.94	782	25











# SOUTH AFRICA continued Kopanang

#### INTRODUCTION

Property description	Kopanang is a mature, deep level underground operation. The centre of mining has shifted over the last few years to the west of the mine lease area.
Location	Kopanang is located in the Free State province, approximately 170km south-west of Johannesburg and 10km south-east of the town of Orkney.
History	Shaft sinking was initiated in 1977 and completed by 1981 with production beginning in 1984.
Legal aspects and tenure	The current mining lease encompasses an area of 35km <sup>2</sup> . AngloGold Ashanti holds a number of mining rights in the Klerksdorp area which have been successfully converted, executed and registered as new order mining rights at the Mineral and Petroleum Resources Titles Office (MPRTO).
	<ul> <li>NW30/5/1/2/2/04MR valid from 12 September 2007 to 11 September 2022</li> </ul>
	• NW30/5/1/2/3/2/2/14MR valid from 18 February 2013 to 17 February 2043
	• NW30/5/1/1/2/16MR valid from 20 August 2008 to 19 August 2038
Mining method	Two gold-bearing horizons (VR and CR) are accessed via a single shaft system which descends to a maximum depth of 2,334m, while the current working levels are situated between 1,300m and 2,064m below surface. A sequential grid mining layout is used from which scattered mining takes place.
Operational infrastructure	Kopanang's surface and underground infrastructure as well as the power and water services exceed the planned peak life of mine (LoM) production requirements. Broken rock handling is track-bound, transferred to a number of inter-level sub-vertical transfer systems that gravity feeds to the main silos on 75 level. The rock is hoisted to surface through the main shaft. From the shaft the rock is transported to the processing plant by train.
Mineral processing	Stoping ore and development rock is hoisted and processed as one product. Moab Khotsong and Kopanang mines share the Great Noligwa gold plant, and this plant's design capacity exceeds the maximum planned production from the two mines. Gold and uranium is recovered through gold cyanide and acid uranium leaching. The reef is milled at the Great Noligwa gold plant and processed at the South Uranium plant for uranium oxide extraction prior to gold extraction at the Great Noligwa gold plant.
Risks	Kopanang is mining on a declining grade profile to the west, with bulk future mining in the low value 460W geological domain.





#### **COMPETENT PERSONS**

Kopanang					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Rebaone Francis Gaelejwe	SACNASP	400207/14	15 years	BSc Hons (Geology)
Ore Reserve	Pieter Enslin	PLATO	PMS 0183	34 years	GDE (Mineral Economics),
					HND (Mineral Resource
					Management), MSCC

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

Kopanang is situated in a structurally complex area of the Witwatersrand Basin, which has been subjected to numerous tectonic events. The VR is the principal economic horizon at Kopanang and the CR 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 CR forms the top of the Johannesburg Subgroup, while the VR lies approximately 255m below the CR. The two narrow tabular orebodies are both gold and uranium bearing and currently only the VR is mined, with limited CR mining planned during the LoM. The CR 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.

#### **MINERALISATION STYLE**

Extensive research has conclusively shown that gold was precipitated in Witwatersrand conglomerates reefs through the actions of hydrothermal fluids. This conclusion has a solid scientific base and has been well documented in a series of reports by the Rock Deformation Research Unit (RDR) at Leeds University in the United Kingdom, in conjunction with the AngloGold Ashanti Basin Analysis team (BAT), who are credited with making many of the advances in understanding of the mineralising system.

The fluids precipitated gold and other elements through reactions that took place at elevated temperatures (300°–350°C). Migrating liquid and gaseous hydrocarbons precipitated as a solid hydrocarbon (carbon), which was then mesophased through metamorphism and structural deformation. Carbon was preferentially precipitated in bedding parallel fractures that most commonly followed the base of the VR package. Gold was precipitated very soon after the carbon, giving the critical gold-carbon association that characterises many of the high-grade VR localities.

A geological model is employed to delineate variations in characteristics of the VR and CR. The current geological model thus subdivides the VR and CR into homogeneous zones based on geological and grade characteristics.

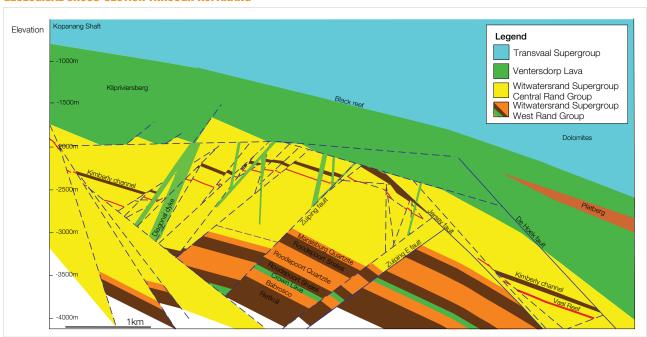
#### **MINERALISATION CHARACTERISTICS**

The VR package varies from about 10cm or less in thickness to over 2.5m. It 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 barren interbedded orthoquartzite. The A-Facies is further subdivided into three sub-facies, known as the Bottom, Middle and Top sub-facies or the tripartite. The C-Facies is well developed at Kopanang and is the principal economic horizon of the VR. The C-Facies consists of a thin, basal pebble lag overlain by pebbly quartzites rather than clast-supported conglomerates. The overlying pebbly quartzites generally have a low gold content. Elevated gold grades have been known to be associated with well developed and well packed conglomerates; although at times these conglomerates may be thin in nature.

The CR is poorly developed with relatively small areas of economic interest. As with the VR, high uranium values are also often associated with high gold values and the presence of a 5mm to 2cm thick carbon seam is found at the base of the conglomerate.

Kopanang

#### **GEOLOGICAL CROSS-SECTION THROUGH KOPANANG**



#### **EXPLORATION**

No exploration drilling was carried out at Kopanang during 2016.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Kopanang		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	5 x 5	-	_	_	✓	_	Chip sampling stoping
Indicated	100 x 100	✓	_	_	_	_	Underground drilling
Inferred	1,000 x 1,000	✓	_	-	_	_	Surface drilling
Grade/ore control		_	_	_	✓	_	See Measured category

#### **INCLUSIVE MINERAL RESOURCE**

Kopanang		Tonnes	Grade	Containe	d gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
CR	Measured	0.10	11.57	1.21	0.04
	Indicated	0.46	14.87	6.91	0.22
	Inferred	0.20	18.05	3.63	0.12
	Total	0.77	15.25	11.75	0.38
VR Base	Measured	2.27	13.09	29.73	0.96
	Indicated	3.08	12.77	39.29	1.26
	Inferred	0.80	21.82	17.52	0.56
	Total	6.15	14.07	86.54	2.78
VR above infrastructure	Measured	_	_	_	_
	Indicated	0.38	8.63	3.29	0.11
	Inferred	0.00	7.69	0.02	0.00
	Total	0.38	8.63	3.30	0.11
Kopanang	Total	7.31	13.91	101.60	3.27



#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: URANIUM (U308)**

Kopanang		Tonnes	Grade	Contaiı	ned U₃O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
	Measured		_	_	_
	Indicated	6	0.74	4,642	10
	Inferred	1	0.61	611	1_
	Total	7	0.72	5,253	12

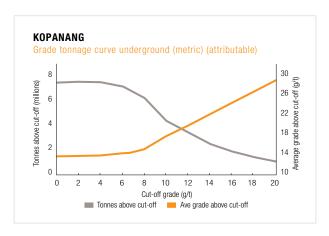
#### **ESTIMATION**

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.

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 on the VR 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.





#### **EXCLUSIVE MINERAL RESOURCE**

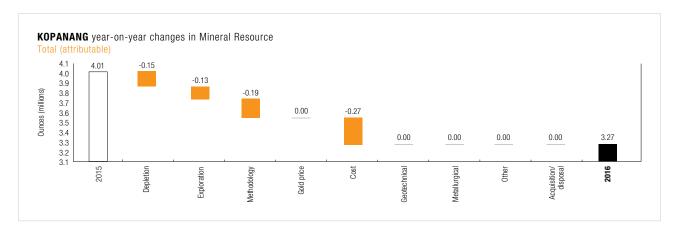
Kopanang		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	1.23	13.99	17.20	0.55
	Indicated	3.22	12.65	40.72	1.31
	Inferred	0.97	21.11	20.47	0.66
	Total	5.42	14.47	78.39	2.52

The exclusive Mineral Resource year-on-year has reduced due to the removal of material, which does not show reasonable and realistic prospects for eventual economic extraction. The exclusive Mineral Resource consists of design and schedule losses, areas for investigation for possible future inclusion in the Ore Reserve, stabilising pillars not scheduled, areas above infrastructure and marginal gold mineralisation.

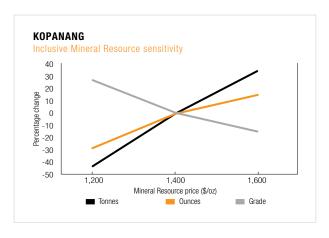
#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

No Mineral Resource is reported below infrastructure.

Kopanang



Year on year changes in the Mineral Resource are mainly due to some write-off of uneconomic Mineral Resource as well as changes related to an improved geological understanding as a result of ongoing sampling and mapping.



Kopanang as a mature deep level gold mine is very sensitive to changes in gold price as it is mining with a declining gold grade profile.

#### ORE RESERVE

#### **ORE RESERVE**

Kopanang		Tonnes	Grade	Contained (	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
CR	Proved	0.04	3.98	0.14	0.00
	Probable	0.04	3.83	0.15	0.00
	Total	0.08	3.90	0.30	0.01
VR Base	Proved	1.71	5.39	9.22	0.30
	Probable	1.03	5.64	5.81	0.19
	Total	2.74	5.48	15.02	0.48
Kopanang	Total	2.82	5.44	15.32	0.49

#### ORE RESERVE BY-PRODUCT: URANIUM (U<sub>3</sub>O<sub>8</sub>)

Kopanang		Tonnes	Grade	Contair	ed U₃O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
	Proved	2	0.33	570	1
	Probable	1	0.33	350	1
	Total	3	0.33	920	2



Uranium is produced as a by-product during the processing of gold-bearing material. The reef is milled at the Great Noligwa gold plant and processed at the South Uranium plant for uranium oxide extraction prior to final gold extraction at the Great Noligwa gold plant.

Ammonium diuranate (ADU or yellow cake) is the final product of the South Uranium plant which is transported to the Nuclear Fuels Corporation of South Africa (Pty) Ltd (Nufcor) located in Gauteng where the material is calcined and packed for shipment to the converters.

#### **ESTIMATION**

Mine design delineates the mining areas and supporting development for each mining level and section, usually by extrapolating the existing mining design based on the geological structure model, taking all relevant mine design recommendations into consideration. The *in situ* Mineral Resource is scheduled monthly for the full 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 estimate. These factors include a dilution factor to accommodate the difference between the milling width and the stoping width, as well as the mine call factor (MCF).

#### **ORE RESERVE MODIFYING FACTORS**

	Gold	Cut-off	Cut-off	Stoping				
Kopanang	price	grade	value	width	Dilution	RMF	MCF	MetRF
						% (based		
as at 31 December 2016	ZAR/kg	g/t Au	cm.g/t Au	cm	%	on g/t)	%	%
CR	530,000	9.52	1,000	105.0	58.0	95.4	60.0	95.7
VR Base	530.000	9.52	1.000	105.0	55.7	94.6	68.3	95.6

Historical performance was used in the determination of the modifying factors.

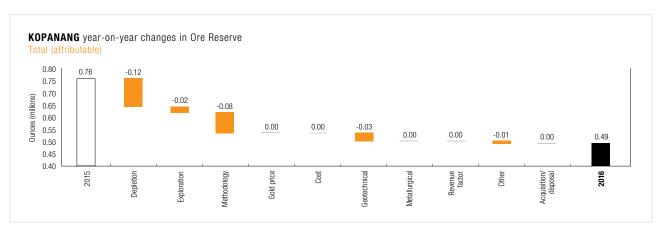
#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Kopanang	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
VR Base	0.06	12.43	0.70	0.02
Total	0.06	12.43	0.70	0.02

With appropriate caution, a portion of the Inferred Mineral Resource was included in the business plan during the optimisation process. This accounts for 4% of the business plan.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

No Ore Reserve is reported below infrastructure.



The main changes are due to revisions to the geological model and the application of a Mineral Resource discount factor based on the historical reconciliation.

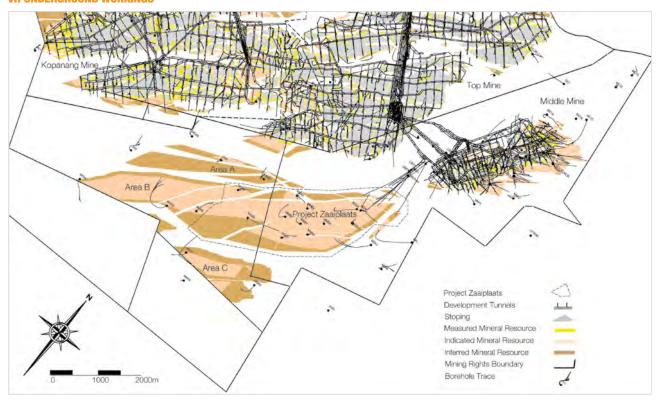
# SOUTH AFRICA continued Moab Khotsong

#### INTRODUCTION

Property description	The Moab Khotsong mine is the youngest of the South African deep level gold mines, with three vertical shaft systems being maintained to service the mine. The orebody is divided into three distinguishable blocks through major faulting. These geographical areas are referred to as Top mine (Great Noligwa), Middle mine and Lower mine (Zaaiplaats).
Location	Moab Khotsong is located near the towns of Orkney and Klerksdorp, about 180km south-west of Johannesburg. The mining lease area lies just south of the Vaal River, which forms a natural boundary between South Africa's North West and Free State provinces.
History	Great Noligwa mine was merged with Moab Khotsong mine in 2014, and operations are now collectively referred to as Moab Khotsong. Great Noligwa commenced production in 1968 and Moab Khotsong started producing in 2003.
Legal aspects and tenure	AngloGold Ashanti holds a number of mining rights in the Klerksdorp area which have been successfully converted, executed and registered as new order mining rights at the MPRTO.
	NW30/5/1/2/2/15MR valid from 12 September 2007 to 11 September 2022     NW00/5/4/4/0/4/6MR valid from 12 September 2010 to 17 September 2020
	NW30/5/1/1/2/16MR valid from 18 February 2013 to 17 February 2043
Mining method	The tabular nature, along with the depth and structural complexity of the orebody dictates the mining method utilised at Moab Khotsong mine. Mining at Moab Khotsong is based on a scattered mining method together with an integrated backfill support system that incorporates bracket pillars. The economic reef horizons are exploited between 1,791m and 3,052m below surface.
Operational infrastructure	Moab Khotsong and Great Noligwa's surface and underground infrastructure as well as the power and water services are designed to fully meet the planned LoM production and service capacity requirements. Broken rock handling is track-bound, transferring the rock to a number of inter level sub-vertical transfer systems that gravity feeds to the main silos on 101 level. Separate streams are used for waste rock and gold bearing ore. The rock is hoisted to surface through the main shaft. From the shaft the ore is transported to the processing plant via rail and the waste rock is deposited on the low grade stockpile using a conveyor belt system.
Mineral processing	From December 2016 the decision was taken to hoist and process both stoping ore and development waste rock as one product. Moab Khotsong and Kopanang mines share the Great Noligwa gold plant. The design capacity of the Great Noligwa plant exceeds the maximum planned production volume from the two mines. The Great Noligwa plant employs the reverse gold leach method, whereby gold and uranium are recovered through gold cyanide and acid uranium leaching.
Risks	The risk as reported last year around Zaaiplaats has been reduced as a result of the completion of a successful pre-feasibility study (PFS), however the ultimate outcome is still under consideration.
	Geological structural complexity to the north of the Karel Dyke remains a risk until all infill drilling and development has been completed.
	Seismicity remains a risk that can impact on Ore Reserve.



#### **VR UNDERGROUND WORKINGS**



#### **COMPETENT PERSONS**

Moab Khotsong					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Rebaone Francis Gaelejwe	SACNASP	400207/14	15 years	BSc Hons (Geology)
Ore Reserve	Leanne Brenda Freese	SACNASP	400294/14	19 years	BSc Hons (Geology)
					GDE (Mineral Resource Management)

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

The VR is the primary economic horizon at Moab Khotsong and the CR is the secondary economic horizon, which contributes less than 2% of the total mining volume. Both reefs are narrow tabular deposits forming part of the Witwatersrand Supergroup and are stratigraphically located near the middle of the Central Rand Group. The VR lies approximately 255m below the CR.

The geology at Moab Khotsong is structurally complex with large fault-loss areas between the three mining areas. The geological setting is one of crustal extension, dominated by major south-dipping fault systems with north-dipping Zuiping faults wedged between the south-dipping faults. The De Hoek and Buffels East faults structurally bound the reef blocks of the Middle mine to the north-west and south-east respectively. The northern boundary of Moab Khotsong Middle mine is a north-dipping Zuiping fault. Extensive drilling is currently underway on the extremities of Middle mine, targeting potential preserved blocks. Moab Khotsong (particularly Middle mine) requires a reduced drill spacing pattern on the order of 50 X 50 m which allows for accurate delineation of the structurally bound mineable blocks, whereby accurate and efficient mine designs can be implemented insuring optimal extraction and maximum orebody utilisation.

Moab Khotsong

#### **MINERALISATION STYLE**

The mineralisation model adopted for AngloGold Ashanti's Witwatersrand deposits is that of gold precipitation in the Witwatersrand conglomerates through the actions of hydrothermal fluids. This is based on well documented scientific studies, in collaboration with accredited international universities, spanning over a period from the early 1990s to present.

The fluids precipitated gold and other elements through reactions that took place at elevated temperatures (300-350°C). Migrating liquid and gaseous hydrocarbons precipitated as a solid hydrocarbon (carbon), which was then mesophased through metamorphism and structural deformation. Carbon was preferentially precipitated in bedding-parallel fractures that most commonly followed the base of the VR package (A-bottom sub-facies), however, gold and uranium mineralisation is also commonly observed within the A-middle and A-top sub-facies of the VR. Gold was precipitated very soon after the carbon, giving the critical gold-carbon association that characterises many of the high-grade VR localities.

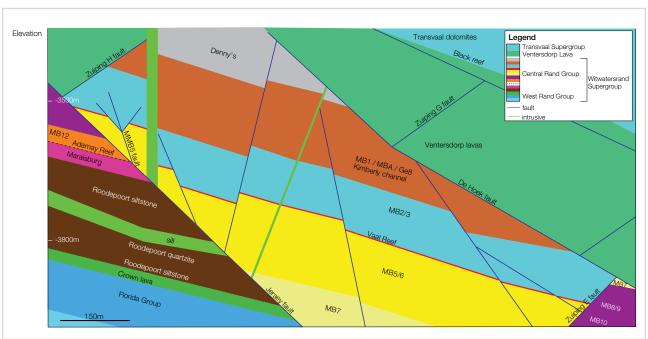
A geological model is employed to delineate variations (either lateral or vertical) in characteristics of the VR and CR. The current geological model thus subdivides the VR and CR into homogeneous zones based on geological and grade characteristics.

#### **MINERALISATION CHARACTERISTICS**

The VR consists of a thin basal conglomerate (the C-Facies) and a thicker sequence of upper conglomerates (A-Facies). These two sedimentary facies are separated by the B-Facies, which is a layer of barren orthoquartzite. The A-Facies is the primary economic horizon at Moab Khotsong, however 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 an important by-product which is also recovered from the VR.

The CR is mined on a limited scale in the central part of Top mine, where a high-grade, north-south trending sedimentary channel containing two economic horizons has been exposed. To the east and the west of this channel, the CR is poorly developed with limited areas containing economic concentrations of gold and uranium. As with the VR, high uranium values are also often associated with high gold values. A 5mm to 20mm thick carbon seam commonly occurs at the base of the conglomerate. To the north of the mine, the CR sub-crops against the Gold Estates Conglomerate Formation, and in the extreme south of the mine, the CR has been eliminated by a deep Kimberley erosion channel and the Jersey fault. The CR that is preserved in the eastern parts of the Middle mine has not been proven to be feasible for eventual economic extraction and has therefore not been included into the published Mineral Resource.

#### **GEOLOGICAL CROSS-SECTION THROUGH MOAB KHOTSONG**





#### **EXPLORATION**

Brownfields exploration is focused on improving confidence in the geological model, as well as adding additional Mineral Resource to the mine.

MZA10 surface drill hole was completed late in 2015 and the structural and reef intersection value information has now been incorporated into the Zaaiplaats geological model. Reef intersection information had minimal impact on the estimates.

Underground exploration is done through diamond drilling (DD) and utilises a combination of hydraulic and pneumatic powered machines. The exploration strategy adopted for Moab Khotsong to address the structural complexity involves:

- . Definition drilling aiming for a 100m x 100m drilling grid for optimal placement of primary haulage and cross-cut development
- While infill drilling aims for a minimum of 50m x 50m drilling spacing for placement of secondary development.
- The drill spacing is reduced further in structurally complex areas to reduce the risk of stoping operations intersecting unexpected faults greater than 3m.

Three underground hydraulic powered DD rigs were deployed to carry out drilling on the Top mine and Middle mine. This drilling is primarily used to obtain structural and grade information aimed at upgrading the Mineral Resource and improving the structural confidence of Moab Khotsong. Two drill rigs are currently deployed in the Top mine to obtain structural information in the VR blocks below 76 Level. One drill rig is deployed in the Middle mine to obtain structural information on the 95 and 98 Level VR blocks within the Middle mine infrastructure in the eastern side of the mine. The Middle mine below 101 Level structural re-interpretation has been completed and the geological model has been updated.

#### **PROJECTS**

The initial development of Moab Khotsong was taken with a view that the new mine would be well positioned to facilitate the exploitation of additional ore blocks adjacent and contiguous to current mining areas. The most important of these blocks are the Lower mine blocks (Zaaiplaats, Area A, B and C), positioned to the south-west of the current Moab Khotsong infrastructure and extending below the existing mine.

Over the last few years, changes in key parameters and economic assumptions have reduced the economic viability of project Zaaiplaats. While the project remains part of the LoM plan and Ore Reserve base, the project is currently subject to a PFS, which is due to be completed in early 2017.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Moab Khotsong			T	ype of drillin	ıg		
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	5 x 5	-	-	_	✓	_	Chip sampling stoping
Indicated	100 x 100,	✓	-	_	-	_	Underground drilling
	800 x 800						
Inferred	1,000 x 1,000	✓	_	_	_	_	Surface drilling
Grade/ore control		_	_	_	✓	_	See Measured category

Moab Khotsong

#### **INCLUSIVE MINERAL RESOURCE**

Moab Khotsong		Tonnes	Grade	Contained (	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
VR Lower mine – Area A	Measured	_		-	_
7	Indicated	0.20	19.06	3.73	0.12
	Inferred	1.54	14.06	21.67	0.70
	Total	1.74	14.62	25.40	0.82
VR Lower mine – Area B	Measured	_	_		_
	Indicated	4.55	9.04	41.13	1.32
	Inferred	1.26	9.37	11.78	0.38
	Total	5.81	9.11	52.92	1.70
VR Lower mine – Area C	Measured	_	_	_	_
	Indicated	1.38	14.48	19.94	0.64
	Inferred	2.04	13.31	27.18	0.87
(0)	Total	3.42	13.78	47.12	1.51
VR Lower mine – Zaaiplaats	Measured	_	_	_	_
	Indicated	8.96	17.60	157.74	5.07
	Inferred	3.32	16.21	53.85	1.73
	Total	12.28	17.22	211.58	6.80
VR – Middle mine	Measured	2.08	20.99	43.57	1.40
	Indicated	4.04	20.73	83.78	2.69
	Inferred	0.33	16.16	5.30	0.17
	Total	6.45	20.58	132.65	4.26
VR – Top mine	Measured	0.40	15.04	5.96	0.19
	Indicated	0.85	13.52	11.51	0.37
	Inferred	0.46	17.31	8.01	0.26
	Total	1.71	14.90	25.48	0.82
VR – Great Noligwa	Measured	0.87	16.26	14.16	0.46
	Indicated	0.30	16.53	4.99	0.16
	Inferred	0.02	13.58	0.25	0.01
	Total	1.19	16.28	19.41	0.62
VR – Great Noligwa shaft pillar	Measured	0.07	14.69	1.06	0.03
	Indicated	1.15	14.94	17.16	0.55
	Inferred	0.22	14.37	3.20	0.10
	Total	1.44	14.84	21.42	0.69
CR – Great Noligwa	Measured	0.04	10.22	0.40	0.01
	Indicated	0.31	16.26	5.01	0.16
	Inferred	0.16	17.49	2.74	0.09
	Total	0.50	16.18	8.15	0.26
Moab Khotsong	Total	34.54	15.75	544.11	17.49

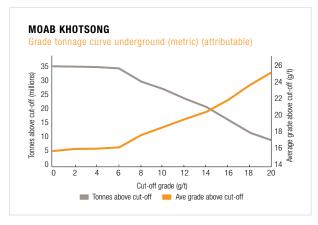


#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: URANIUM (U308)**

Moab Khotsong		Tonnes	Grade	Contai	ned U₃O <sub>8</sub>
as at 31 December 2016	December 2016 Category		kg/t	tonnes	pounds million
	Measured	_	_	_	_
	Indicated	25	0.80	20,203	45
	Inferred	9	0.81	7,547	17
	Total	35	0.80	27,750	61

#### **ESTIMATION**

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 wide-spaced drill hole and dense underground sampling data to be used together. Estimation on the VR is performed into large block sizes, generally  $>300m \times 300m$ , 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.





#### **EXCLUSIVE MINERAL RESOURCE**

Moab Khotsong		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	1.75	18.78	32.78	1.05
	Indicated	11.49	13.47	154.69	4.97
	Inferred	5.58	13.30	74.26	2.39
	Total	18.82	13.91	261.73	8.41

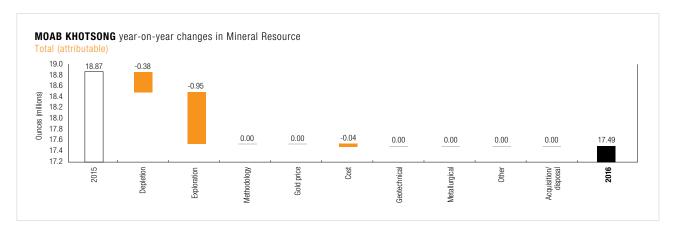
The bulk of the exclusive Mineral Resource is situated in Middle and Lower mines and consists primarily of designed bracket pillars and dip pillars. The remaining areas are below the Ore Reserve cut-off and with an increase in gold price will be considered as possible future Ore Reserve.

#### MINERAL RESOURCE BELOW INFRASTRUCTURE

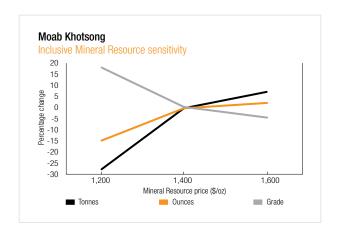
Inferred	8.57	14.12	120.91	3.89
Indicated	17.53	15.24	267.17	8.59
Measured	0.07	15.24	1.14	0.04
as at 31 December 2016 Category	million	g/t	tonnes	Moz
Moab Khotsong	Tonnes	Grade	Contain	ed gold

The Mineral Resource below infrastructure is situated in Zaaiplaats, Area A, Area B Area C, Top mine below 76 Level and Middle mine below 101 Level.

Moab Khotsong



Changes due to a Mineral Resource clean-up, a value drop based on new sampling and a revised structural interpretation. Tonnage decreased further as a result of changes in the stope width.



Moab Khotsong is not sensitive to increases in gold price due to the structurally constrained nature of the orebody but is very sensitive to a drop in gold price.





#### ORE RESERVE

#### **ORE RESERVE**

Moab Khotsong		Tonnes	Grade	Contained (	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
VR Lower mine – Zaaiplaats	Proved	_	_	_	_
	Probable	10.79	9.59	103.41	3.32
	Total	10.79	9.59	103.41	3.32
VR – Middle mine	Proved	1.53	9.92	15.22	0.49
	Probable	2.39	9.89	23.64	0.76
	Total	3.92	9.90	38.86	1.25
VR – Top mine	Proved	0.21	7.15	1.54	0.05
	Probable	0.24	6.59	1.59	0.05
	Total	0.46	6.85	3.12	0.10
VR - Great Noligwa	Proved	0.88	6.61	5.82	0.19
	Probable	0.30	6.38	1.94	0.06
	Total	1.19	6.55	7.77	0.25
CR - Great Noligwa	Proved	0.03	5.27	0.15	0.00
	Probable	0.33	6.70	2.23	0.07
	Total	0.36	6.59	2.38	0.08
Moab Khotsong	Total	16.72	9.31	155.54	5.00

#### ORE RESERVE BY-PRODUCT: URANIUM (U<sub>3</sub>O<sub>8</sub>)

Moab Khotsong	Khotsong		Grade	Contair	ned U₃O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
	Proved	3	0.35	923	2
	Probable	14	0.51	7,208	16
	Total	17	0.49	8,131	18

Uranium is produced as a by-product during the processing of reef material. The reef is milled at the Great Noligwa gold plant and processed at the South Uranium plant for uranium oxide extraction prior to gold extraction back at the Great Noligwa gold plant.

Yellow cake is the final product of the South Uranium plant which is transported to Nufcor located in Gauteng where the material is calcined and packed for shipment to the converters.

#### **ESTIMATION**

Mine design delineates the mining areas and supporting development for each mining level and section, usually by extrapolating the existing mining design based on the geological structure model taking all relevant mine design recommendations into consideration. The *in situ* Mineral Resource is scheduled monthly for the full 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 estimate. These factors include a dilution factor to accommodate the difference between the milling width and the stoping width, as well as the MCF.

Moab Khotsong

#### **ORE RESERVE MODIFYING FACTORS**

	Gold	Cut-off	Cut-off	Stoping			
Moab Khotsong	price	grade	value	width	Dilution	MCF	MetRF
as at 31 December 2016	ZAR/kg	g/t Au	cm.g/t Au	cm	%	%	%
VR Lower mine – Zaaiplaats	530,000	5.15	700	136.0	32.5	81.0	96.1
VR – Middle mine	530,000	4.07	700	172.0	62.7	77.9	96.1
VR – Top mine	530,000	4.09	700	171.0	54.3	77.8	96.4
VR – Great Noligwa	530,000	4.55	700	154.0	38.2	61.4	96.2
CR - Great Noligwa	530,000	5.83	700	120.0	53.9	61.9	95.6

Historical performance was used in the determination of the modifying factors used in the estimation of the Ore Reserve.

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

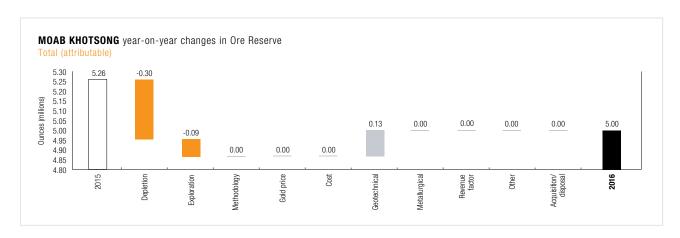
Moab Khotsong	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
VR Lower mine – Zaaiplaats	3.11	9.03	28.10	0.90
VR – Middle mine	0.10	5.30	0.56	0.02
VR – Top mine	0.02	13.16	0.20	0.01
VR - Great Noligwa	0.01	5.72	0.07	0.00
CR - Great Noligwa	0.12	6.40	0.79	0.03
Total	3.37	8.82	29.72	0.96

16% of the LoM production consists of Inferred Mineral Resource. This has not been published as part of the Ore Reserve. The Inferred Mineral Resource was used for optimisation purposes only.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

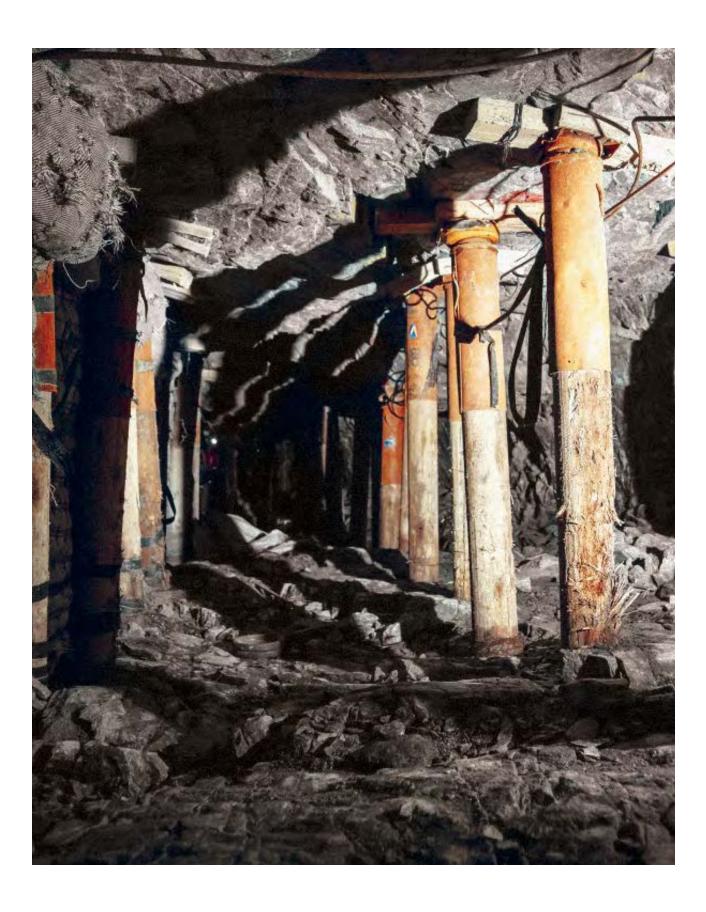
Moab Khotsong		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	_	_	_	_
	Probable	10.79	9.59	103.41	3.32
	Total	10.79	9.59	103.41	3.32

The Zaaiplaats project, which is currently under review, is the source of all of the Ore Reserve below infrastructure at Moab Khotsong.



Changes in Ore Reserve are due to depletion offset by technical design and scheduling changes.





# $\begin{array}{c} \textbf{SOUTH AFRICA continued} \\ \textbf{Mponeng} \end{array}$

## INTRODUCTION

Property description	Mponeng mine is a deep level gold mine operating between 3,160m and 3,740m below mine datum (BMD)* and is currently the deepest mine in the world with development at 3,841m BMD. Future mining is planned to deepen the shaft bottom to 4,227m BMD. All production is currently from VCR with future expansion on both VCR and the CLR reef horizons.
Location	The combination of the TauTona and Mponeng mines form the West Wits operations. Situated south of the TauTona mine, Mponeng is near the town of Carletonville and approximately 65km west of Johannesburg.
History	Formerly known as the Western Deep Levels South Shaft, or No. 1 Shaft, Mponeng mine is the most recently sunk of the three mines in the West Wits operations. The original twin shaft sinking from surface commenced in 1981 and was commissioned along with the gold plant complex in 1986 when mining began. Production started through the use of two hoisting shafts, a sub-shaft and two service shafts. The name changed to Mponeng mine in 1999.
Legal aspects and tenure	AngloGold Ashanti holds the following mining right in the Mponeng area which has been successfully converted, executed and registered as new order mining rights at the MPRTO.
	<ul> <li>GP30/5/3/2/2(01)MR valid from 14 February 2006 to 13 February 2036, covering 64.8km<sup>2</sup></li> </ul>
Mining method	For the exploitation of the ever deepening Mineral Resource and the need for flexibility on a mine of this nature, the sequential grid mining method was adopted. This has been proven as the best method suited to deep level gold mining often associated with seismicity.
Operational infrastructure	Mponeng mine has its own processing plant situated adjacent to the mine. Ore and waste material is hoisted separately with ore being delivered to the plant by means of a conveyor belt, and the waste rock going to the low grade stockpile.
Mineral processing	Ore mined is treated and smelted at Mponeng's gold plant, which also receives ore from TauTona and Savuka mines. The ore is initially ground down by means of semi-autogenous milling after which a conventional gold leach process incorporating liquid oxygen injection is applied. The gold is then extracted by means of carbon-in-pulp (CIP) technology. The plant conducts electro-winning and smelting (induction furnaces).
Risks	Upgrading of the Mineral Resource confidence of the deeper parts of Mponeng continues to be challenging. Surface exploration and underground exploration targets are slowly being completed but access to ground ahead of the mining front is often limited. New information once obtained does have the potential to affect the future of Mponeng mine. Exploration drilling on the VCR at depth is indicating that there might be an evolution of the current Geological understanding, this will be further quantified and understood as exploration work continues.

<sup>\*</sup> BMD is 1,828.8m Above Mean Sea Level (AMSL). Mponeng's collar elevation (surface) is 275.8m BMD





#### **VCR WEST WITS UNDERGROUND WORKINGS**



#### **COMPETENT PERSONS**

Mponeng					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Gareth Flitton	SACNASP	400019/15	13 years	BSc Hons (Geology) GDE (Mineral Economics)
Ore Reserve	Willie Olivier	PLATO	MS 0136	26 years	GDE (Mining Engineering) Government Certificate of Competency in Mine Survey

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.

Mponeng

#### **GEOLOGY**

#### **DEPOSIT TYPE**

The VCR is the main reef horizon mined at Mponeng mine. 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 periods of uplift and erosion, controlled the development and preservation of the VCR. 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 are of lower value and become more prevalent on the higher terraces and on the harder footwall units.

The relatively argillaceous protoquartzites of the Kimberley Formation in the central portion of Mponeng are covered by the best preserved VCR conglomerates. The Elsburg formation in the west is relatively more durable, while the eastern side of the mine is dominated by shales and siltstones of the Booysens Formation. No VCR is preserved on the Krugersdorp Formation on the far eastern side of Mponeng.

The CLR is the other gold bearing reef reported as part of the Mineral Resource for Mponeng. This reef has been mined extensively at Savuka and TauTona mines which are now entering the mature stage of their lives. At Mponeng the reef is planned to be mined 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. Continual updates of the CLR estimation are done, as more information generated at TauTona has resulted in a decrease in the CLR Mineral Resource.

#### **MINERALISATION STYLE**

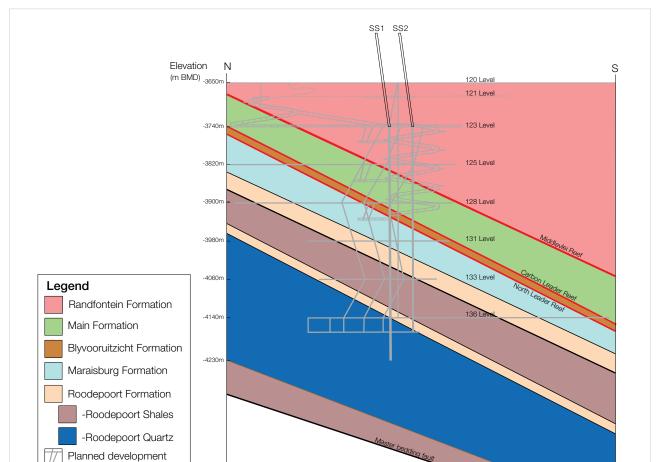
Similar to the Witwatersrand reefs, gold in the VCR was precipitated in the conglomerate reef through the actions of hydrothermal fluids. The fluids precipitated gold and other elements through reactions that took place at elevated temperatures along the reef horizon. The resulting gold grades are mostly uniformly distributed throughout the reef package.

#### **MINERALISATION CHARACTERISTICS**

The VCR displays strong alteration features which can be explained by the hydrothermal fluids that infiltrated the reef at some stage and have overprinted on the original mineral assemblage. Portions of the reef contain authigenic sulphides such as pyrite, pyrrhotite, chalcopyrite, spahelerite and galena, incorporated in the conglomerate's matrix. Gold associations with these mineral assemblages indicate a strong correlation of gold mobilsation and redistribution at the time of the hydrothermal fluid influx. There is also a strong association of gold with a chloritisation event focused along the reef horizon. The Cholrite alteration gives a dark coloration to the reef.

Both the VCR and the CLR 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 way to approach and mine through these structures.





#### GEOLOGICAL CROSS-SECTION THROUGH MPONENG - SS1 SHAFT SECTION, CLR DEEPENING PROJECT

#### **EXPLORATION**

Underground exploration in 2016 targeted the VCR areas east and west ahead of current development fronts on 123 and 126 Levels as well as areas deeper than 126 Level. A number of new intersections were achieved and have been used in evaluating the geological model.

The surface drill hole UD59 consisting of a mother hole and four deflections was completed in 2016. It confirmed the existence of thick well mineralised conglomerate package down-dip of the current working. UD60 and UD58A also intersected the VCR orebody late in 2016 confirming the existence of a well developed VCR in the deeper reaches of the orebody.

Surface drilling into the central and southern portions of the Western Ultra-Deep Levels (WUDLs) lease area will continue in 2017 and will explore the central portion of the WUDLs lease area. Results of which are expected in 2020 or 2021.

The CLR exploration planned from Savuka mine platforms in 2016 was only partially completed. Production and safety constraints experienced at Savuka hampered the completion of the planned holes. Drilling will continue in 2017 from new exploration platforms at TauTona for the CLR phase 2 Mineral Resource in the east.

Mponeng

#### **PROJECTS**

Current mining is focused on the eastern and western edges of the lease area above 120 Level. Value in these areas is starting to decrease. The mining below 120 Level is currently beginning to increase and will begin to replace the above 120 Level production volumes by end of 2017 and start of 2018.

The Phase 1 VCR project is in production on 123 Level and is still accessing reef on 126 Level. On reef development continues east and west where total production is expected to ramp up to 12,000m<sup>2</sup> per month.

A number of planned projects are being considered that will extract portions of the Mineral Resource currently below infrastructure. The CLR Phase 2 project will extract the CLR south of the TauTona and Savuka mines from 123 and 126 Levels. The preparation for the shaft infrastructure started in 2013. During 2015 the decision was taken to defer the Phase 2 project to allow time to look at a possible footprint extension of the project. The CLR project extension and additional planned shaft design work is at PFS level and is scheduled for completion in 2017.

A further four individual PFS studies have been completed to access VCR and the CLR in a phased approach below 126 Level, covering phases 3 – 6. A more holistic PFS is currently underway to ascertain the possibility of concurrently accessing and mining the full VCR and CLR Mineral Resource as one single project. Exploration into these areas continues to improve confidence in the Mineral Resource.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Mponeng		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	5 x 5	-	-	_	✓	_	Chip sampling stoping
Indicated	100 x 100	✓	-	_	-	_	Underground drilling
Inferred	1,000 x 1,000	✓	-	_	-	_	Surface drilling
Grade/ore control		_	_	_	✓	_	See Measured category





#### **INCLUSIVE MINERAL RESOURCE**

Mponeng		Tonnes	Grade	Contained (	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
TauTona VCR 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
VCR above 109 Level	Measured	1.95	12.72	24.77	0.80
	Indicated	1.27	7.93	10.05	0.32
	Inferred	<del>-</del>			_
	Total	3.21	10.83	34.82	1.12
VCR 109 to 120 Level	Measured	4.25	18.86	80.07	2.57
	Indicated	3.58	10.57	37.87	1.22
	Inferred	0.22	3.98	0.87	0.03
	Total	8.04	14.77	118.80	3.82
VCR below 120 Level	Measured	0.51	18.50	9.50	0.31
	Indicated	9.81	16.74	164.21	5.28
	Inferred	0.74	4.97	3.69	0.12
	Total	11.07	16.03	177.40	5.70
VCR WUDLs	Measured	_	_	_	_
	Indicated	9.71	18.95	184.09	5.92
	Inferred	9.08	15.16	137.56	4.42
	Total	18.79	17.12	321.65	10.34
VCR Block 3	Measured	0.03	9.82	0.32	0.01
	Indicated	3.43	5.54	19.01	0.61
	Inferred		_	_	_
	Total	3.46	5.58	19.33	0.62
VCR 129 Level	Measured	_	_	_	-
	Indicated	2.24	19.39	43.49	1.40
	Inferred	0.51	11.66	5.98	0.19
	Total	2.76	17.95	49.47	1.59
TauTona CLR shaft pillar	Measured	0.56	40.81	22.94	0.74
	Indicated	1.02	44.08	44.87	1.44
	Inferred		_		
	Total	1.58	42.92	67.80	2.18
TauTona CLR Eastern Block	Measured	0.01	9.35	0.12	0.00
	Indicated	0.38	19.44	7.43	0.24
	Inferred				
	Total	0.39	19.12	7.55	0.24
CLR below 120 Level Phase 2	Measured	_	_	_	-
	Indicated	12.45	21.12	262.87	8.45
	Inferred	0.09	38.00	3.39	0.11
	Total	12.54	21.24	266.25	8.56
CLR below 120 Level Phase 4 and 6	Measured	-	-	-	-
	Indicated	15.97	19.33	308.75	9.93
	Inferred	7.93	16.30	129.19	4.15
	Total	23.90	18.33	437.94	14.08
CLR Savuka	Measured	0.03	13.42	0.41	0.01
	Indicated	1.49	14.03	20.94	0.67
	Inferred	_	_		_
	Total	1.52	14.02	21.35	0.69
Mponeng	Total	89.00	17.48	1,556.06	50.03

Mponeng

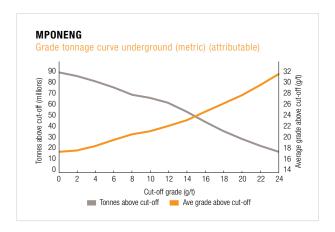
#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: URANIUM (U308)**

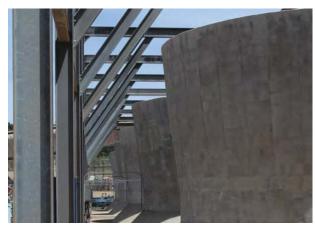
Mponeng		Tonnes	Grade	Contai	ned U₃O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
	Measured	_	_	_	_
	Indicated	32	0.29	9,115	20
	Inferred	8	0.29	2,362	5
	Total	40	0.29	11,477	25

#### **ESTIMATION**

Gold values have been shown to be intimately related to conglomerate preservation on the VCR and forms an integral part of the geological model, as does the footwall lithology.

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 on the VCR into large block sizes, generally >210mx 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.





#### **EXCLUSIVE MINERAL RESOURCE**

Mponeng		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	7.00	18.90	132.32	4.25
	Indicated	33.12	16.90	559.59	17.99
	Inferred	5.45	14.74	80.39	2.58
	Total	45.57	16.95	772.30	24.83

Current mining practice at the West Wits operations leaves behind a large portion of the Mineral Resource as stability pillars. Rock engineering design models require stability to minimise the effects of mining induced seismicity on the deep underground workings. Bracket pillars are also placed around all major geological structures to improve regional stability and to minimise the structure associated risks.

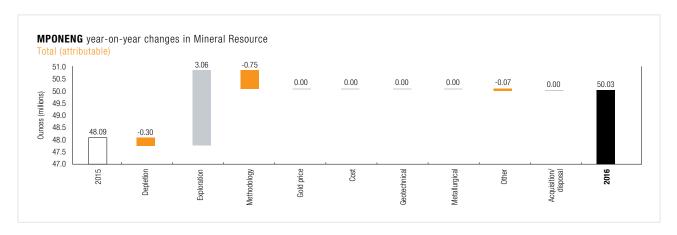
Other areas of the Mineral Resource that do not form part of the LoM include the areas below the economic cut-off of the mine.



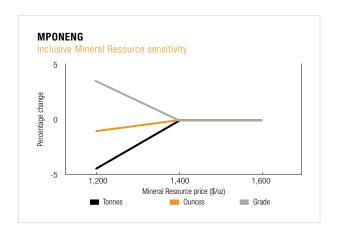
#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

Mponeng		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	9.71	18.95	184.09	5.92
	Indicated	37.50	18.91	709.18	22.80
	Inferred	8.01	16.54	132.58	4.26
	Total	55.22	18.58	1,025.84	32.98

The portion of the Mineral Resource below infrastructure includes those in the WUDLs and the CLR Mineral Resource areas. Infrastructure has only been developed up to 126 Level on the VCR orebody and 120 Level on the CLR orebody.



Year-on-year there was an increase in the Mineral Resource as a result of VCR exploration targets being completed and improving confidence in the Mineral Resource in the WUDLs area. This was slightly offset by a value decrease on the CLR Mineral Resource due to new geological information gained from mining on the eastern edge of TauTona.



The Mineral Resource at Mponeng is insensitive to a change in gold price.

Mponeng

#### ORE RESERVE

#### **ORE RESERVE**

Mponeng		Tonnes	Grade	Contained	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
TauTona VCR Shaft Pillar	Proved	_	-	-	-
	Probable	0.39	8.58	3.35	0.11
	Total	0.39	8.58	3.35	0.11
VCR above 109 Level	Proved	0.06	5.99	0.38	0.01
	Probable	0.09	5.34	0.46	0.01
	Total	0.15	5.62	0.84	0.03
VCR 109 to 120 Level	Proved	0.62	8.67	5.33	0.17
	Probable	1.29	7.53	9.68	0.31
	Total	1.90	7.90	15.01	0.48
VCR below 120 Level	Proved	0.53	10.98	5.86	0.19
	Probable	6.91	12.11	83.60	2.69
	Total	7.44	12.03	89.46	2.88
TauTona CLR shaft pillar	Proved	_	_	_	_
	Probable	0.21	21.21	4.39	0.14
	Total	0.21	21.21	4.39	0.14
TauTona CLR Eastern Block	Proved	_	-	_	-
	Probable	0.33	8.70	2.89	0.09
	Total	0.33	8.70	2.89	0.09
CLR below 120 Level Phase 2	Proved	_	_	_	_
	Probable	10.50	10.46	109.85	3.53
	Total	10.50	10.46	109.85	3.53
CLR below 120 Level Phase 4 and 6	Proved	_	_	_	_
	Probable	17.03	9.18	156.36	5.03
	Total	17.03	9.18	156.36	5.03
CLR Savuka	Proved	_	_		
	Probable	0.88	6.88	6.06	0.19
	Total	0.88	6.88	6.06	0.19
Mponeng	Total	38.83	10.00	388.21	12.48

#### **ESTIMATION**

The mine design process delineates the mining areas and supporting development for each mining level and section, usually by extrapolating the existing mining design using the latest geological structure models, taking all relevant mine design recommendations into consideration. The *in situ* Mineral Resource is scheduled monthly for the full 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 estimate. These factors include a dilution factor to accommodate the difference between the milling width and the stoping width, as well as the MCF.



#### ORE RESERVE

#### **ORE RESERVE MODIFYING FACTORS**

Manana	Gold price	Cut-off grade	Cut-off value	Stoping width	Dilution	MCF	MetRF
Mponeng				Width			
as at 31 December 2016	ZAR/kg	g/t Au	cm.g/t Au	cm	%	%	%
TauTona VCR Shaft Pillar	530,000	4.17	750	180.0	47.7	81.0	97.7
VCR Above 109 Level	530,000	5.06	750	148.2	38.2	81.2	97.5
VCR 109 to 120 Level	530,000	4.99	750	150.2	39.0	81.2	97.5
VCR below 120 Level	530,000	5.73	750	131.0	41.6	81.0	97.9
TauTona CLR Shaft Pillar	530,000	7.14	750	105.0	43.8	81.0	98.0
TauTona CLR Eastern Block	530,000	6.54	750	114.7	44.4	78.0	97.8
CLR below 120 Level Phase 2	530,000	7.14	750	105.0	47.3	81.0	97.8
CLR below 120 Level Phase 4 and 6	530,000	7.14	750	105.0	47.5	81.0	97.6
CLR Savuka	530,000	7.14	750	105.0	52.9	81.0	97.4

MCF and MetRF are based on historic performance with consideration for current and future mining conditions.

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

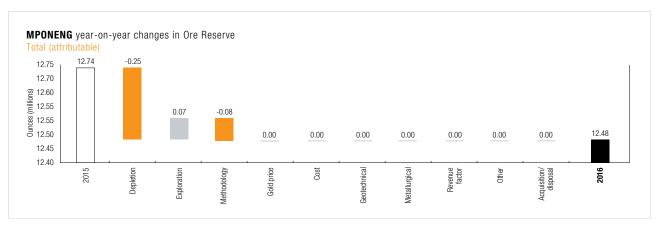
Mponeng	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
CLR below 120 Level Phase 4 and 6	6.06	8.39	50.81	1.63
Total	6.06	8.39	50.81	1.63

The Inferred Mineral Resource is used for optimisation purposes and forms part of the business plan, but is not included in the Ore Reserve. These portions of the deposit are located in the WUDLs area beyond current infrastructure on the VCR (Project Phases 3 and 5) and also make up part of the CLR Mineral Resource that is included in the CLR Phase 4 and 6 project.

The scheduled Inferred Mineral Resource included in the business plan comprises 14% of the total Inferred Mineral Resource and 12% of the LoM Schedule.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

Mponeng		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	_	_	_	_
	Probable	27.53	9.67	266.21	8.56
	Total	27.53	9.67	266.21	8.56



Changes in the Ore Reserve are mainly due to depletion.

# SOUTH AFRICA continued TauTona

### INTRODUCTION

Property description	TauTona (including Savuka) is a mature, deep level underground gold mine with a limited LoM. Mining takes place predominantly on the CLR horizon at depths ranging from 2,900m to 3,480m BMD* with TauTona mining towards the boundary with Driefontein (Sibanye Gold).
Location	TauTona lies on the West Wits Line goldfield, just south of Carletonville in the Gauteng province, about 70km south-west of Johannesburg.
History	Sinking operations began in 1957 and stoping operations on the VCR horizon in 1961. The mine has a three-shaft system comprising a main, a sub-vertical and tertiary vertical shaft. In the past the longwall mining method was the only mining method used but a decision was taken to move from longwall mining to scattered grid mining due to the risk associated with mining through geological structures with longwall panels. Savuka was included in the TauTona operations in 2013.
Legal aspects and tenure	AngloGold Ashanti holds a number of mining rights in the TauTona area which have been successfully converted, executed and registered as new order mining rights at the MPRTO.
	<ul> <li>GP30/5/3/2/2(01)MR valid from 14 February 2006 to 13 February 2036, covering 64.8km²</li> </ul>
	<ul> <li>GP30/5/3/2/2(11)MR valid from 11 July 2006 to 1 July 2016, covering 0.3km<sup>2</sup>, (application for extension pending)</li> </ul>
	<ul> <li>GP30/5/1/2/5/248SP valid from 16 October 2012 to 15 October 2022, covering 1.96km²</li> </ul>
	The extension of the GP30/5/3/2/2(11)MR is currently underway, with submission having been done within regulatory requirements and therefore there is a reasonable expectation that it will be renewed.
Mining method	The mine design at TauTona is somewhat fixed with respect to the established infrastructure and its links to future mine designs. TauTona (including Savuka) utilises the scattered grid mining method as a preferred mining method to optimally extract the Ore Reserve.
Operational infrastructure	The current shaft infrastructure is sufficient for the mining operation being planned and undertaken. Tonnes from Savuka mine are trammed through 120 Level to TauTona Shaft. Both ore and waste for TauTona and Savuka are hoisted to surface as one product and are trucked to Mponeng plant. This plant is shared with Mponeng mine. In the long term with a declining production profile, the strategy is to equip the inter level on 120 Level to Mponeng and hoist the tons utilising Mponeng shaft infrastructure.
Mineral processing	The ore is initially ground down by means of semi-autogenous milling after which a conventional gold-leach process incorporating liquid oxygen injection is applied. The gold is then extracted by means of CIP technology. The plant conducts electro-winning and smelting (induction furnaces).
Risks	As mining proceeds to new ground there is an inherent risk in mining through geological structures like faults and intrusives. To mitigate these risks DD is done in order to gain as much upfront information as possible. The other risk is seismicity which is associated with geological features exacerbated by the fact that TauTona is an ultra deep level underground gold mine. This risk is managed through an on-going seismic risk management system which then informs the mining strategy and execution schedule.
	The closure of Blyvooruitzicht in 2013, and subsequent suspension of groundwater pumping, presented a serious risk to the economic viability of TauTona. In order to mitigate this risk, the Covalent Water Company was established to initiate pumping at source from Blyvooruitzicht No. 4 and No. 6 shafts. Although the Covalent Water Company will be responsible for handling the bulk of the underground water from Blyvooruitzicht mine, there has been a gradual buildup of underground water within the workings of Blyvooruitzicht No. 5 shaft. The water level at Blyvooruitzicht No. 5 shaft reached the pumping level point in September 2016 and as per our strategy pumping operations commenced and are continuing.

<sup>\*</sup> BMD is 1,828.8m Above Mean Sea Level (AMSL). TauTona's collar elevation (surface) is 176.2m BMD



#### **CLR WEST WITS UNDERGROUND WORKINGS**



#### **COMPETENT PERSONS**

TauTona					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Michelle Pienaar	SACNASP	400027/15	14 years	BSc Hons (Geology)
Ore Reserve	Kabelo Dube	PLATO	PMS 0255	9 years	BTech, Government Certificate of Competency in Mine Survey, MBA, ND (Survey)

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.

TauTona

#### **GEOLOGY**

#### **DEPOSIT TYPE**

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 sediments 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.

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

The CLR and VCR are cross-cut and displaced by faults and intrusive dykes and sills of various ages. The faulting, in conjunction with the many intrusives that displace and intersect these reefs, is responsible for most of the risk inherent in deep level gold mining, since seismicity is associated with these geological features.

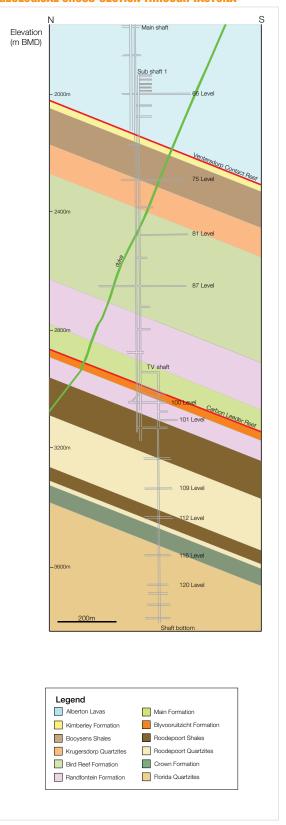
#### **MINERALISATION STYLE**

Gold mineralisation followed an episode of deep burial, fracturing and alteration. A variant of Archaean greenstone gold-bearing hydrothermal fluid was introduced into the reef environment and was probably circulated in hydrothermal cells. The Carbon Leader conglomerate system proved a suitable fluid conduit and various minerals were precipitated in the permeable, often structurally-prepared host. Solid hydrocarbon precipitated in very thin, flat veins, which usually formed at the base of the Carbon Leader.

#### **MINERALISATION CHARACTERISTICS**

Gold was precipitated by cooling and reactions between the fluid and the wallrocks, in this case pyritic conglomerates. The regional distribution of gold was strongly influenced by subtle changes in the physical properties of the conglomerates and their footwall lithologies. Gold mineralisation was enhanced in areas of high fluid throughput, which were often the sites of high carbon precipitation and strong early alteration.

#### **GEOLOGICAL CROSS-SECTION THROUGH TAUTONA**





#### **EXPLORATION**

Geological drilling and cover drilling forms an integral part of the mining strategy and a detailed DD plan with schedules is in place in conjunction with mine designs to ensure a high confidence in the business plan and a sound geological structure model.

Long inclined borehole (LIB) drilling commenced towards the most south-eastern block of TauTona mine in 2015 and was abandoned in 2016. No reef was intersected, however structures were confirmed which increase the confidence in the structural model to the South East. No further LIB drilling has been planned in this block. The required information will however be obtained from the Geological and cover drilling which is planned for this area. Further drilling will upgrade the confidence in the area south of the Pretorius Fault Zone (PFZ). Drilling will also confirm the eastern boundary line with the lower value Driefontein geological domain.

Savuka is a mature mine approaching the end of its productive life. No exploration is currently taking place at this operation. Exploration drilling did however commence in 2016, in conjunction with Mponeng mine, south of the Savuka/Mponeng mine boundary to further improve the confidence in the Mineral Resource for Mponeng's below 120 Level extension.



TauTona

#### **PROJECTS**

#### **NEW TECHNOLOGY REEF BORING PROJECT**

Technology is being developed to extract gold-bearing material using mechanical boring techniques, with the aim of creating an explosive-free, and, therefore, continuous mining operation. At the core of this initiative is the need to remove people from risk while creating a continuous-mining environment where only the reef is extracted.

After successfully working through the initial teething problems the MK IV reef-boring machine was commissioned at the test site. Simultaneously work continues on the MK III reef-boring machines deployed in the VCR and CLR sites with the aim to improve the machine performance (hours drilled per hole).

#### **NEW TECHNOLOGY GEOLOGICAL DRILLING PROJECT**

Uphole reverse circulation (RC) drilling is being developed as a potential method to replace conventional DD techniques used in the South African operations. This method will assist in defining the orebody geometry accurately and rapidly ahead of mining to facilitate future planning and scheduling for automated reef boring.

The Bohrmeister fit for purpose drill rig was designed and commissioned successfully during 2016. Trials will commence in 2017 with the aim to continue to improve the drilling accuracy where the goal is to reach a geological target within the defined accuracy and time benchmarks.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

TauTona		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	5 x 5	_	-	_	✓	_	Chip sampling stoping
Indicated	100 x 100,	✓	_	-	_	_	Underground drilling
	800 x 800						
Inferred	1,000 x 1,000	✓	_	_	_	_	Surface drilling
Grade/ore control		_	_	_	/	_	See Measured category

#### **INCLUSIVE MINERAL RESOURCE**

TauTona		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
TauTona CLR	Measured	0.98	23.74	23.35	0.75
	Indicated	1.88	23.38	43.86	1.41
	Inferred	_	_	_	-
	Total	2.86	23.51	67.21	2.16
Savuka CLR	Measured	0.33	15.49	5.10	0.16
	Indicated	0.63	16.95	10.74	0.35
	Inferred	_	_	_	-
	Total	0.96	16.45	15.84	0.51
TauTona	Total	3.82	21.73	83.06	2.67

#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: URANIUM (U308)**

TauTona			Grade	Contaiı	ned U₃O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
	Measured	_	_	_	-
	Indicated	4	0.34	1,300	3
	Inferred	_	_	_	
	Total	4	0.34	1,300	3

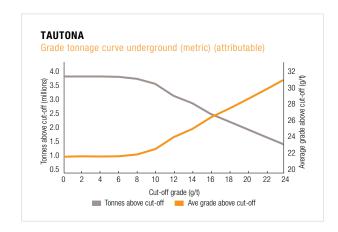


#### **ESTIMATION**

In recent years, extensive work has been done in refining the geological model for the CLR which utilised several new methods including geochemistry, spectral scanning and various geostatistical techniques.

This final geological model subdivides the CLR into four areas of broad homogeneity which are used for estimation.

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 on the CLR is performed into large block sizes, generally >420m x 420m, 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.





#### **EXCLUSIVE MINERAL RESOURCE**

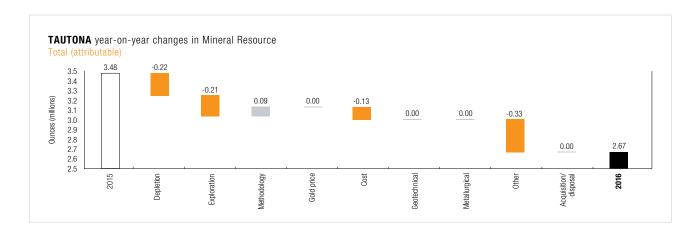
	Inferred	_	_	_	_
	Indicated	1.23	23.22	28.64	0.92
	Measured	0.98	21.28	20.87	0.67
as at 31 December 2016	Category	million	g/t	tonnes	Moz
TauTona	Tonnes	Grade	Contain	ed gold	

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

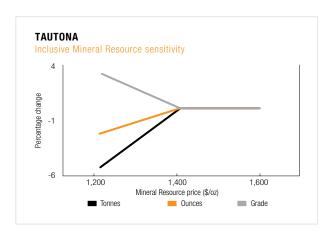
#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

No Mineral Resource reported below infrastructure.

#### TauTona



The decrease is mainly due to transfers out of Mineral Resource due to cleanup and rock engineering pillars, intershaft transfers, structure changes, decrease in face values mainly in the Driefontein geological domain as well as mining depletion.



The Mineral Resource at TauTona is insensitive to changes in gold price due to it being a mature operation with limited flexibility.

#### ORE RESERVE

#### **ORE RESERVE**

TauTona		Tonnes	Grade	Contained	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
TauTona CLR	Proved	0.49	11.19	5.45	0.18
	Probable	2.06	8.31	17.08	0.55
	Total	2.54	8.86	22.52	0.72
Savuka CLR	Proved	0.14	6.29	0.89	0.03
	Probable	0.04	7.59	0.28	0.01
	Total	0.18	6.56	1.17	0.04
TauTona	Total	2.72	8.71	23.70	0.76

#### **ESTIMATION**

The mine design process delineates the mining areas and supporting development for each mining level and section, usually by extrapolating the existing mining design using the latest geological structure models, taking all relevant mine design recommendations into consideration. The *in situ* Mineral Resource is scheduled monthly for the full 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 estimate. These factors include a dilution factor to accommodate the difference between the milling width and the stoping width, as well as the MCF.



#### **ORE RESERVE MODIFYING FACTORS**

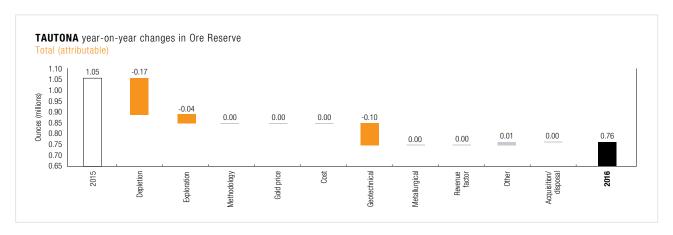
TauTona	Gold Price	Cut-off grade	Cut-off value	Stoping width	Dilution	MCF	MetRF
as at 31 December 2016	ZAR/kg	g/t Au	cm.g/t Au	cm	%	%	%
TauTona CLR	530,000	8.18	900	110.0	52.1	75.5	97.0
Savuka CLR	530,000	7.50	900	120.0	47.2	71.0	96.7

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

No Inferred Mineral Resource in the business plan.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

There is no Ore Reserve reported below infrastructure.



Ore Reserve changes are due to depletions, geotechnical changes especially in Savuka with the impact of the BV 78 seismic event and revisions to the mining strategy that have resulted in mine design changes.



# SOUTH AFRICA continued Surface Operations

## INTRODUCTION

Property description	Surface Operations in South Africa produce gold by processing surface material such as low grade stockpiles and the re-treatment of tailings storage facility (TSF) dams. Surface Operations comprise Vaal River Surface, West Wits Surface and Mine Waste Solutions (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. These operations extract gold from the low grade stockpile material emanating as a byproduct of the reef mining activities within the Vaal River mines. The MWS Operations are located approximately 8km from the town of Klerksdorp near Stilfontein within 20km of the Vaal River Surface Operations. The MWS feed sources (TSF dams) are scattered over an area that stretches approximately 13.5km north-south and 14km east-west. The West Wits Surface Operations are located near the town of Carletonville, across the border between the North West and Gauteng provinces.
History	Gold from surface material has been produced routinely since 2002. AngloGold Ashanti acquired the MWS Mineral Resource and tailings retreatment operations in the Vaal River region in July 2012. The MWS Uranium plant and flotation plants were commissioned in 2014. Changes were made in the configuration of the flotation and uranium processes after which the float plant was recommissioned in July 2016 and the uranium plant in October 2016. These plants were reconfigured into a more efficient configuration during 2016.
Legal aspects and tenure	MWS licence to mine is covered by the environmental authorisation under the National Environmental management Act. In terms of the current legislation, Mineral and Petroleum Resources Development Act (MPRDA), it is not required to have a mining right to reclaim tailings dams and MWS can prove ownership and tenure of the operations. As it is likely that pending legislation, once passed, will require a mining right to be obtained in order to mine tailings dams, AngloGold Ashanti applied in May 2013, in terms of S102 of the MPRDA to extend its main Vaal River Mining Right (16MR) to incorporate the entire MWS operation. The S102 consent was granted under the main VR mining right (16MR).
	The New Order Mining Rights for the South African Operations cover multiple horizons, i.e. both underground and surface for Vaal River and West Wits Regions. The TSF dams falling outside the Mining Right are accommodated under historical Surface Rights Permits for Vaal River and West Wits, which are still valid.
Mining method	Low grade stockpiles: Bulldozers are used to create furrows through the stockpile in order to blend the rock and create safe loading faces. The material is then loaded onto rail hoppers or trucks by means of a front-end loader and transported to the relevant gold plants for processing.
	Tailings storage facilities: The tailings are reclaimed using a number of hydraulic (high-pressure water) monitoring guns to deliver water at pressure, typically 27-30 bar, to the face. The tailings material is reclaimed by blasting the TSF face with the high-pressure water, resulting in the slurry gravitating towards pumping stations. These monitoring guns can be positioned to selectively reclaim required areas from the TSF dams. Bench heights are constrained by the force delivered from the monitoring gun nozzle and safety constraints. With sufficient pressure, face lengths of up to 25m can be reclaimed.
	The pump stations are located at the lowest point of the dams to ensure that the slurry from the dams will gravitate towards the pump station from where the slurry will be pumped to the processing plants.
Operational infrastructure	Low grade stockpiles in Vaal River and West Wits are processed through dedicated surface sources metallurgical plants and MWS processes tailings material in the Vaal River area. Adequate deposition capacity for the Surface Operations exists in all areas. Operational infrastructure – road, rail, offices, security services, water and power supply – is adequate and is shared with the AngloGold Ashanti mines in the relevant areas.



#### Mineral processing

The mineral process is dependent on the source material, tailings material is pumped directly to a conventional carbon-in-leach (CIL) plant while hard rock material will go through comminution first, and then be processed through leach followed by CIP.

Sulphur separation takes place where required and in the case of MWS, uranium is extracted using acid leach. MWS comprises three separate gold plants namely Stream 1, Stream 2 and Stream 3. Hydraulically-reclaimed material from several TSF dams is delivered to the three plants for gold extraction.

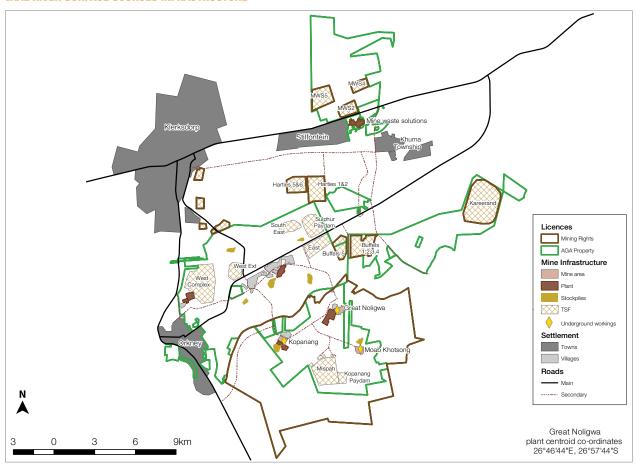
The West Wits Surface Operations process low grade stockpile material sourced from the mining of the CLR and the VCR that are mined by the West Wits mines in the Carletonville/Fochville area, as well as hydraulically-reclaimed material from the Old North TSF.

Within the Vaal River area, the Kopanang, West and Mispah Gold plants are dedicated surface operations plants. In the West Wits area the Savuka Gold plant processes surface sources material.

Risks

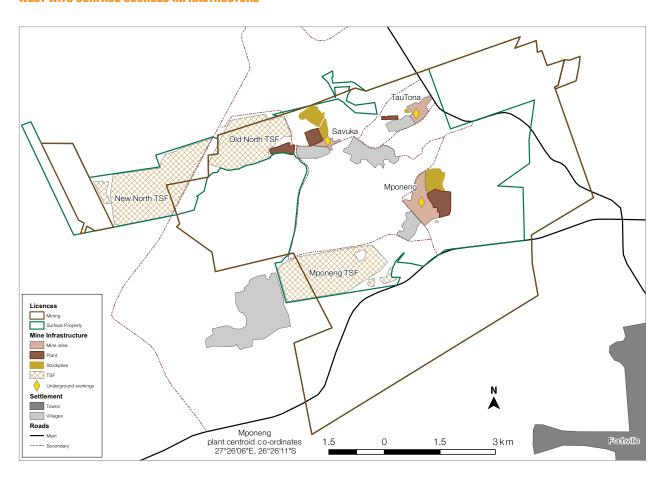
There are no known unmanaged risks that may affect reclamation activities. An independent, external Mineral Resource and Ore Reserve audit was undertaken in 2016 and found no fatal flaws, in process or output. A potential tonnage reconciliation issue was however noted during the external audit and will be investigated further in 2017.

#### **VAAL RIVER SURFACE SOURCES INFRASTRUCTURE**



Surface Operations

#### **WEST WITS SURFACE SOURCES INFRASTRUCTURE**



#### **COMPETENT PERSONS**

Surface Operations					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Raymond Orton	PLATO	MS 0132 30	30 years	GDE (Mineral Economics), Government Certificate of Competency in Mine Survey, HND (Mineral Resource Management)
Ore Reserve	Mariaan Gagiano	SAIMM	705 920	32 years	Government Certificate of Competency in Assaying

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.



#### **GEOLOGY**

The material contained in the TSF and low grade stockpiles originates from the historic ore-bearing reefs mined by the West Wits, Vaal River, Buffelsfontein, Hartebeestfontein and Stilfontein Gold Mines. The material contained in the TSF dams is fine grained.

#### **LOW GRADE STOCKPILES**

The low grade stockpiles consist of waste rock mined from underground workings, hoisted, transported and deposited via conveyor belts. The gold contained within these dumps was sourced from three areas namely:

- · Minor reef that are intersected while accessing the primary reef
- · Gold-bearing reef that was contained within small fault blocks that were exposed by off-reef development
- Cross-tramming of gold-bearing reef material to the waste tips

#### **TAILINGS STORAGE FACILITIES**

The tailings dams consist of tailings material which originated from the processing of the underground ore from the Vaal River Operations (VR Surface), the West Wits Operations (WW Surface) and Buffels, Hartebeestfontein and Stilfontein Gold Mines (MWS). These Gold Mines are deep level gold mines, which predominantly extract the tabular, conglomeratic VR, CLR and VCR. The VR has been predominantly mined for gold in the past although the reef also contains uranium oxide, the same is true, but to a lesser extent with the CLR and VCR.

The material contained in the tailings dams is fine in nature. The footprints of the MWS tailings dams and Vaal River Surface Operations tailings dams cover an area of approximately 1,100ha.

#### **PROJECTS**

The upgrade of the Sulphur Pay Dam (SPD) Pump Station was completed in 2016. The upgrade of the SPD Pump Station increased its flexibility and reclamation capacity for the MWS Operations.

Rehabilitation work is ongoing and gold is produced from cleaning-up operations at Vaal River and West Wits, this material is processed through the West Gold plant, Kopanang Gold plant and Savuka Gold plant respectively.



Surface Operations

### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION (1)

Surface Operations			Ту	pe of drilling			
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Vaal River Surface							
Measured	50 x 50, 100 x 100	-	_	_	_	✓	Auger drilling
Indicated	100 x 100, 150 x 150	_	_	-	-	1	Auger drilling
Inferred		_	_	_	_	_	-
Grade/ore control	50 x 50, 100 x 100	-	-	_	_	✓	Auger drilling
Mine Waste Solutions							
Measured	50 x 50 to 320 x 250	_	-	-	-	✓	Auger drilling
Indicated	100 x 100 to 300 x 375	-	-	_	-	✓	Auger drilling
Inferred		-	_	-	-	-	-
Grade/ore control	50 x 50, 100 x 100	-	_	_	-	1	-
West Wits Surface							
Measured		_	_	_	_	_	-
Indicated	150 x 150	_	_	_	_	1	Auger drilling
Inferred		_	_	_		_	-
Grade/ore control		_	_	_	_	_	_

<sup>(1)</sup> In the case of TSF dams, additional sampling information is available in the form of residue sampling collected during deposition on the TSF dams





#### **INCLUSIVE MINERAL RESOURCE**

INDECOME MINERAL RECOGNICE					
Surface Operations		Tonnes	Grade	Contained (	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Vaal River Surface					
Tailings storage facility	Measured	10.83	0.20	2.19	0.07
	Indicated	421.73	0.27	112.96	3.63
	Inferred	_	_	_	_
	Total	432.56	0.27	115.15	3.70
Low grade stockpile	Measured	_	-	_	-
	Indicated	23.03	0.43	9.98	0.32
	Inferred	0.05	0.69	0.04	0.00
	Total	23.08	0.43	10.01	0.32
Mine Waste Solutions					
Tailings storage facility	Measured	125.20	0.22	27.53	0.89
	Indicated	172.64	0.26	44.96	1.45
	Inferred	_	_	_	_
	Total	297.84	0.24	72.49	2.33
West Wits Surface					
Tailings storage facility	Measured	_	-	_	_
	Indicated	187.29	0.24	44.56	1.43
	Inferred	_	_	_	_
	Total	187.29	0.24	44.56	1.43
Low grade stockpile	Measured	_	-	_	_
	Indicated	7.05	0.51	3.61	0.12
	Inferred	_	_	_	_
	Total	7.05	0.51	3.61	0.12
Surface Operations	Total	947.81	0.26	245.82	7.90

### INCLUSIVE MINERAL RESOURCE BY-PRODUCT: URANIUM ( $U_3O_8$ )

INCLUSIVE WIINERAL RESOURCE DI-FI	TODOUT. UNANTONI (U3U8)				
Surface Operations		Tonnes	Grade	Contai	ned U <sub>3</sub> O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
Vaal River Surface					
	Measured	_	_	_	_
	Indicated	433	0.09	38,863	86
	Inferred	_	_	_	_
	Total	433	0.09	38,863	86
Mine Waste Solutions					
	Measured	125	0.07	8,523	19
	Indicated	173	0.08	13,898	31
	Inferred	_	_	_	_
	Total	298	0.08	22,421	49
West Wits Surface					
	Measured	_	_	_	_
	Indicated	187	0.07	13,402	30
	Inferred	_	_	_	_
	Total	187	0.07	13,402	30
Surface Operations	Total	918	0.08	74,686	165

Surface Operations

#### **ESTIMATION**

#### **Tailings storage facilities**

Prior to 2011 for the Vaal River Operations, the grade estimations for the TSF dams were based on the residue grades obtained from the different process plants, as well as various *ad hoc* sampling projects in selected areas. All the TSF dams in Vaal River and MWS have since been re-sampled by means of an extensive drilling exercise which commenced in 2011. A stringent QA/QC process was applied to the sampling and assay processes to ensure a high level of confidence in the results. The auger drilling typically took place on a 150 x 150m grid (Mineral Resource model) as well as a 50 x 50m grid (Grade control model). The vertical sampling interval of 1.5m was implemented and where possible all holes were drilled into the native underlying strata to allow the estimation of the base of the TSF. The estimation technique being used is 3D ordinary kriging. The variograms used for the grade estimation consist of both horizontal and downhole variograms. The model used for the construction of the grade model constitutes well defined 3D wireframes which are constructed using the drill holes and the results from monthly surveys on currently reclaimed TSF dams and aerial surveys carried out on an annual basis for TSF dams which are planned to be reclaimed. These models are regularly updated during the grade control process.

In the West Wits Surface Sources area, all the grade estimations for the TSF dams were based on the residue grades obtained from the different process plants as well as various *ad hoc* sampling projects in selected areas. For one of these areas, the Old North Complex, a drilling programme with the standard QA/QC programme was implemented in 2015 and in 2016 a 3D estimate was completed as per the MWS estimation process.

#### Low grade stockpiles

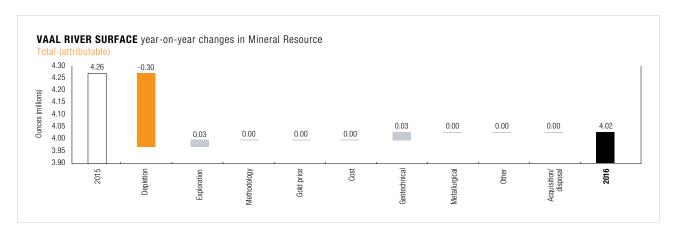
In the West Wits and Vaal River Operations the grade estimation is based on grades obtained from reclaimed tonnages from the different stockpiles, grades obtained from rock deposited on these facilities and grades from various other sampling projects carried out on some of the stockpiles. These sampling exercises involved a pit being dug on a pre-determined grid on the low grade stockpiles from which grab samples were taken. These samples were then split into different size fractions and assayed to determine the gold distribution for the different size fractions. The profiles of the stockpiles are also updated by means of aerial surveys carried out on an annual basis. Sampling is done by means of mechanical stop belt samplers on the feed belts at the Metallurgical plants

#### **EXCLUSIVE MINERAL RESOURCE**

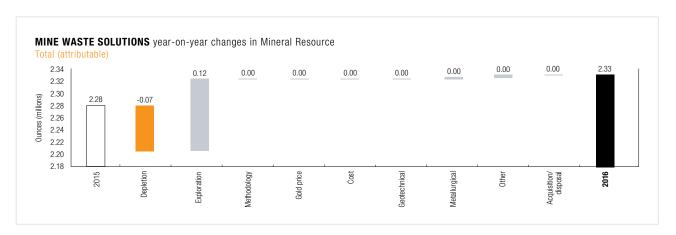
Total	181.27	0.24	43.08	1.38
Total	177.54	0.24	41.82	1.34
Inferred	_	_		_
Indicated	177.54	0.24	41.82	1.34
Measured	_	-	_	-
Total	3.68	0.33	1.22	0.04
Inferred		_	_	_
Indicated	0.29	0.26	0.07	0.00
Measured	3.39	0.34	1.14	0.04
Total	0.05	0.69	0.04	0.00
Inferred	0.05	0.69	0.04	0.00
Indicated	_	_	_	_
Measured	_	_	_	_
Category	million	g/t	tonnes	Moz
	Tonnes	Grade	Contained	gold
	Measured Indicated Inferred Total  Measured Indicated Inferred Total  Measured Inferred Total	Measured         -           Indicated         -           Inferred         0.05           Total         0.05           Measured         3.39           Indicated         0.29           Inferred         -           Total         3.68    Measured	Category         million         g/t           Measured         -         -           Indicated         -         -           Inferred         0.05         0.69           Total         0.05         0.69           Measured         3.39         0.34           Indicated         0.29         0.26           Inferred         -         -           Total         3.68         0.33           Measured         -         -           Indicated         177.54         0.24           Inferred         -         -           Total         177.54         0.24	Category         million         g/t         tonnes           Measured         -         -         -           Indicated         -         -         -           Inferred         0.05         0.69         0.04           Total         0.05         0.69         0.04           Measured         3.39         0.34         1.14           Indicated         0.29         0.26         0.07           Inferred         -         -         -           Total         3.68         0.33         1.22           Measured         -         -         -           Indicated         177.54         0.24         41.82           Inferred         -         -         -           Total         177.54         0.24         41.82

The exclusive Mineral Resource includes a portion of the Mispah II TSF, which is below cut-off grade.

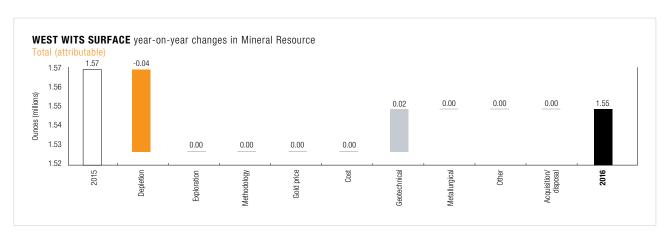




Changes in the Mineral Resource are mainly due to normal depletions from tailing storage facilities and low grade stockpiles as well as Mineral Resource changes at Kopanang Paydam due to new to drilling information.

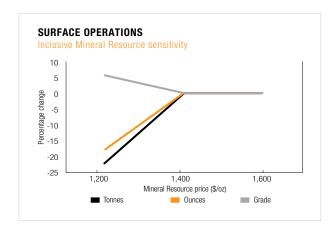


Normal depletions and Harties 1, Buffels 1 and MWS 5 Mineral Resource model updates as a result of additional drill information.



Movement is mainly due to depletions. Additions are from plant residues as well as low grade stockpiles from Mponeng mine.

Surface Operations



Surface Operations are very sensitive to a gold price reduction due to the marginal nature of the business.

#### ORE RESERVE

#### **ORE RESERVE**

Surface Operations		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Vaal River Surface					
Tailings storage facility	Proved	10.83	0.20	2.19	0.07
	Probable	421.73	0.27	112.96	3.63
	Total	432.56	0.27	115.15	3.70
Low grade stockpile	Proved	_	_	-	_
	Probable	22.91	0.32	7.22	0.23
	Total	22.91	0.32	7.22	0.23
Mine Waste Solutions					
Tailings storage facility	Proved	121.81	0.22	26.39	0.85
	Probable	172.35	0.26	44.89	1.44
	Total	294.16	0.24	71.27	2.29
West Wits Surface					
Tailings storage facility	Proved	_	-	-	-
	Probable	9.75	0.27	2.64	0.08
	Total	9.75	0.27	2.64	0.08
Low grade stockpile	Proved	-	-	_	_
	Probable	7.05	0.39	2.72	0.09
	Total	7.05	0.39	2.72	0.09
Surface Operations	Total	766.42	0.26	199.00	6.40



#### ORE RESERVE BY-PRODUCT: URANIUM (U<sub>3</sub>O<sub>8</sub>)

Surface Operations		Tonnes	Grade	Contai	ned U <sub>3</sub> O <sub>8</sub>
as at 31 December 2016	Category	million	kg/t	tonnes	pounds million
Vaal River Surface					
	Proved	11	0.13	1,408	3
	Probable	334	0.09	30,922	68
	Total	344	0.09	32,330	71
Mine Waste Solutions					
	Proved	14	0.06	776	2
	Probable	172	0.08	13,852	31
	Total	186	0.08	14,628	32
Surface Operations	Total	531	0.09	46,959	104

Uranium is produced at the Vaal River Operations during the processing of reef material from Moab Khotsong 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 prior to gold extraction at Noligwa Gold plant. The MWS and Vaal River Surface TSF material is processed for extraction of gold and uranium through the MWS gold and uranium circuits.

Yellow cake is the final product of both the South Uranium plant and MWS Uranium plant which is transported to the NUFCOR located in Gauteng where the material is calcined and packed for shipment to the converters.

#### **ESTIMATION**

#### **Tailings storage facilities**

Mine design models delineate the areas to be reclaimed over the life of the operations, taking all relevant mine design recommendations into consideration. The *in situ* Mineral Resource is scheduled for the full LoM plan. The value estimates for these schedules are derived from the Mineral Resource block models where they exist.

Tailings are evaluated as inclusive complexes, in addition, the individual compartments making up the TSF complexes are evaluated to facilitate the composition of optimised mining plans. The benefit of the reclamation of the surface sources and subsequent rehabilitation of the relevant areas is included in the evaluation of the feasibility of the project.

#### Low grade stockpiles

Planned reclamation from the low grade stockpiles is scheduled out to ensure an average blend. The *in situ* Mineral Resource is scheduled for the full LoM plan. The value estimates for these schedules are derived from the Mineral Resource estimate with an 18 month reconciliation factor applied to the Mineral Resource estimate.

#### **ORE RESERVE MODIFYING FACTORS**

Surface Operations	Gold price	Cut-off grade	% RMF	% RMF	MCF	MetRF
as at 31 December 2016	ZAR/kg	g/t Au	(based on tonnes)	(based on g/t)	%	%
Vaal River Surface						
Tailings storage facility	530,000	0.24	100.0	100.0	100.0	46.2
Low grade stockpile	530,000	0.34	99.8	72.8	100.0	88.0
Mine Waste Solutions						
Tailings storage facility	530,000	0.24	100.0	100.0	100.0	46.2
West Wits Surface						
Tailings storage facility	530,000	0.28	100.0	96.3	100.0	42.0
Low grade stockpile	530,000	0.38	100.0	75.3	100.0	92.0

10% margin applied for cut-off grade calculations

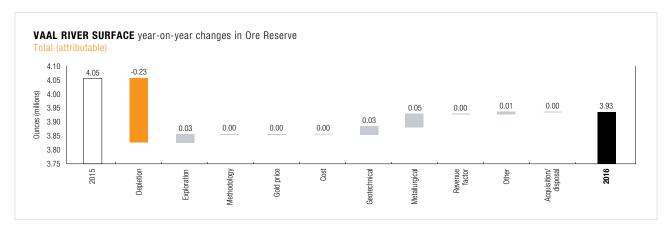
Surface Operations

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

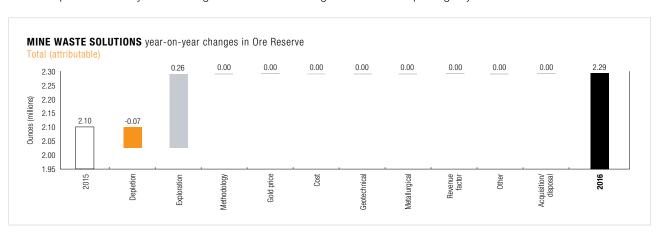
Surface Operations	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Vaal River Surface – low grade stockpile	0.07	0.34	0.02	0.00
Total	0.07	0.34	0.02	0.00

The No.3 low grade stockpile is part of Vaal River Inferred Mineral Resource in the plan and 74% of this dump has already been processed through the Vaal River plants and will be depleted by the end of 2016.

Part of MWS 5 TSF was reported as an Inferred Mineral Resource but has been included to be processed during LoM. Drilling was conducted in 2015 on the MWS 5 TSF to improve the confidence in the Mineral Resource. The block model for MWS 5 has been updated in 2016 with the information from the drilling and the classification has been reviewed. The Mineral Resource was re-classified and has been included as Indicated Mineral Resource and Probable Ore Reserve.

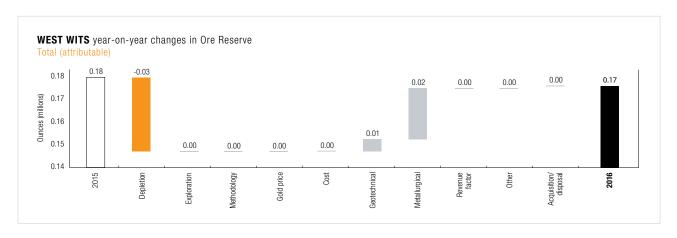


Normal depletions offset by model changes based on new drilling information at Kopanang Paydam.



Changes in the Ore Reserve are mainly due to changes in the Mineral Resource classification specifically the upgrading of MWS 5 to Indicated Mineral Resource as a result of drilling and modelling, which resulted in additional Ore Reserve.





Year-on-year changes due to depletion and an increase from the TSF dams.



#### SECTION 3

## CONTINENTAL AFRICA



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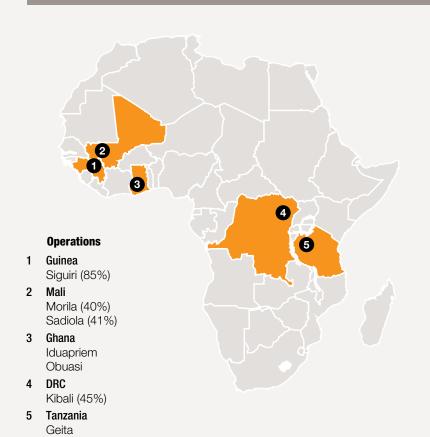
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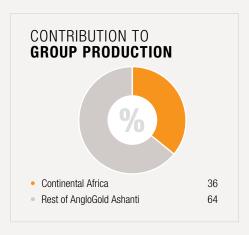


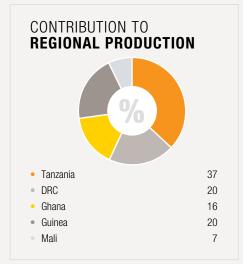
# CONTINENTAL AFRICA Regional overview



### CONTINENTAL AFRICA







#### **KEY STATISTICS**

ALI GIAIIGIO				
	Units	2016	2015	2014
Operational performance				
Tonnes treated/milled	Mt	28.2	27.2	29.9
Recovered grade	oz/t	0.047	0.053	0.054
	g/t	1.46	1.64	1.66
Gold production (attributable)	000oz	1,321	1,435	1,597
Total cash costs	\$/oz	717	678	783
Total production costs	\$/oz	1,005	900	977
All-in sustaining costs (1)	\$/oz	904	815	968
Capital expenditure (2)	\$m	291	315	454

<sup>(1)</sup> Excludes stockpile write-offs.

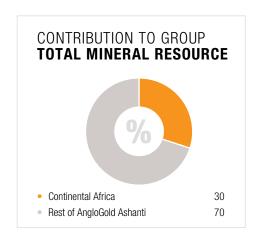
<sup>(2)</sup> Includes equity-accounted investments.

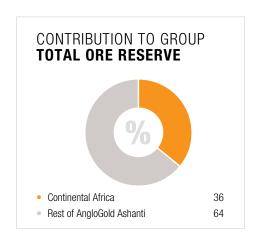
## CONTINENTAL AFRICA continued

Regional Overview

As at December 2016, the total attributable Mineral Resource (inclusive of the Ore Reserve) for the Continental Africa region was 63.8Moz (2015: 58.3Moz) and the attributable Ore Reserve 17.8Moz (2015: 19.3Moz).

This is equivalent to around 30% and 36% of the group's Mineral Resource and Ore Reserve respectively. Combined production from these operations totalled 1.321Moz of gold in 2016, or 36% of group production.





AngloGold Ashanti has seven mining operations within Continental Africa Region: Kibali in the Democratic Republic of the Congo (DRC); Iduapriem and Obuasi in Ghana; Siguiri in Guinea; Morila and Sadiola in Mali and Geita in Tanzania. Mining is from both open pit and underground, with Iduapriem, Siguiri and Sadiola being open pit mines, Kibali, Obuasi and Geita being a combination of open pit and underground mines and Morila being primarily a tailings retreatment operation.

Yatela is in closure mode and there is no Mineral Resource or Ore Reserve attributable to Yatela.

#### **INCLUSIVE MINERAL RESOURCE**

Continental Africa		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	36	1.09	40	1
	Indicated	504	2.77	1,399	45
	Inferred	162	3.36	544	17
	Total	702	2.82	1,983	64

#### **EXCLUSIVE MINERAL RESOURCE**

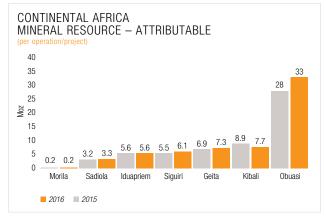
Continental Africa		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	1	3.29	5	0
	Indicated	283	3.07	869	28
	Inferred	161	3.37	544	17
	Total	446	3.18	1,417	46

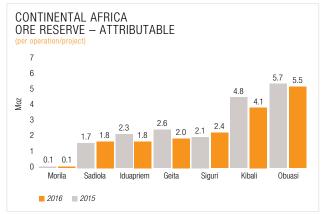
#### **ORE RESERVE**

Continental Africa		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	30	0.73	22	1
	Probable	217	2.45	531	17
	Total	247	2.24	553	18









# CONTINENTAL AFRICA continued Democratic Republic of the Congo

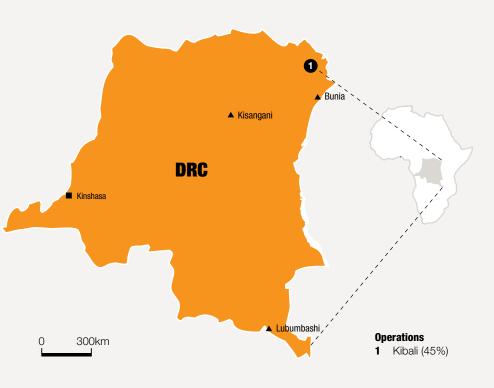
# COUNTRY OVERVIEW

AngloGold Ashanti owns 45% of Kibali in the DRC. Kibali produced 586koz in 2016 of which AngloGold Ashanti's portion was 264oz.

The operation is a joint development between three separate groups:

- AngloGold Ashanti
- Randgold Resources Limited (Randgold), the operator, an African-focused gold mining and exploration business with primary listings on the London Stock Exchange and Nasdaq
- Société Minière de kilo-Moto (SOKIMO), the state-owned gold mining company

The consolidated lease is made up of 10 mining concessions.



# **INCLUSIVE MINERAL RESOURCE**

	Total	81	2.96	241	8
	Inferred	21	2.33	48	2
	Indicated	53	3.25	172	6
	Measured	8	2.66	21	1
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Democratic Republic of Congo		Tonnes	Grade	Contain	ed gold

# **EXCLUSIVE MINERAL RESOURCE**

	Total	47	2.27	107	3
	Inferred	21	2.33	48	2
	Indicated	25	2.17	55	2
	Measured	1	3.27	4	0
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Democratic Republic of Congo		Tonnes	Grade	Contair	ed gold

# **ORE RESERVE**

Democratic Republic of Congo		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	2	1.90	4	0
	Probable	30	4.17	125	4
	Total	32	4.03	128	4





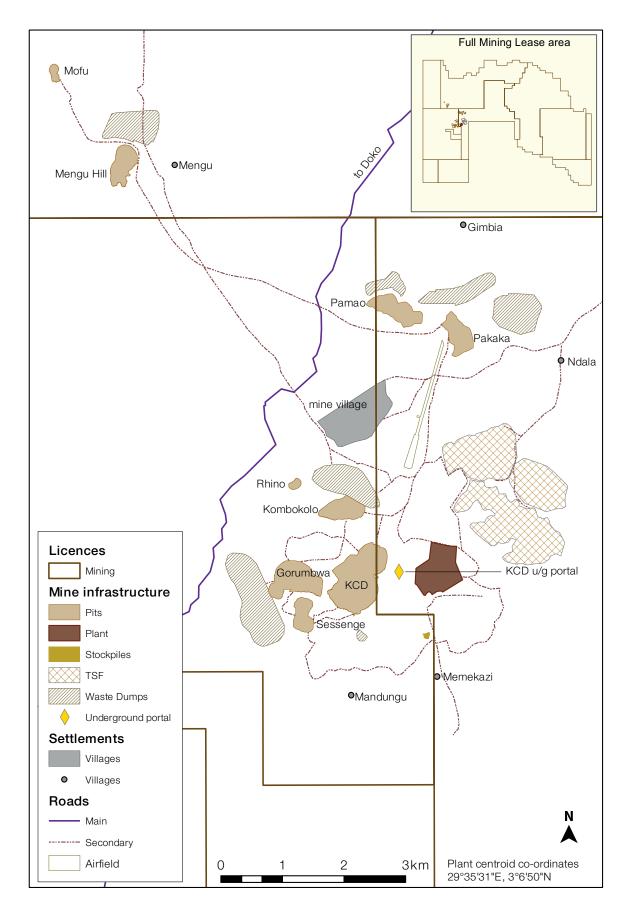
# CONTINENTAL AFRICA continued **Kibali**

# INTRODUCTION

Property description	Operations presently focus on open pit and underground mining, with underground development on twin declines and a vertical shaft. Gold production began in September 2013.
Location	Kibali is located in the north-eastern part of the DRC near the international borders with Uganda and South Sudan. The mine is located adjacent to the village of Doko, which is located in the west of the lease area. Kibali is approximately 210km by road from Arua, and immediately north of the district capital of Watsa. The operations area falls within the administrative district of Haut Uélé in Orientale province.
History	On 15 October 2009, AngloGold Ashanti acquired a 50% indirect interest in Moto Goldmines Ltd through a joint venture (JV) with Randgold, with Moto holding a 70% stake in Kiabli and the balance (30%) being held by the DRC parastatal, SOKIMO. On 21 December 2009, Randgold and AngloGold Ashanti increased their JV interest in Kibali to 90%, while SOKIMO retained a 10% holding.
	First gold was poured in September 2013 from the open pit operations. Underground mining commenced in 2014.
Legal aspects and tenure	The total Ore Reserve is covered by exploitation permits (11447, 11467, 11468, 11469, 11470, 11471, 11472, 5052, 5073, 5088) totalling 1,836km². Kibali Gold Mine has also been granted 10 exploitation permits under the DRC mining code, seven of which are valid until 2029 and three are valid until 2030.
Mining method	The mine comprises both open pit and underground mining. The open pit Ore Reserve shell optimisations are conducted on the Mineral Resource models. Detailed mine designs are then completed for open pit mining. This incorporated the mining layout, operating factors, stripping ratio and relevant cut-off grade for the Ore Reserve. Mining operations are conducted by a contractor. Longitudinal and transverse longitudinal stoping methods with paste backfill were chosen as the preferred underground mining methods. The mine site is located within 160km of the border with Uganda and all transport links take place through Uganda to Kenya or Tanzania.
Operational infrastructure	The mine site is located within 160km of the border with Uganda and all transport links take place through Uganda to Kenya or Tanzania. Surface infrastructure associated with the overall Kibali operation includes a processing plant, tailings storage facility, camp, hydro and thermal power stations, airstrip, workshops and offices. All necessary governmental agreements and approvals critical to the viability of the mine are in place.
Mineral processing	The current processing plant can treat both oxide and fresh sulphide material and is configured for flotation and ultra-fine-grind of the flotation concentrate; a treatment that is required for the refractory sulphide ore type before leaching.
Risks	There are no material risks that will impact on the Mineral Resource and Ore Reserve.







Kibali

## **COMPETENT PERSONS**

Kibali								
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification			
Mineral Resource and Ore Reserve	Rodney Quick*	SACNASP	400014/05	23 years	BSc Hons (Geology) MSc (Geology)			

<sup>\*</sup> Employed by Randgold at 3rd Floor, Unity Chambers, 28 Halkett Street, St Helier, Jersey, OJE2

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

# **GEOLOGY**

# **DEPOSIT TYPE**

Deposits of the Kibali district are located in the Archaean Moto Greenstone Belt bounded to the north by the West Nile Gneiss and to the south by plutonic rocks of the Watsa district. The belt comprises three lithostratigraphically distinct blocks. Psammopelitic schists, amphibolite, banded iron formations, and gneissic granitoid sills metamorphosed under upper greenschist to low-midamphibolite facies conditions form the eastern part of the belt. Relatively weakly foliated basalts, cherts, siliciclastic rocks, dacitic volcaniclastic rocks, and carbonaceous argillite metamorphosed under mid to upper greenschist facies conditions comprise the central and western-most parts of the belt. Granitoid plutons as old as ca. 2,640Ma intrude these rocks. A thick package of immature sandstone, gritstone, conglomerate, and probably acid tuffs forms much of the western part of the belt, including the host rocks to KCD, the largest deposit discovered to date within the belt. Radiometric dating indicates these siliclastic rocks were deposited during a belt-wide basin extension event between ca. 2,629-2,626Ma, with much of the detritus derived from adjacent older parts of the belt.

Boundaries between these lithostratigraphic blocks represent important exploration targets. The richly mineralised KZ Trend appears to have initiated as an extensional fault system along the boundary between the relatively young basin in the western part of the belt and older rocks to the east. Mineralisation occurred during the later stages of subsequent regional contractional deformation which resulted in inversion of the basin, development of reverse faults, and folds.

The main Kibali deposit consists of the combination of Karagba, Chauffeur and Durba (KCD) deposit. Currently only the KCD deposit hosts an underground Ore Reserve and this constitutes 74% of the total KCD Ore Reserve.

# **MINERALISATION STYLE**

Gold mineralisation of the Kibali district are classified as Archaean orogenic gold deposits. At Kibali the gold deposits are largely hosted in siliciclastic rocks, banded iron formations, and chert that were metamorphosed under greenschist facies conditions. Ore-forming  $H_2O-CO_2$ -rich fluids migrated along a linked network of gently northeast-dipping shears and northeast to NNE-plunging fold axes that is commonly referred to as the KZ Trend. On-going deformation during hydrothermal activity resulted in development of lodes in a variety of related structural settings within the KZ Trend. The source(s) of metal and fluids which formed the deposits remain unknown, but metamorphic devolatilisation reactions within the supracrustal rocks of the Moto Greenstone Belt and/or deeper fluid and metal sources may have contributed.

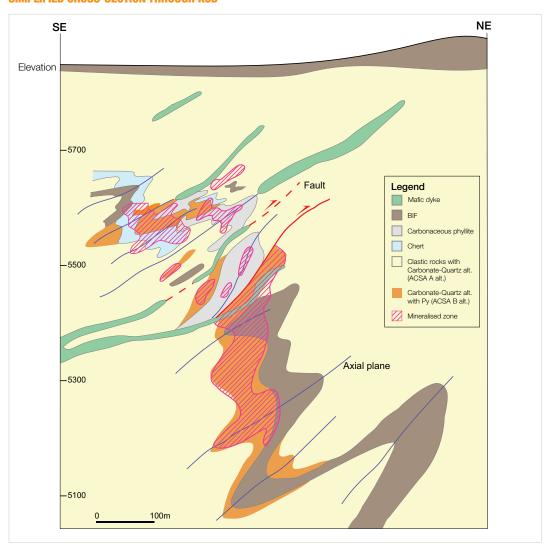
# MINERALISATION CHARACTERISTICS

Gold deposits of the Kibali district are associated with haloes of quartz, ankerite, sericite,  $\pm$  albite (ACSA-A) alteration that extend for 10s to 100s of metres into the adjacent rocks. This widespread ACSA-A alteration assemblage is superimposed on older greenschist facies metamorphic assemblages. Locally in the vicinity of the main mineralised zones ACSA-A alteration is overprinted by ankerite-siderite, pyrite alteration (ACSA-B) that hosts the ore. Gold is directly associated with the ACSA-B alteration assemblage. In smaller peripheral deposits a late chlorite, carbonate, pyrite assemblage is associated with the ore rather than the ACSA-B assemblage, implying a district-wide zonation of mineral assemblages along and across the mineralised KZ Trend. Zones of auriferous ACSA-B alteration are commonly developed along the margins of banded iron formations, or contacts between chert, carbonaceous phyllite, and banded iron formations. Mineralised rocks in the Kibali district typically lack significant infill quartz-rich veins, unlike many other orogenic gold deposits. Gold is instead associated with pyrite in zones of alteration that replaced the earlier mineralogy of the host rocks. Local remobilisation and upgrading of ACSA-B related ore occurred adjacent to the margins of some post-ore crosscutting chlorite, carbonate,  $\pm$  pyrite,  $\pm$  magnetite-altered diorite dikes.



The location of the individual lodes within the KCD deposit are intimately controlled by the position, shape, and orientation of a series of gently northeast-plunging tight to isoclinal folds. The ACSA-A alteration developed during the formation of these folds, and the sericite foliation which is an integral part of the ACSA-A assemblage formed parallel to their axial planes. Zones of later auriferous ACSA-B alteration developed along the axes, limbs, and more rarely the axial planes of these folds, locally wrapping around the hinges of the folds to form elongate northeast-plunging concave-shaped rods. ACSA-B alteration is also commonly focused along the margins of more extensive banded iron formations, indicating a stratigraphic as well as structural control on the distribution of ore, both within KCD, and other parts of the wider KZ Trend. Shear zones that were active during folding are a third key structural control on the location of ore within KCD and the wider KZ Trend. At KCD a folded carbonaceous shear in the core of the deposit juxtaposes stratigraphically distinct blocks. The 3,000 lodes above this shear are hosted by locally ferruginous cherts, carbonaceous argillites, and minor greywacke, whereas the 5,000 and 9,000 lodes below are hosted by siliciclastic rocks and banded iron formation. Fold shapes and wavelength differ between the two blocks reflecting their different rheologies during folding, and this is reflected in the scale, shape, and continuity of lodes in each block. At Pakaka and Kalimva chlorite, carbonate, pyrrhotite, ± pyrite-altered shear zones rather than folds are the principal controls on gold distribution.

# **SIMPLIFIED CROSS-SECTION THROUGH KCD**



Kibali

# **EXPLORATION**

Total exploration drilling in 2016 at Kibali was 28,111m, of which 19,434m was mine based drilling and 8,677m was on regional targets. DD comprised 6,660m of the total drilling, the remaining being RC drilling. The exploration aimed to fulfil three main objectives: Mineral Resource-Ore Reserve replacement, potential oxide displacement ounces, and identify and develop new targets.

Mine based exploration took place at the Rhino-Agbarabo-Kombokolo area, Pakaka, Pamao, Tete Bakangwe, Kanga Sud, Ndala Village, Aerodrome and Sessenge Southwest, regional exploration was focused on the Kalimva-Ikamva targets in the north, Memekazi Ridge, and the Aindi Watsa-Dilolo-Zambula targets in the south.

An analysis of historic data and field validation work was completed on the 3.2km long Agbarabo-Pakaka corridor, resulting in the identification of priority targets for exploration. Three trenches completed in the Rhino-Agbarabo Gap area support the potential within this area and towards the Agbarabo pit. A 793 hole auger sterilisation/upside potential programme was conducted over the Rhino-Agbarabo area and positive results were recorded towards the northeast of Rhino, with follow-up work planned. A 20-hole, 1,020m RC drill programme at the Agbarabo East target was conducted with the holes drilled over four fences to follow-up results from trenching and sampling of historical and artisanal pits. The results confirmed continuity of mineralisation and follow-up drilling is planned.

The main Rhino target was re-assessed and a new mineralised wireframe built indicating upside to the previous model. Eight trenches were subsequently completed with seven returning encouraging intersections, and a close-spaced RC drilling programme undertaken, with 5,311m drilled across 123 RC holes. The primary aim was to bring additional ounces into the mine plan from extension of the high grade shoot, with further down-plunge continuity confirmed by a diamond hole drilled 130m down plunge from surface. Bottle Roll tests were completed on trench and drill hole material at Rhino and indicate good recoveries (95%) in oxide with lower recoveries in fresh rock, averaging 75%.

The Kombokolo target has been tested as a potential higher-grade oxide Mineral Resource, with three phases of drilling completed. The results have been generally positive with one main ore lens and two thinner and lower grade lenses delineated. Bottle Roll Tests from individual and composite samples indicate average recoveries of 75 to 79%. In addition, five trenches were completed to test continuity between Rhino-Kombokolo, with positive results to be followed-up with a planned RC drilling programme.

Scout-drilling, targeting mineralised trench intercepts at Tete Bakangwe, confirmed the presence of high grade mineralised shoots plunging to the northeast along the main shear. However, the ore shoots are narrow and the target has been downgraded as a near-term Ore Reserve replacement.

Positive results were received from a single drill hole at Durba Hill, which was completed to in-fill the 230m gap between Sessenge and the KCD pit. The results indicate a possible link between the 9001 domain (up-plunge) at Sessenge and 9003 domain (down-plunge) at KCD.

At Sessenge Gap, the first phase of the RC drill campaign was completed, consisting of 10 holes for 875m. Results received indicate an increase in thickness and grade from Gorumbwa towards the Sessenge pit.

At KCD, a new geological model was completed. Results from the revised optimisation of the KCD super-pit, comprising KCD, Sessenge, Gorumbwa, Sessenge Gap and Durba Hill deposits, based on lithological and conceptual mineralised wireframes indicated a potential increase in ounces, reduction in strip ratio and a reduction in grade.

Two programmes of RC drilling were completed at Sessenge SW, targeting positive trench and auger results. Three mineralised lenses have been identified and a fourth lens may also be present in the northwest. Further drilling is planned. 17 composite Bottle Roll tests were also completed and indicated an average recovery of 83% for oxide composites, with fresh material returning low recoveries averaging 65%.

At the Pamao deposit, six diamond holes and four trenches were completed. Most results have been returned, which were positive and show continuity of two mineralised lenses along 700m strike, with mineralisation open towards the northwest and southeast.

At Zone 1 of the Kanga Sud target a fence of 6 RC holes was completed, testing the down plunge continuation of potential mineralisation. Results confirmed the mineralised lenses; however, the target shows reduced potential due to the shallow weathering



and low overall grade.

12 RC holes were completed at the Ndala target to follow up on trenching results. Lower than predicted overall tenor and continuity of grade argue against further work at this time.

# **PROJECTS**

The shaft sinking has reached the shaft bottom at a final depth of 751.2m and the equipping of the shaft was completed in 2016 with first ore from the shaft expected towards Q3 2017.

At the Ambarau hydro power plant, construction continued during the year, with first power scheduled for early 2017. Construction on the Azambi hydro power plant (the third hydro power plant to be constructed), started during 2016 and is on plan to be completed in 2018.

The project to expand the mine's ultra-fine grinding capacity, to improve full sulphide feed recoveries, continued according to schedule,



Kibali

with commissioning planned for Q1 2017.

# MINERAL RESOURCE

# DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Kibali			Type of drilling				
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	5 x 10,	✓	✓	_	_	_	-
	15 x 20						
Indicated	40 x 40	✓	✓	_	_	_	-
Inferred	80 x 80	✓	✓	_	_	_	-
	5 x 10,						
Grade/ore control	15 x 20	✓	✓	_	_	_	_

## **INCLUSIVE MINERAL RESOURCE**

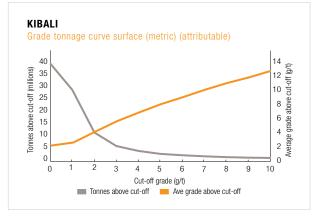
Kibali		Tonnes	Grade	Containe	d gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Open pit	Measured	4.40	2.09	9.21	0.30
	Indicated	22.19	2.07	45.84	1.47
	Inferred	9.33	1.89	17.59	0.57
	Total	35.91	2.02	72.64	2.34
Underground	Measured	3.40	3.40	11.55	0.37
	Indicated	30.72	4.10	125.97	4.05
	Inferred	11.25	2.70	30.34	0.98
	Total	45.36	3.70	167.86	5.40
Kibali	Total	81.28	2.96	240.50	7.73

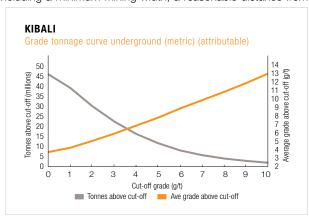
\$1,500/oz Mineral Resource price used by Randgold (operating partner)

# **ESTIMATION**

Mineral Resource estimation is undertaken by Randgold in-house Competent Persons or by approved external consultants. The results both of DD and of RC drilling are used in the estimation process. 3D mineralised envelopes are established using 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 from 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. Drillhole spacing is used to guide the Mineral Resource classification according to guidelines of the relevant reporting codes. The open pit Mineral Resource is quoted within a limiting shell.

In 2016, the underground Mineral Resource was constrained for the first time by the application of optimised mineable Mineral Resource shapes, which applies reasonable mineability constraints including a minimum mining width, a reasonable distance from





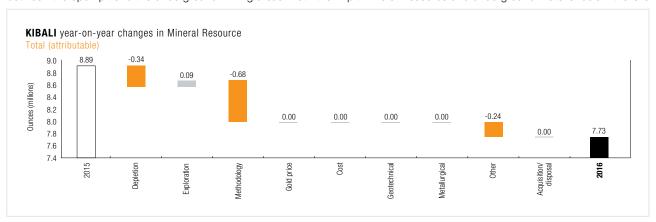


current or planned development, and a measure of assumed profitability at the related Mineral Resource cut-off grade.

# **EXCLUSIVE MINERAL RESOURCE**

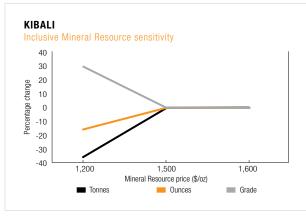
Kibali as at 31 December 2016 Category		Tonnes million	Grade g/t	tonnes	ed gold Moz
	Measured	1.35	3.27	4.42	0.14
	Indicated	25.21	2.17	54.61	1.76
	Inferred	20.58	2.33	47.93	1.54
	Total	47.14	2.27	106.96	3.44

The exclusive Mineral Resource for the open pits largely comprise of Inferred Mineral Resource and tonnages that occur below the Ore Reserve cut-off grade (due to gold price difference). 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. Both the in-pit Mineral Resource and underground material below the Ore



Reserve mining cut-off form a significant part of this material.

Change due to a revised geological model and the constraining of the underground Mineral Resource into optimised stope shapes.



Kibali is very sensitive to a decrease in gold price due to the nature of the underground mineralisation.

Kibali

This constraining has removed isolated areas of mineralisation and constrained the Mineral Resource to potentially mineable areas.

# ORE RESERVE

# **ORE RESERVE**

Kibali		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Open pit	Proved	1.94	1.90	3.67	0.12
	Probable	11.09	2.15	23.82	0.77
	Total	13.02	2.11	27.49	0.88
Underground	Proved	_	_	_	_
	Probable	18.83	5.36	100.91	3.24
	Total	18.83	5.36	100.91	3.24
Kibali	Total	31.85	4.03	128.40	4.13

\$1,000/oz Ore Reserve price used by Randgold (operating partner)

## **ESTIMATION**

The open pit Ore Reserve shell optimisations were completed on the Mineral Resource models. 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 5,685mRL between the KCD open pit and underground mine.

A cut-off grade analysis at \$1,000/oz was used to determine a cut-off grade of 2.5g/t for the underground mine. Longitudinal and transverse longhole open stoping methods with paste backfill were chosen as the preferred mining method. Underground stope designs were updated from the previously reported Ore Reserve using the latest Mineral Resource models. 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 (FS) and have been updated as the project has developed for the Ore Reserve to remain viable.





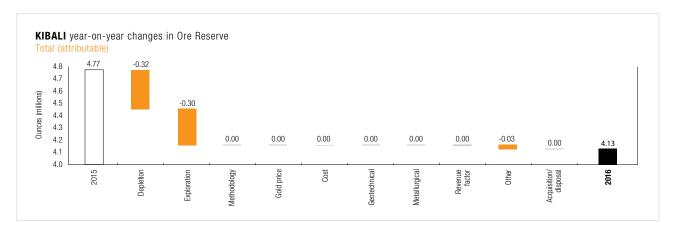
# **ORE RESERVE MODIFYING FACTORS**

Kibali	Gold price	Cut-off grade	Stoping width	Dilution	Dilution	MCF	MetRF
as at 31 December 2016	US\$/oz	g/t Au	cm	%	g/t	%	%
Open pit	1,000	1.52	_	10.0	_	100.0	84.5
Underground	1,000	2.40	2,000.0	2.7	1.0	100.0	88.9

\$1000/oz Ore Reserve price used by Randgold (operating partner)

## **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 for the main KCD deposit.



Decrease is the result from depletion and a new geological model.



# Ghana

AngloGold Ashanti has two mines in Ghana. Obuasi, currently in care and maintenance, is primarily an underground mine operating at depths of up to 1,500m with a continuous history of mining dating back to the 1890s 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. Mining was temporarily suspended at the end of 2014 whilst a series of economic studies progressed. Iduapriem is located in western Ghana, some 85km from the coast and south of Obuasi.



# **INCLUSIVE MINERAL RESOURCE**

Ghana		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	3	0.82	2	0
	Indicated	208	4.29	890	29
	Inferred	54	5.99	322	10
	Total	264	4.59	1,215	39

# **EXCLUSIVE MINERAL RESOURCE**

Ghana		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	0	3.91	0	0
	Indicated	147	4.52	664	21
	Inferred	54	5.99	322	10
	Total	201	4.91	987	32

# **ORE RESERVE**

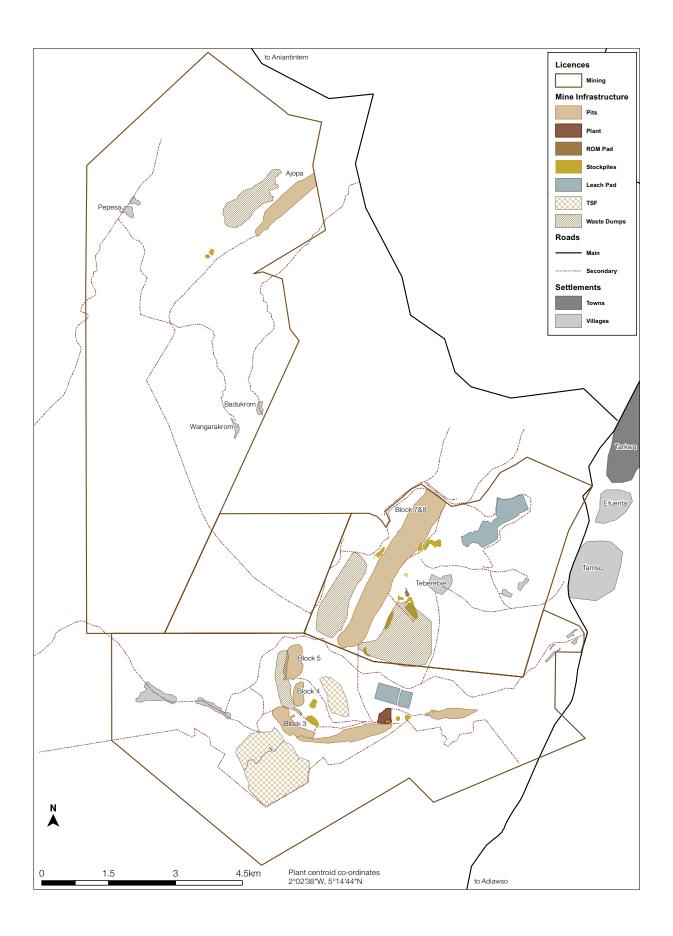
Ghana		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	3	0.76	2	0
	Probable	64	3.55	226	7
	Total	67	3.43	228	7

# CONTINENTAL AFRICA continued Iduapriem



# INTRODUCTION

i	Iduapriem is located in the western region of Ghana, some 70km north of the coastal city of Takoradi and					
	approximately 10km south-west of the town of Tarkwa. 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 in existence since the 1920s.					
	A draft FS was completed in June 1989 and revised in 1990. In October 1991, Golden Shamrock began construction of a 1.36mtpa semi-autogenous milling circuit and CIP plant.					
, (	Iduapriem commenced mining operations in early August 1992, with the first gold pour achieved in September of that year. In April 1995, Golden Shamrock approved a proposed expansion of the milling capacity to 2.8mtpa and in May 1997, Golden Shamrock completed the new heap-leach plant and the upgrade of the CIL plant. On 23 August 2000, the Teberebie lease was acquired from the defunct Teberebie Goldfields Limited.					
ļ	In 2002, Ashanti upgraded the plant capacity further to 4mtpa. In mid-April 2004, the merger of AngloGold Ltd and Ashanti Goldfields Co Ltd was completed. AngloGold Ashanti extended the capacity of the plant again in 2009 post the merger with the plant currently doing 5mtpa.					
Legal aspects and	Iduapriem comprises the following mining leases;					
tenure	• Iduapriem – LVB1539/89 covering 31km² and expiring on the 18 April 2019					
	<ul> <li>Ajopa North – LVB/WR326/09 covering 48.34km² and expiring on the 5 January 2019</li> </ul>					
	<ul> <li>Teberebie properties – LVB3722H/92 covering 25.83km². One area of the lease was issued on 2 February 1988 and will expire in 1 February 2018, while the other was issued on 18 June 1992 and will expire in 17 June 2018, the registration of the transfer of the lease is still in process</li> </ul>					
,	A new environmental management plan (EMP) has been submitted for extension of the mining leases.					
(	Iduapriem is an open pit mine, making use of contract miners. The mine fleet consists of two – Lieb 9250 and one – Lieb 984 excavators and 26 – CAT 777s for Block 7 and 8 mining. An additional fleet of one – CAT 390D and one – Volvo EC 750D and 14 – Volvo ADT for Ajopa mining. A further 12 articulated haul trucks are used to haul ore from the Ajopa pit to the plant.					
infrastructure	Surface infrastructure associated with Iduapriem's operation includes a primary crusher, overland conveyor, CIP processing plant next to the main offices building, tailings storage facility and two camp areas for contractors and company employees. Tarkwa town is also adjacent to the tenement. Power is obtained from the grid. Current government agreements seek to ensure constant power to site.					
	The current processing plant treats free-milling material from open-cast mining, by a conventional crush-semi-autogenous ball milling circuit and leaching.					
	Power reliability and stability, slope/high wall stability (rockfall potential) and inrush/inundation (flooding of pits, tailings dam and infrastructure) all are potential risks.					





## **COMPETENT PERSONS**

Iduapriem					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Tebogo Mushi	SAIMM	702 438	15 years	BSc (Hons) Mining Engineering
					GDE (Mineral Economics)
Ore Reserve	Stephen Asante Yamoah	MAusIMM	304 095	12 years	BSc (Hons) Mining Engineering
					MSc (Mining Engineering)

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.

# **GEOLOGY**

## **DEPOSIT TYPE**

The Banket Series in the mine lease areas form prominent, arcuate ridges extending southwards from Tarkwa, westwards through Iduapriem and northwards through Teberebie to Mantraim. The ridge segments are supported by a massive lithological unit known as the Footwall Quartzite, which is a strongly-bedded rock of blue-grey colour exhibiting a sub-parallel haematitic/black sand banding and which locally forms the basal stratigraphic unit to the Banket Reef Zone (BRZ).

The BRZ comprises a sequence of individual beds of quartz pebble conglomerates (Banket beds), breccia conglomerates, meta-sandstones (also called quartzites and grits). All known gold mineralisation within the Banket Formation is associated with the conglomerates and is found within the matrix that binds the pebbles together. Gold content is presumably a function of the size and amount (packing) of quartz pebbles present within a conglomeratic unit- more pebbles present suggest more gold.

# **MINERALISATION STYLE**

Gold mineralisation is hosted by conglomeratic sedimentary packages referred to as zones or reefs and is considered to be of primary palaeoplacer origin. There are four recognized reefs, namely A, B, C and D and which are equivalent to the Tarkwaian Sub-Basal, Basal (or Main), Middle (or West) and Breccia Reefs respectively. The B and C reefs are oligomictic, and consist of well sorted conglomerates and have been mined underground in some areas for over a century. The A and D reefs have a lower gold tenor and are polymictic containing both well rounded and angular fragments. The gold is fine-grained, free and not associated with sulphides. The main ancillary mineral is magnetite.

# **MINERALISATION CHARACTERISTICS**

At Iduapriem, the entire Tarkwaian Group has been folded into a broad syncline, locally referred to as the Tarkwa Syncline. The reefs are stratigraphically located within the Banket Formation and are the locus of the mine towards the southern closure of the Tarkwa Syncline. With the gold mineralisation being stratabound, the characteristics of the mineralisation are defined by the reefs. The Tarkwa Syncline covers the eastern portion of the lease (Blocks 1-8), with the Ajopa deposit located in the north-western lease on the western limb of the Ajopa anticline.

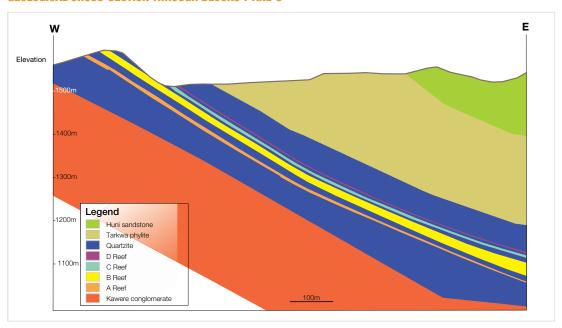
For blocks 1 to 8, the pits are numbered sequentially from east to west across both limbs of the Tarkwa Syncline. These limbs, which outcrop and express themselves as topographic ridges, trend NE on the easterly limb and NNE on the westerly limb. The closure of the syncline results in an east-west cuspate shape to the reefs at the southern limits of the Banket formation. Reef dips are variable and reflect the structural complexity of the basin. The eastern limb of syncline dips steeply 70-80 degrees towards the west, however this changes to the south where the dips become steeper, eventually becoming overturned and southerly dipping at the southern margin of the basin in the vicinity of blocks 1 and 2. Moving westwards to block 3, the dips again dip into the syncline and flattening to approximately 50 degrees by Block 3 east. At Blocks 7 and 8, which are the dominant constituents of the Ore Reserve, the reefs dip 35 to 30 degrees to the west. Reef packages vary in thickness, with those in Blocks 7 and 8 being between 3 and 10m thick, but in the vicinity of Block 1 reefs thin, onlap and thicken due to thrusting.

At Ajopa, where the reefs are expressed as a topographic ridge striking NE-SW, dips are generally 50 to 60 degrees to the west. All four reefs are present, however the B and C reefs are more dominant and thicknesses vary between 3m and 8m.

Faulting is common and major faults are believed to be contemporaneous with the folding. Within the Tarkwa Syncline, faults form bounding structures to the blocks and separate the individual pits from each other.

Iduapriem

## **GEOLOGICAL CROSS-SECTION THROUGH BLOCKS 7 AND 8**



# **EXPLORATION**

Exploration during 2016 focused on infill drilling at Block 7 and 8, Mineral Resource delineation drilling at Block 4S and reconnaissance drilling at the Bankyem (Block 1 East), Block 1 West, Mile 5 and Nueng targets. A total of 11,316m was drilled, comprising 8,275m DD and 3,041m RC. Soil geochemical surveys were also completed over various target areas as part of a lease-scale programme.

The drilling at Block 7 and 8 was completed to convert Inferred Mineral Resource to Indicated Mineral Resource, with a total of 3,541m drilled, comprising 712m RC and 2,829m DD. Structural reef duplications in the area were refined and particularly impact the A and B reefs. The results generally correlate well with the Mineral Resource model.

Drilling at Block 4S achieved 2,456m, 501m being RC and 1,955m being DD. This drilling closes up the strike gap between Block 3W and Block 4. All eleven holes drilled intersected mineralised conglomerate; however, the full conglomerate reef sequence is disrupted to the north, and often truncated, by a series of structures and associated mafic and felsic intrusives. The drilling was preceded by a detailed mapping exercise in the Block 3W/Block 4S area, which highlighted the major fault that displaces Block 4 relative to Block 3W.

At the Bankyem (Block 1 East) target, 1,597m was drilled (421m RC and 1,176m DD) to complete the programme initiated in 2015. Although some significant intercepts were reported, these do not materially impact the evaluation of the target area, which is uneconomic under current conditions.

A geochemical soil survey was carried out during Q3 over the Nueng target, between Block 1 and Block 2. This was followed up with a drilling programme initiated in Q4: a total of four holes for 1,087m were drilled (282m RC and 805m DD) and drilling will continue into Q1 2017. To date there has been no intersection of conglomerate reef, with the drilled lithologies mainly quartzite with some mafic intrusive. Several shear zones, associated with strong silicification and pyrite, have also been noted.

Immediately east of the Nueng target, a total of 1,523m drilling, comprising 406m RC and 1,117m DD, was completed at Block 1 West, west of the historic Block 1 pit. The programme aimed to verify historic drill hole results and establish the extension of conglomerate reefs west towards the Nueng target area. Significant intersections were reported showing conglomerate reef packages extending from the Block 1 pit to Nueng about 300m along strike.

At Ajopa, two holes were drilled for a total of 357m (75m RC and 282m DD) to investigate spatial discrepancies between grade control and Mineral Resource models for the pit.



Ten (590m RC) holes were completed in the Mile 5 area as a follow up on gold-in-soil anomalies. Assay results which were generally poor show gold occurrences mainly in the south east of the target area. Further mapping after the initial drilling shows two main vein trends, north-south and east-west. Limited further drilling will be undertaken on a southwest azimuth to further aid modelling and assessment of mineralised veins in the area.

A geochemical soil sampling programme was completed, focusing on the western lease area and including Mile 5 West, Badukrom, Ajopa NW and Ajopa NNW. Data validation is ongoing and only partial results have been returned to date.

Interpretation of the airborne geophysical surveys flown in late 2015 was completed and further work, including development of a revised lease-scale geological map and target generation. Several additional targets were identified as a result, several of which are covered by the soil survey programme.

# MINERAL RESOURCE

# DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Iduapriem		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	25 x 25,	✓	✓	_	_	_	-
	50 x 50,						
	50 x 75,						
	100 x 50						
Indicated	50 x 50,	✓	1	-	_	-	-
	50 x 75,						
	50 x 100,						
	100 x 75						
Inferred	100 x 100	✓	✓	_	_	_	-
Grade/ore control	10 x 12,	_	1	_	_	_	-
	10 x 15,						
	20 x 15,						
	20 x 20						



Iduapriem

# **INCLUSIVE MINERAL RESOURCE**

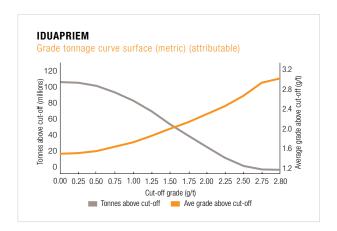
Iduapriem		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Ajopa	Measured	_	_	_	_
	Indicated	5.00	1.79	8.94	0.29
	Inferred	1.66	1.98	3.29	0.11
	Total	6.66	1.84	12.23	0.39
Block 3W	Measured	_	_	_	_
	Indicated	5.26	1.26	6.62	0.21
	Inferred	2.85	1.31	3.74	0.12
	Total	8.11	1.28	10.36	0.33
Block 5	Measured	_	_	_	_
	Indicated	5.34	1.13	6.01	0.19
	Inferred	1.79	1.13	2.02	0.06
	Total	7.13	1.13	8.03	0.26
Block 3 and 4	Measured	_	_	_	_
	Indicated	0.70	1.37	0.95	0.03
	Inferred	0.58	1.68	0.98	0.03
	Total	1.28	1.51	1.93	0.06
Block 7 and 8 West cutback	Measured	_	_	_	_
	Indicated	21.53	1.72	37.09	1.19
	Inferred	0.21	1.34	0.28	0.01
	Total	21.74	1.72	37.37	1.20
Block 7 and 8 other	Measured	_	_	_	_
	Indicated	25.87	1.60	41.29	1.33
	Inferred	14.15	1.65	23.29	0.75
	Total	40.02	1.61	64.58	2.08
Block 7 and 8 East cutback	Measured	_	_	_	_
	Indicated	15.19	1.56	23.63	0.76
	Inferred	0.31	1.37	0.42	0.01
	Total	15.50	1.55	24.06	0.77
Stockpile (full grade ore)	Measured	2.59	0.77	2.00	0.06
	Indicated	_	_	_	_
	Inferred	_	_	_	_
	Total	2.59	0.77	2.00	0.06
Stockpile (other)	Measured	_	_	_	_
	Indicated	10.80	0.57	6.16	0.20
	Inferred	2.76	0.68	1.88	0.06
	Total	13.56	0.59	8.03	0.26
Stockpile (marginal ore)	Measured	0.32	0.62	0.19	0.01
•	Indicated	6.23	0.67	4.17	0.13
	Inferred	_	_	_	_
	Total	6.55	0.67	4.37	0.14
Iduapriem	Total	123.14	1.40	172.97	5.56



## **ESTIMATION**

Geostatistical techniques are employed in the estimation of the Mineral Resource. 3D wireframes are built from all geological information obtained from drill hole data, mapping of pits and geophysical data interpretations and where appropriate these wireframes are subdivided into the individual reef units that occur within a broad conglomerate package. Estimation is by ordinary kriging into block sizes that range from 5m to 25m in the X and Y directions and between 6m and 12m in the Z direction depending on the reef widths and data spacing. Densities are allocated from appropriate test work conducted on drill hole samples. Grade and tonnages are computed from these block models that are constrained within an optimised pit shell at the Mineral Resource reporting gold price.

Full grade and marginal stockpiles (run-of-mine material) are surveyed on a monthly basis to validate tonnage measurements. Grade measurements on these stockpiles are based on RC grade control drilling from the individual pits mined. During recent years, historical stockpiles were drilled and estimated using geostatistical techniques. These stockpiles were reported as part of the Mineral Resource if material occurred above the economic cut-off grade at the Mineral Resource reporting gold price.





The grade tonnage curve does not include stockpiles.

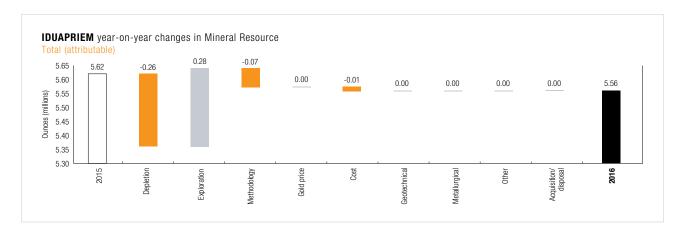
# **EXCLUSIVE MINERAL RESOURCE**

Iduapriem		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	-	_
	Indicated	53.59	1.49	79.76	2.56
	Inferred	24.31	1.48	35.89	1.15
	Total	77.90	1.48	115.66	3.72

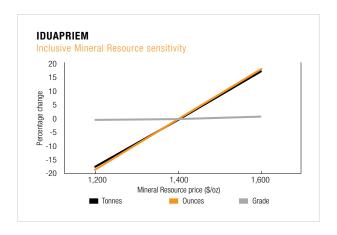
The exclusive Mineral Resource is derived mainly from the following:

- Inferred Mineral Resource and lower-grade material that does not make the Ore Reserve cut-off grade located within the optimised Ore Reserve pit shell
- 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 and are largely categorised as Inferred Mineral Resource.

Iduapriem



Changes in the Mineral Resource are mainly due to Mineral Resource conversion drilling at Ajopa, Block 7 and 8, Block 3 and Block 4 and depletion.



Iduapriem's Mineral Resource is very sensitive to a drop in gold price, due to the high stripping cost and capital intensive cutbacks required to access the deeper portions of the orebody.





# ORE RESERVE

# **ORE RESERVE**

Iduapriem		Tonnes	Grade	Contained o	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Ajopa	Proved	_	_	_	_
	Probable	2.41	1.66	4.00	0.13
	Total	2.41	1.66	4.00	0.13
Block 5	Proved	_	_	_	_
	Probable	3.75	1.12	4.20	0.14
	Total	3.75	1.12	4.20	0.14
Block 7 and 8 West cutback	Proved	_	_	_	_
	Probable	15.43	1.42	21.90	0.70
	Total	15.43	1.42	21.90	0.70
Block 7 and 8 East cutback	Proved	_	_	_	_
	Probable	12.02	1.57	18.83	0.61
	Total	12.02	1.57	18.83	0.61
Stockpile (full grade ore)	Proved	2.59	0.77	2.00	0.06
	Probable	_	-	_	_
	Total	2.59	0.77	2.00	0.06
Stockpile (other)	Proved	_	_	-	_
	Probable	2.50	0.80	2.00	0.06
	Total	2.50	0.80	2.00	0.06
Stockpile (marginal ore)	Proved	0.32	0.62	0.19	0.01
	Probable	6.23	0.67	4.17	0.13
	Total	6.55	0.67	4.37	0.14
Iduapriem	Total	45.25	1.27	57.31	1.84

# **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.

The Ore Reserve is estimated within mine designs, based on modifying factors, based on actual mining and detailed analysis of cutoff 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.

Iduapriem

# **ORE RESERVE MODIFYING FACTORS**

		Cut-off						
Iduapriem	Gold price	grade	RMF	RMF	MRF	MRF	MCF	MetRF
			% (based	% (based	% (based	% (based		
as at 31 December 2016	US\$/oz	g/t Au	on tonnes)	on g/t)	on tonnes)	on g/t)	%	%
Ajopa	1,100	0.90	100.0	100.0	100.0	94.0	100.0	96.0
Block 3 and 4, Block 5	1,100	0.80	100.0	100.0	100.0	94.0	100.0	96.0
Block 7 and 8 East and								
West cutback	1,100	0.77	100.0	100.0	100.0	94.0	100.0	96.0
Stockpile (full grade ore)	1,100	0.60	_	_	100.0	100.0	100.0	92.0
Stockpile (other)	1,100	0.55	_	_	100.0	100.0	100.0	92.0
Stockpile (marginal ore)	1,100	0.50	_	_	100.0	100.0	100.0	92.0

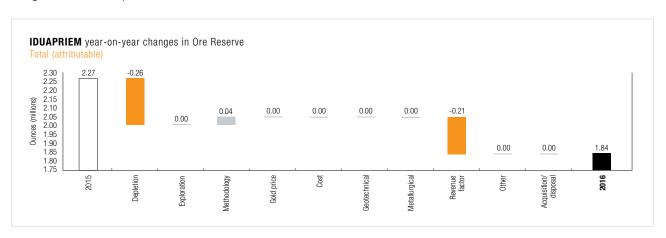
A mining recovery factor (MRF) of 94.0% was applied to the standard orebody models by reducing all block grades by 6.0% and 100% mining tonnage factor, which are based on reconciliation over a three-year period.

# **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Iduapriem	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Ajopa	0.46	1.40	0.65	0.02*
Block 5	0.74	1.06	0.79	0.03*
Block 7 and 8 West cutback	0.19	1.40	0.27	0.01*
Block 7 and 8 East cutback	0.04	1.75	0.07	0.00*
Stockpile (other)	2.76	0.68	1.88	0.06**
Total	4.20	0.87	3.65	0.12

<sup>\*</sup> Pockets of Inferred Mineral Resource within pit design to be converted by grade control

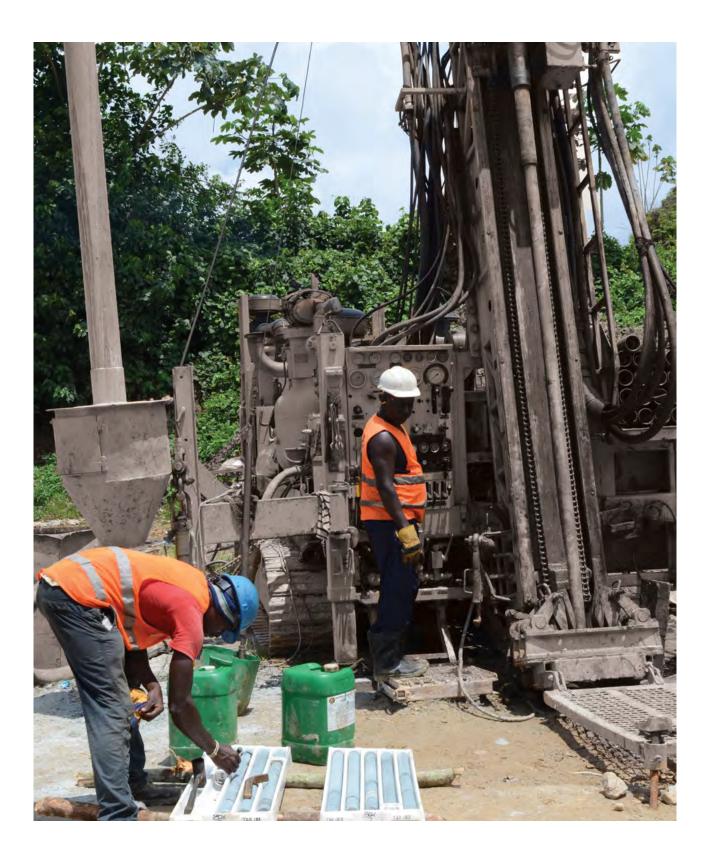
Inferred Mineral Resource included in the business plan is 16% for Block 5, 8% for Ajopa and 11% for Block 7 and Block 8 west cutback and 2% for the eastern cutback, while 45% Inferred Mineral Resource is included from the NW stockpile from 2027. The overall Inferred Mineral Resource allowed for in the plan is 8.9%, however, only Measured and Indicated Mineral Resource within the design of the selected pit shells are converted to Ore Reserve.



Changes in the Ore Reserve are mainly due to depletion and revisions to slope angles as a result of infill drilling at Block 7 and 8.

<sup>\*\* 45%</sup> of Inferred Mineral Resource of NW stockpile included in 2027



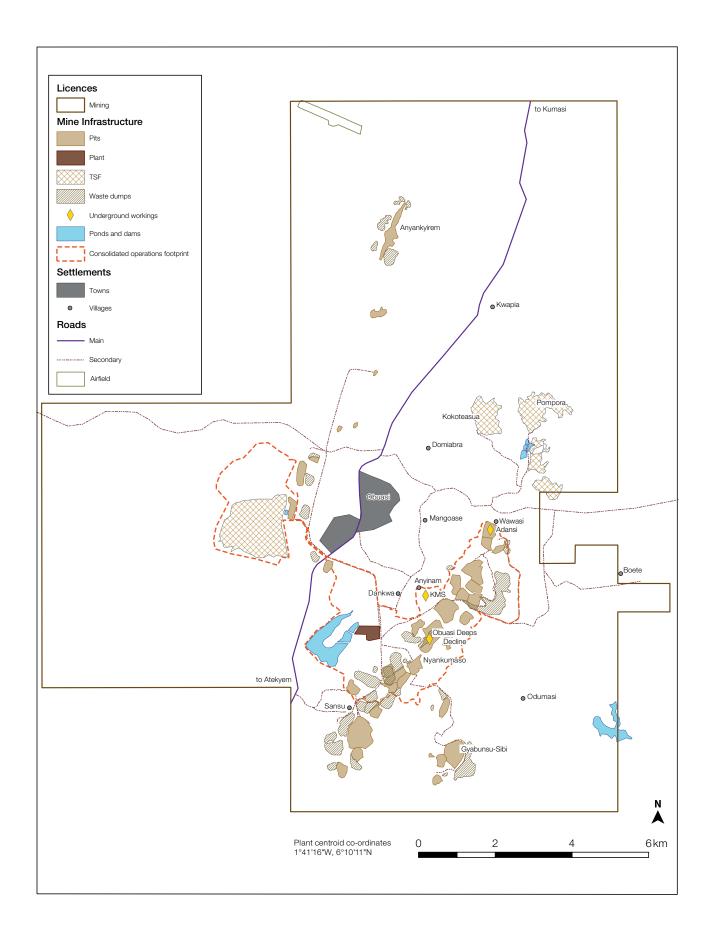


# CONTINENTAL AFRICA continued Obuasi

# INTRODUCTION

INTRODUCTION	
Property description	Obuasi Gold Mine is owned and operated by AngloGold Ashanti (Ghana) Limited (AGAG). AGAG was established following the merger of the former AngloGold Limited of South Africa and Ashanti Goldfields Company Limited of Ghana in April 2004.
	Production started in 1897 and stopped in the last quarter of 2014, whilst the rest of the mine continued under limited operations, which included the development of the underground decline. In February 2016, the entire mine was placed into care and maintenance.
	In June 2016, a FS to define and design the requirements for the operational transformation and assess the potential viability of the mine was completed. The outcome indicated a strong technical and economica case with an anticipated 20-year mine life.
Location	Obuasi Gold Mine is located in the municipality of Obuasi, in the Ashanti region of Ghana, some 260km northwest of the capital Accra and 60km south of Kumasi. The mine is owned and operated by AGAG, a subsidiary of AngloGold Ashanti Limited.
History	Underground production has been continuous from 1897 to 2014. A phase of open pit mining was conducted from 1988 to 2000, with small intermittent open pit mining beyond that period. Total historic production is ~33Moz gold, including ~5Moz gold from open pits.
Legal aspects and tenure	Obuasi Gold Mine concession previously covered an area of approximately 475km², had eighty communities within a 30km radius of the mine, but has been reduced to 201.46km² through an application to surrender part of the lease to government which was approved on 3rd March 2016.
	Majority of the reduced concession area falls in the Obuasi Municipality. Minor portions of the new concession fall in the Adansi North, Adansi South and Amansie Central districts
	Obuasi Gold Mine's Mineral Resource and Ore Reserve is covered by a number of mining leases, namely:
	Obuasi Concession comprising 152.6km²
	Part Binsere Concession 1, 2 and 3 comprising 48.86km²
	The duration of the Mining Concessions are covered by a stability agreement with the Ghana government.
Mining method	Mine designs are done to delineate development layouts and production stopes by taking into consideration economic cut-off grade and geotechnical design parameters for each mining block, mining level and section. The underground development system extends to a depth of 1,500m from surface. Mining levels lie between 15m and 20m intervals with major levels between 30m-60m intervals. Underground production was by open-stope mining (both longitudinal and transverse), and sub-level caving method; with future designed production by longhole open stope mining methods with paste fill.
Operational infrastructure	Existing infrastructure includes a 2.4Mtpa processing plant with flotation and bacterial oxidation (BIOX); underground development, hoisting shafts and associated infrastructure; power and water reticulation, office complexes, workshops, and company housing estates. The current tailings storage facility is close to closure and plans for a new dam have been prepared for submitted to government authorities.
Mineral processing	The current processing plants can treat both oxide and fresh material. The main plant is configured for flotation and BIOX treatment that is required for the underground refractory sulphide ore type.
Risks	The FS considered alternative mine plans, including possible potential JV arrangements. The company is currently negotiating with the Ghana government on a range of issues from environmental requirements to community issues to taxation, the outcomes of which may affect the future economics and the Minera Resource and Ore Reserve statement.
	The current Ore Reserve has been estimated based on the 2014/2015 Mineral Resource, the significant changes to the Mineral Resource, resulting from the revised geological model and extensive data validation has not yet rolled through to the Ore Reserve as the Mineral Resource was only finalised late in 2016. This work will take place in 2017.





Obuasi

## **COMPETENT PERSONS**

Obuasi					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Shaun Crisp	SACNASP	400076/09	14 years	BSc Hons (Geology)
Ore Reserve	Christian Boafo	MAusIMM	312 532	19 years	Graduate Dipl. (Mining)

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.

# **GEOLOGY**

## **DEPOSIT TYPE**

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 south-west to beyond Konongo in the north-east.

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 north-east. 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.

The Lower Birimian meta-sediments and meta-volcanics 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 north-west of the concession area and intrude the Birimian rocks only. Two types of granite are present; one is more resistant to weathering than the other, with less-resistant granite being prospective for gold mineralisation.

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 meta-volcanic 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.

# **MINERALISATION STYLE**

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.

## **MINERALISATION CHARACTERISTICS**

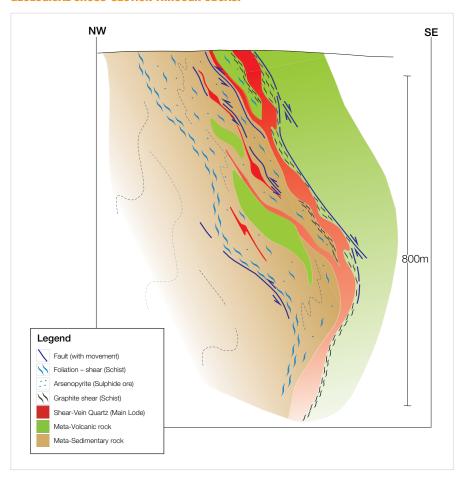
Two main ore types are present, namely quartz vein and sulphide ore. The quartz vein type consists mainly of quartz with free gold in association with lesser amounts of various metal sulphides containing iron, zinc, lead and copper. This ore type is generally non-refractory. Sulphide ore is characterised 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**

No exploration was done during the year.



## **GEOLOGICAL CROSS-SECTION THROUGH OBUASI**



# **PROJECTS**

In 2014 a detailed FS using input from international consultants began, following on from earlier in-house studies.

The FS considered the optimum mining methodology and schedules for the underground mine, based on modern mechanised mining methods and refurbishment of underground, surface and process plant infrastructure. A significant rationalisation and/or replacement of current infrastructure will enable the delivery of high utilisation and productivity metrics.

An updated FS led to the re-introduction of longhole open stoping, after considering the economic implication of underhand drifts and fill for narrow lodes. The updated FS included Côte d'Or as an underhand drift and fill mining block, in the Ore Reserve.

During this time Obuasi operated in a limited operating phase with underground activities essentially limited to continued development of the Obuasi Deeps Decline and underground infill drilling. The limited operating phase was brought to a halt after an incursion by illegal miners on Obuasi mines concession in February 2016. The mine has been under care and maintenance ever since.

The optimised FS finalised in March 2016, with a schedule for the potential re-start of underground production.

Obuasi

# MINERAL RESOURCE

# DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Obuasi			T	ype of drillin	g		
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	20 x 20,	✓	1	✓	_	1	-
	40 x 20,						
	50 x 50						
Indicated	30 x 30,	✓	1	_	_	1	-
	50 x 50,						
	60 x 60						
Inferred	90 x 90,	1	1	_	_	1	_
	100 x 100,						
	120 x 120						
Grade/ore control	10 x 10	✓	1	_	1	_	Channel sampling of cross-cuts

# **INCLUSIVE MINERAL RESOURCE**

Obuasi		Tonnes	Grade	Contained	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Anyakyirem (1)	Measured	_	_	_	_
	Indicated	5.52	2.38	13.10	0.42
	Inferred	0.09	2.71	0.24	0.01
	Total	5.61	2.38	13.35	0.43
Anyinam (1)	Measured	0.00	2.50	0.01	0.00
	Indicated	0.45	3.54	1.59	0.05
	Inferred	1.02	4.23	4.32	0.14
	Total	1.47	4.02	5.92	0.19
Gyabunsu-Sibi (1)	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
Above 50 Level	Measured	_	_	_	_
	Indicated	101.40	6.52	661.49	21.27
	Inferred	14.06	9.07	127.51	4.10
	Total	115.46	6.83	789.00	25.37
Below 50 Level	Measured	_	_	_	_
	Indicated	4.31	18.31	78.85	2.53
	Inferred	13.99	10.94	153.02	4.92
	Total	18.30	12.67	231.87	7.45
Obuasi	Total	141.22	7.38	1,041.63	33.49

<sup>(1) \$1,600/</sup>oz Mineral Resource gold price used

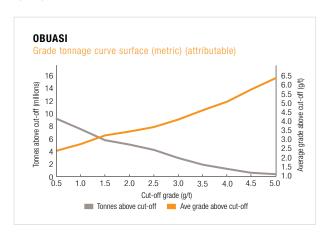


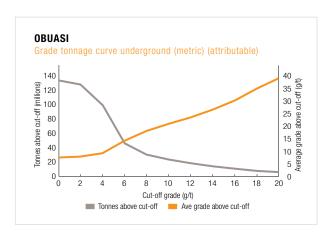


## **ESTIMATION**

During 2016 an exhaustive process of data review and validation took place which considerably increased the confidence of the input data and supported a refinement of the Mineral Resource models. The geological interpretation is based on DD, cross-cut sampling and underground mapping information. Block models are estimated within the delineated mineralised ore zones using ordinary kriging. Estimates at Obuasi are based on a block model comprised of 20m x 5m x 15m blocks, which approximate the minimum SMU for underground mining.

The open pit Mineral Resource at Obuasi was 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 sampling and reverse RC and/or DD drilling. Estimation is by ordinary kriging into 30m x 30m x 10m blocks for Obuasi open pits.





# **EXCLUSIVE MINERAL RESOURCE**

Obuasi		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	0.06	3.91	0.22	0.01
	Indicated	93.52	6.25	584.45	18.79
	Inferred	29.45	9.72	286.22	9.20
	Total	123.02	7.08	870.89	28.00

The exclusive Mineral Resource is made up of Mineral Resource from underground and open pit. The bulk of the exclusive Mineral Resource is from underground, and is spread across the entire deposit; where further study and design, change in costs and/or gold price is required to develop economic extraction plans.

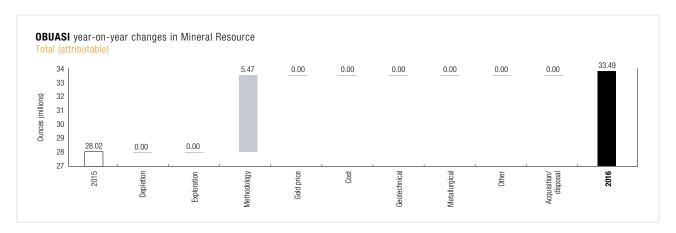
37% of the exclusive Mineral Resource is Inferred Mineral Resource and will require upgrading of its confidence to be able to report as an Ore Reserve.

## **MINERAL RESOURCE BELOW INFRASTRUCTURE**

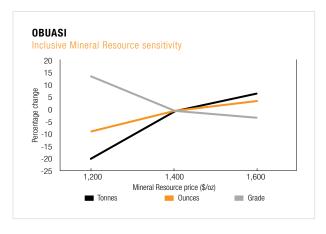
Obuasi		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	4.31	18.31	78.85	2.53
	Inferred	13.99	10.94	153.02	4.92
	Total	18.30	12.67	231.87	7.45

Mineral Resource below infrastructure is primarily from below 50 Level.

Obuasi



Changes in the Mineral Resource are mainly due to a new geological model, the revalidated database and a revised estimation methodology which when combined resulted in a significant increase.



Obuasi is sensitive to changes in gold price, specifically on the downside because of the lower grade sulphide mineralisation on the flanks of the high grade quartz.

# ORE RESERVE

# ORE RESERVE

Obuasi		Tonnes	Grade	e Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Above 50 Level	Proved	_	_	_	_
	Probable	19.56	6.67	130.48	4.20
	Total	19.56	6.67	130.48	4.20
Below 50 Level	Proved	_	_	_	_
	Probable	1.74	23.11	40.26	1.29
	Total	1.74	23.11	40.26	1.29
Obuasi	Total	21.31	8.01	170.74	5.49

# **ESTIMATION**

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

All mine designs are done to delineate stopes by taking into consideration cut-off grade, geotechnical design parameters for each mining block, ventilation and backfill requirement, mining level and section, usually leading to an optimisation of the existing infrastructure, mining sequence, and corresponding development layouts. The underground operationally runs to a depth of 1,500m from surface. Mining levels are between 15m 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-level caving methods.



The current Ore Reserve has been estimated based on the 2014/2015 Mineral Resource. The significant changes to the Mineral Resource, resulting from the revised geological model and extensive data validation has not yet rolled through to the Ore Reserve as the Mineral Resource was only finalised late in 2016. This work will take place in 2017.

# **ORE RESERVE MODIFYING FACTORS**

Obuasi	Gold Price	Cut-off grade		MRF	MCF	MetRF
as at 31 December 2016	US\$/oz	g/t Au	%	% (based on g/t)	%	%
Above 50 Level	1,100	4.40	16.0	94.0	100.0	89.0
Below 50 Level	1,100	5.20	20.0	95.0	100.0	89.0

# **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

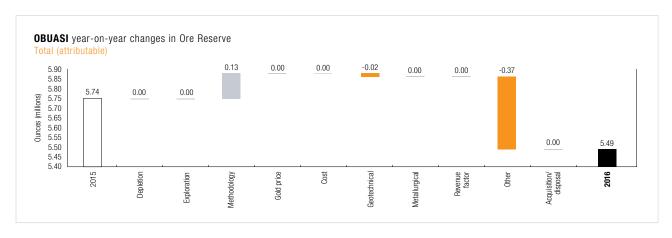
Obuasi	Tonnes	Grade	Contained gold	
as at 31 December 2016	million	g/t	tonnes	Moz
Above 50 Level	2.80	6.52	18.29	0.59
Below 50 Level	0.73	12.18	8.94	0.29
Total	3.54	7.70	27.23	0.88

The Ore Reserve is exclusive of Inferred Mineral Resource. Inferred Mineral Resource in business plan consists of 1Moz and is 15% of the total business plan. Only Inferred Mineral Resource within economic and geotechnical limits of Proved and Probable Ore Reserve was included in the business plan.

# **ORE RESERVE BELOW INFRASTRUCTURE**

Obuasi		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	_	_	_	_
	Probable	1.74	23.11	40.26	1.29
	Total	1.74	23.11	40.26	1.29

Ore Reserve below infrastructure is restricted to the ground below 50 Level that requires a decline to access and is located between 50 and 60 Level below the KMS shaft.



Revised mining method from underhand drift and fill to longhole open stoping. Reintroduction of sill pillars in Block 11 and 8 Lower.

# Guinea

Siguiri gold 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 north-east of Guinea. It lies about 850km north-northeast from the capital city of Conakry and 109km west from the border with Mali by road.

Gold-bearing ore is mined from several pits (generally three pits at any one time) and sent to a CIP processing plant.



# **INCLUSIVE MINERAL RESOURCE**

Guinea		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	25	0.64	16	1
	Indicated	143	0.84	120	4
	Inferred	57	0.95	55	2
	Total	226	0.85	191	6

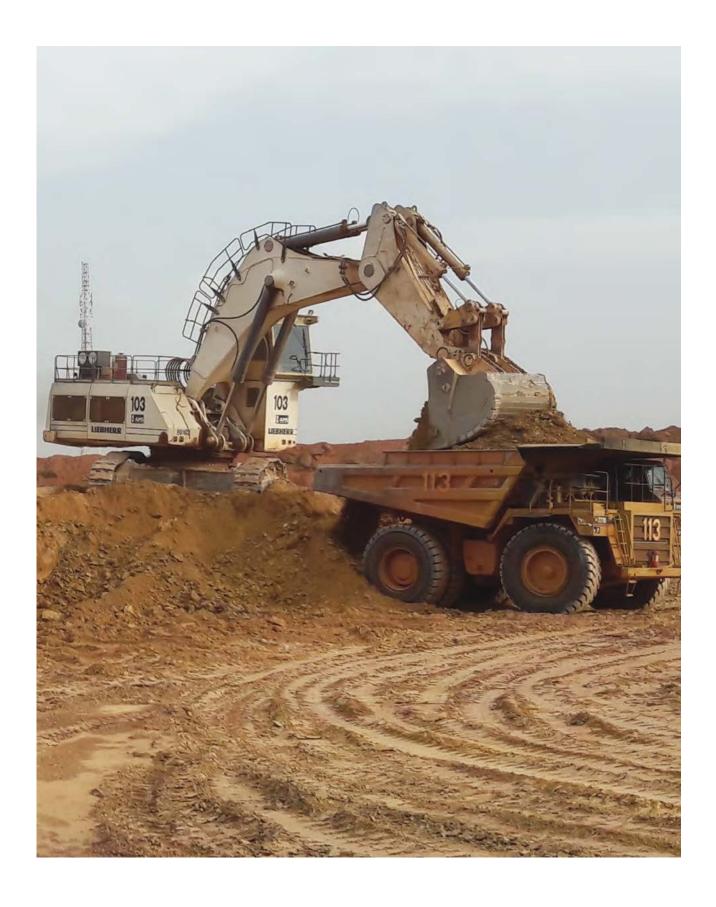
# **EXCLUSIVE MINERAL RESOURCE**

Guinea		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	-	_
	Indicated	66	0.84	56	2
	Inferred	57	0.95	54	2
	Total	123	0.89	110	4

# **ORE RESERVE**

Guinea		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	25	0.64	16	1
	Probable	69	0.86	60	2
	Total	95	0.80	76	2





# CONTINENTAL AFRICA continued **Siguiri**

# INTRODUCTION

Property description	Siguiri in Guinea is 85% owned by AngloGold Ashanti and 15% by the Government of Guinea. It is an ongoing open pit operation.
Location	The mine is located approximately 520km north-northeast of Conakry, 25km northwest of the town of Siguiri and 190km southeast of the Malian capital Bamako, near the Mali border.
History	Gold mining in the district can be traced back for centuries, but there are no reliable records of prewestern 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 3.8t 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.
	Société Aurifère de Guinea took over from its predecessors and continued work on the placer 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 FS in 1995 after which Ashanti Goldfields invested in the deposit and Siguiri mine started production in 1998 as Société Ashanti Goldfields de Guinea (SAG).
	In 2004, the merger of AngloGold and Ashanti resulted in the operation being run by AngloGold Ashanti.
Legal aspects and tenure	Siguiri mine is mined under licence from the government of Guinea. The Mineral Resource and Ore Reserve are covered by SAG mining concession D/97/171/PRG/SGG, totalling 1,494.5km², which expires on 10 November 2018.
	There is also a convention which defines the operating conditions of the mine and the rights and duties of the mine under the convention are applicable to AngloGold Ashanti as the current owners of the company SAG.
	The SAG concession was granted under the Convention de Base between the République de Guinea, the Chevening mining company and Golden Shamrock Mines signed on 11 November 1993. The concession is to be explored and mined exclusively for gold, silver and diamonds by SAG for 25 years from the date of the agreement to the year 2018.
	Discussions have been held with the government over the past year regarding the extension of the Convention de Base. These discussions reached a favourable conclusion in 2016 and is expected to be approved by parliament in 2017. The Convention de Base will guide the renewal of the mining concession in 2018.
Mining method	Siguiri is currently a multi-pit oxide gold mining operation, operated with a contract miner. The mining method is selective conventional techniques using excavators and trucks on 3m high flitches. Liebherr 994s and 984s excavators are the main loading equipment matched with CAT 777 dump trucks. A minimum mining unit (MMU) suitable for selective mining and nominated mining equipment of 5m x 5m x 3m based on historical grade control areas are used to simulate the expected mining dilution and ore losses.

# Operational infrastructure

Access is typically poor although the main secondary roads around the mine and to Siguiri are easily passable through most of the year, other secondary roads are inaccessible during the wet season. Siguiri can also be accessed via a small airfield and a well-paved road connects Siguiri to Bamako in the north and Kouroussa in the south.

The Siguiri gold mine includes a processing plant, a tailings storage facility and other infrastructure such as a mine village, water supply system, roads, power supply by on site generators and communications systems. Additional infrastructure includes on site offices, accommodation and workshops to support remote mining.

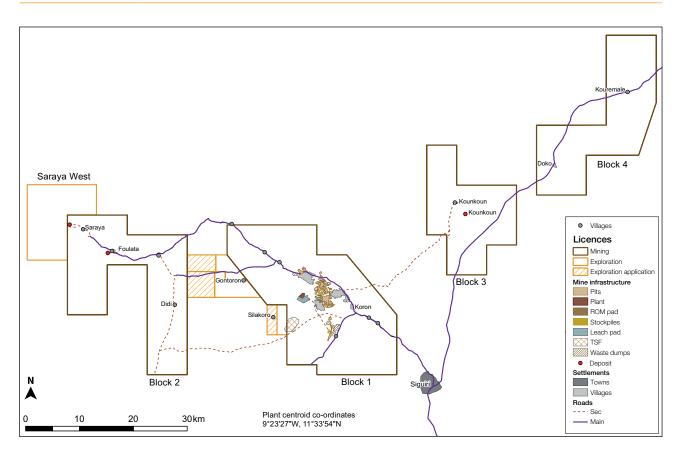
## Mineral processing

Processing of the ore is done by a CIP processing plant that has been successfully optimised to reach an average throughput of 11.8Mt per annum. Ore has historically been derived from a number of oxide pits in the Block 1 concession area, with the primary future ore supply provided by Seguélén (oxide ore), Kami and Bidini (both fresh rock ore).

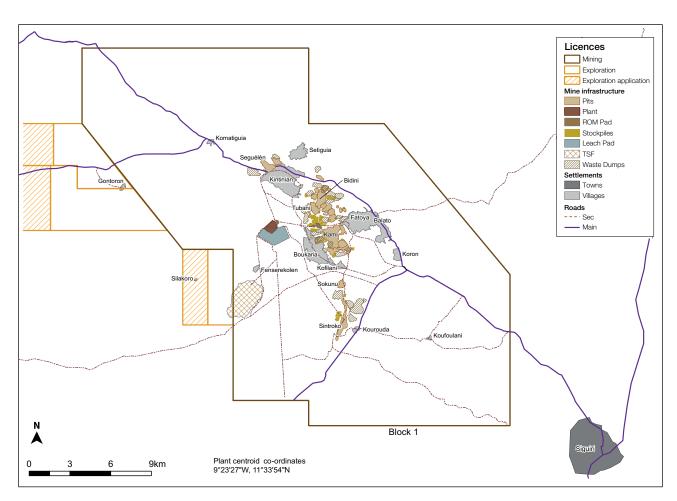
The existing processing facility was designed for the processing of soft ore only and can only introduce a small percentage of fresh rock ore in the mill feed. A project is currently at implementation stage to upgrade the processing plant to treat up to 50% fresh rock ore by quarter 4 of 2018.

#### **Risks**

The favourable conclusion of the Convention de Base negotiation during 2016 and its expected ratification in 2017 by parliament has significantly reduced the risk of the remaining Mineral Resource and Ore Reserve not being covered by a valid mining concession.



Siguiri



## **COMPETENT PERSONS**

Siguiri					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Steven Robins	MAusIMM	222 533	21 years	BSc Hons (Geology), MBA, MSc (Mineral Resource Evaluation)
Ore Reserve	Desiderius Kamugisha	MAusIMM	227 181	15 years	BSc (Mining Engineering)

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.

## **GEOLOGY**

## **DEPOSIT TYPE**

The Siguiri orebodies are early Proterozoic (Birimian) orogenic quartz-vein hosted deposits located in the Siguiri Basin of West Africa. Generally poorly exposed, the basin sediments have been subject to greenschist facies metamorphism and consist of a well-bedded turbiditic sedimentary sequence, with some brecciated and possibly volcanic members. Mineralisation also occurs as secondary gold in alluvial and colluvial gravels in laterite cover.

Three main sedimentary packages are recognised in the Siguiri district, the Balato, Fatoya and Kintinian Formations. The Balato Formation is dominated by centimetre scale alternations of shale-siltstone and greywacke. The overlying Fatoya Formation consists of metre scale beds of greywacke fining towards the west. The Kintinian Formation is a thick package of shale and sandstone with a basal clast-supported conglomerate.



The orebodies are structurally controlled and the area has undergone at least three distinct phases of deformation, with initial N-S compression developing minor folds, the second and largest deformation event is associated with E-W to ENE-WSW directed compression leading to N-S structural architecture, and the third event was a NW-SE compression that led to refolding of existing structures.

A deep oxidation (weathering) profile is developed in the region, varying between 50m to 150m. The mineralised saprolite currently provides the main oxide feedstock for the CIP processing plant, although a new treatment option has been approved to mine the fresh rock extensions of the ore deposits.

## **MINERALISATION STYLE**

Primary gold mineralisation occurs in all three lithostratigraphic units of the Siguiri region although the majority of known mineralisation is found in the central and more competent Fatoya Formation. In some deposits the mineralisation shows strong lithological control and is preferentially developed in coarser-grained units that have higher fracture/vein densities relative to fine-grained rocks.

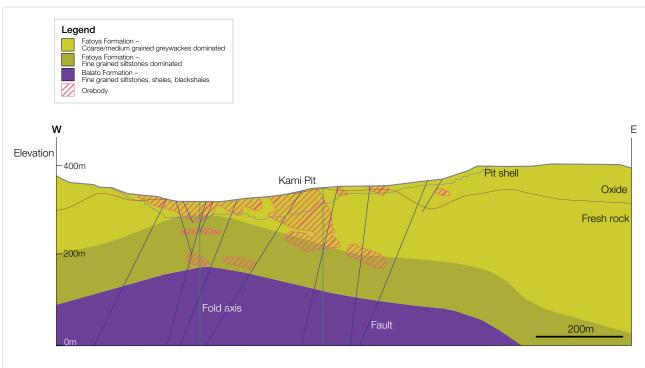
The mineralisation dominantly follows sub-vertical N-S thrusts, NE-SW dextral shear zones, and WNW-ESE sinistral faults associated with the main (D2) deformation event. The mineralised veins are remarkable for the relative consistency of their orientation (NE), despite the highly variable orientation of bedding and major structures.

Mineralised veins are more intensely developed along major structural trends, with quartz-carbonate-sulphide veining developed along structures. Some of these structures have developed as incipient faults and are represented by discrete stockworks of mineralised quartz-carbonate veins occurring along a trend, instead of being clearly defined continuous structures.

## **MINERALISATION CHARACTERISTICS**

Two styles of primary mineralisation have been recognised at Siguiri. The first is characterised by precipitation of gold-bearing pyrite associated with proximal albite and distal carbon alteration, and opening of carbonate-pyrite veins. The second style corresponds to ENE-WSW trending native gold bearing quartz veins with carbonate selvages which crosscut carbonate-pyrite veins and show arsenopyrite (±pyrite) halos.

## **GEOLOGICAL CROSS-SECTION THROUGH KAMI PIT**



Siguiri

## **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 was 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 two-fold. Firstly, to explore for replacement and additional oxide material for short-term mining requirements. Secondly, to increase the level of confidence in the five major fresh rock targets below the existing oxide pits at Kami, Bidini, Tubani, Seguélén and Sintroko.

In 2016, a total of 57,974m of drilling was completed by the exploration team, with primary focus on increasing confidence in the Bidini and Seguélén Mineral Resource for conversion to Indicated Mineral Resource thereby allowing estimation of Ore Reserve.

#### **OXIDE**

Four oxide targets were investigated in Block 1, namely Balato NE, Boukaria West, Seguélén NW and Silakoro. Only Silakoro provided potential for follow up and an initial open-ended Inferred Mineral Resource of 14,000 ounces was published in 2016.

The primary oxide exploration target for 2016 was the Mineral Resource conversion drilling at Seguélén, which commenced in mid-2016 when community agreements were finalised to access 'Area 1'. Approximately 22,000m were drilled between May and October 2016, with a significant number of these holes drilled into fresh rock.

#### **FRESH**

Approximately 2,000m of reconnaissance holes were drilled to investigate the extension of fresh rock potential below Seguélén. This potential is significant and remains open at depth and along strike.

Fresh rock infill drilling programmes were completed at Seguélén, Kami, Tubani, and Bidini to increase the Mineral Resource confidence level. The Seguélén infill drilling was completed as part of the oxide drilling, when drill holes were extended to depth in the down-dip portions of the deposit and achieved an effective 25m x 25m sample grid. Kami pit infill drilling was completed on a tight spacing (between 6.25m and 12.5m) to test the short range variability in the gold mineralisation. Further, approximately 2,000m were drilled to infill the eastern portion of the Kami starter pit. Approximately 4,000m of Mineral Resource conversion drilling was completed at Tubani towards the end of 2016 to confirm the confidence in this material to allow it to be considered potential Ore Reserve. Finally, around 3,000m Mineral Resource conversion drilling was completed at Bidini to achieve a spacing of 50m x 25m, thus completing the work that commenced in 2015 to provide fresh rock Ore Reserve for the Combination plant project.

#### REGIONAL

At the end of 2015 Siguiri was granted the Saraya West exploration license (immediately adjacent to the northwest corner of Block 2) in addition to the previous applications for the Corridor North and South, and TSF exploration licences adjoining Block 1. A significant soil sampling campaign was completed on Saraya West during quarter two 2016, and an airborn magnetic survey commenced in 2016.

## **PROJECTS**

A FS to consider the exploitation of the fresh rock material was completed in December 2015. The Combination plant project will upgrade the current plant and enable processing a combination of oxides and fresh rock material. The plant throughput will remain at 12Mtpa with a flexible design allowing up to 6Mtpa fresh rock material to be processed. Targeted fresh rock pits include Kami, Bidini, Tubani, Sintroko, Seguélén and Sokuno. The FS has been approved by the board of AngloGold Ashanti following successful negotiations with the Government of Guinea regarding the Convention de Base and having obtained access to Seguélén Area 1.

Conceptual studies have been initiated to evaluate the potential of mining in Block 2 and Block 3.

## MINERAL RESOURCE

## DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Siguiri			Type of drilling				
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured		_	_	_	_	_	-
Indicated	20 x 40,	✓	1	-	_	_	_
	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,						
	12.5 x 7.5,						
	12.5 x 6.25						

## **INCLUSIVE MINERAL RESOURCE**

Siguiri		Tonnes	Grade	Contained (	gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Bidini (fresh rock)	Measured	_	-	-	_
	Indicated	6.89	1.37	9.45	0.30
	Inferred	1.34	1.35	1.81	0.06
	Total	8.22	1.37	11.26	0.36
Bidini (oxide)	Measured	_	_	_	-
	Indicated	2.66	0.97	2.58	0.08
	Inferred	6.01	0.86	5.16	0.17
	Total	8.67	0.89	7.73	0.25
Bidini (transitional)	Measured	_	_	_	-
	Indicated	3.69	1.41	5.20	0.17
	Inferred	0.71	1.40	0.99	0.03
	Total	4.40	1.41	6.19	0.20
Eureka East	Measured	_	_	_	_
	Indicated	0.09	1.09	0.10	0.00
	Inferred	0.07	1.01	0.07	0.00
	Total	0.16	1.05	0.16	0.01
Kalamagna	Measured	_	_	_	_
	Indicated	4.00	0.69	2.76	0.09
	Inferred	0.92	0.73	0.67	0.02
	Total	4.92	0.70	3.43	0.11
Kami (fresh rock)	Measured	_	_	_	_
	Indicated	25.81	1.03	26.54	0.85
	Inferred	0.74	1.03	0.76	0.02
	Total	26.55	1.03	27.30	0.88
Kami (oxide)	Measured	_	_	_	_
	Indicated	10.53	0.67	7.04	0.23
	Inferred	1.86	0.70	1.31	0.04
	Total	12.38	0.67	8.35	0.27

Siguiri

## **INCLUSIVE MINERAL RESOURCE** continued

Siguiri		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Kami (transitional)	Measured	_	_	_	_
	Indicated	2.27	1.03	2.35	0.08
	Inferred	0.15	0.88	0.13	0.00
	Total	2.42	1.02	2.48	0.08
Kosise	Measured	_	_	_	_
	Indicated	3.29	0.73	2.42	0.08
	Inferred	2.94	0.69	2.02	0.06
	Total	6.23	0.71	4.44	0.14
Kozan North	Measured	_	_	_	_
	Indicated	8.90	0.68	6.06	0.19
	Inferred	0.73	0.68	0.50	0.02
	Total	9.63	0.68	6.56	0.21
Kozan South	Measured	_	_	_	_
	Indicated	8.18	0.64	5.20	0.17
	Inferred	0.30	0.82	0.24	0.01
	Total	8.47	0.64	5.44	0.18
Seguélén	Measured	_	_	_	_
	Indicated	16.41	1.06	17.46	0.56
	Inferred	2.02	1.09	2.20	0.07
	Total	18.42	1.07	19.66	0.63
Sokunu	Measured	_	_	_	_
	Indicated	7.91	0.75	5.95	0.19
	Inferred	5.87	0.87	5.13	0.16
	Total	13.79	0.80	11.08	0.36
Soloni	Measured	_	_	_	_
	Indicated	2.21	0.63	1.39	0.04
	Inferred	2.19	0.74	1.61	0.05
	Total	4.40	0.68	3.00	0.10
Sorofe (fresh rock)	Measured	_	_	_	_
	Indicated	0.67	1.16	0.77	0.02
	Inferred	0.60	1.20	0.72	0.02
	Total	1.27	1.18	1.49	0.05
Sorofe (oxide)	Measured	_	_	_	_
	Indicated	2.98	0.88	2.61	0.08
	Inferred	2.08	1.05	2.19	0.07
	Total	5.06	0.95	4.80	0.15
Sorofe (transitional)	Measured	_	_	_	_
	Indicated	2.09	1.19	2.48	0.08
	Inferred	1.00	1.46	1.46	0.05
	Total	3.09	1.27	3.93	0.13
Kounkoun	Measured	_	_	_	_
	Indicated	_	-	_	_
	Inferred	9.53	1.28	12.19	0.39
	Total	9.53	1.28	12.19	0.39



#### **INCLUSIVE MINERAL RESOURCE** continued

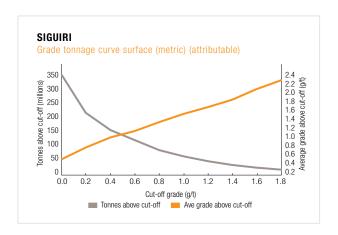
Siguiri		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Saraya (oxide)	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	0.88	2.10	1.84	0.06
	Total	0.88	2.10	1.84	0.06
Saraya (transitional)	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	0.57	2.57	1.47	0.05
	Total	0.57	2.57	1.47	0.05
Sintroko South	Measured	_	_	_	_
	Indicated	2.12	1.21	2.57	0.08
	Inferred	0.19	1.65	0.31	0.01
	Total	2.31	1.25	2.88	0.09
Foulata	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	2.88	1.33	3.82	0.12
	Total	2.88	1.33	3.82	0.12
Silakoro	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	0.46	0.83	0.38	0.01
	Total	0.46	0.83	0.38	0.01
Stockpile (full grade ore)	Measured	8.14	0.94	7.67	0.25
	Indicated	_	_	_	_
	Inferred	_	_	_	_
	Total	8.14	0.94	7.67	0.25
Stockpile (marginal ore)	Measured	17.36	0.50	8.75	0.28
	Indicated	_	_	_	_
	Inferred	_	_	_	_
	Total	17.36	0.50	8.75	0.28
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
Siguiri	Total	225.55	0.85	191.22	6.15

#### **ESTIMATION**

Mineral Resource definition drilling is done with aircore drilling (AC), RC and DD. All available geological drill hole information is validated for usage in the Mineral Resource models and together with the local geology of the deposit, an understanding of grade variability is used to categorise 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  $10m \times 10m \times 2.5m$  to  $50m \times 25m \times 6m$  block sizes, guided by the shape of the deposit and the drilling density. The Mineral Resource is declared within an optimised Mineral Resource pit shell using a gold price of \$1,400/oz.

Siguiri





The grade tonnage curve does not include stockpiles.

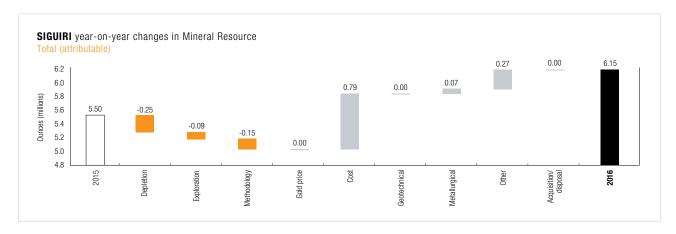
## **EXCLUSIVE MINERAL RESOURCE**

Siguiri		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	66.09	0.84	55.80	1.79
	Inferred	57.12	0.95	54.33	1.75
	Total	123.21	0.89	110.14	3.54

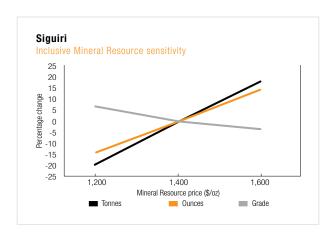
The exclusive Mineral Resource at Siguiri includes:

- Indicated Mineral Resource that is economic at the Mineral Resource gold price of US\$1,400/oz, but not at the Ore Reserve price.

  This material forms approximately one third 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 2017 and 2018 to meet LoM planning requirements.
- Inferred Mineral Resource located within the Ore Reserve optimised pit shell. This material forms an insignificant proportion of the exclusive Mineral Resource



Changes in the Mineral Resource are mainly attributed to cost reduction, infill drilling at Seguélén, Bidini, Tubani and Kami and the inclusion of mineralised waste as a result of changes to the stockpiling strategy.



As a low grade deposit, Siguiri is very sensitive to gold price changes.

## ORE RESERVE

## **ORE RESERVE**

Siguiri	Siguiri		Grade	Contained o	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Bidini (fresh rock)	Proved	_	_	_	_
	Probable	2.75	1.48	4.08	0.13
	Total	2.75	1.48	4.08	0.13
Bidini (oxide)	Proved	_	_	_	_
	Probable	1.77	0.98	1.74	0.06
	Total	1.77	0.98	1.74	0.06
Bidini (transitional)	Proved	_	_	_	_
	Probable	1.91	1.45	2.78	0.09
	Total	1.91	1.45	2.78	0.09
Kami (fresh rock)	Proved	_	_	_	_
	Probable	14.82	1.16	17.25	0.55
	Total	14.82	1.16	17.25	0.55
Kami (oxide)	Proved	_	_	_	-
	Probable	0.60	0.86	0.52	0.02
	Total	0.60	0.86	0.52	0.02
Kami (transitional)	Proved	_	_	_	-
	Probable	1.53	1.13	1.73	0.06
	Total	1.53	1.13	1.73	0.06
Kozan North	Proved	-	_	_	_
	Probable	1.79	0.69	1.25	0.04
	Total	1.79	0.69	1.25	0.04
Seguélén	Proved	_	_	_	_
	Probable	11.88	1.09	12.94	0.42
	Total	11.88	1.09	12.94	0.42
Stockpile (full grade ore)	Proved	8.14	0.94	7.67	0.25
	Probable	_	_	_	
	Total	8.14	0.94	7.67	0.25

Siguiri

## **ORE RESERVE** continued

Siguiri		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Stockpile (marginal ore)	Proved	17.36	0.50	8.75	0.28
	Probable	_	_	_	_
	Total	17.36	0.50	8.75	0.28
Stockpile (spent heap leach)	Proved	_	_	_	_
	Probable	31.95	0.54	17.29	0.56
	Total	31.95	0.54	17.29	0.56
Siguiri	Total	94.51	0.80	75.99	2.44

## **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.

## **ORE RESERVE MODIFYING FACTORS**

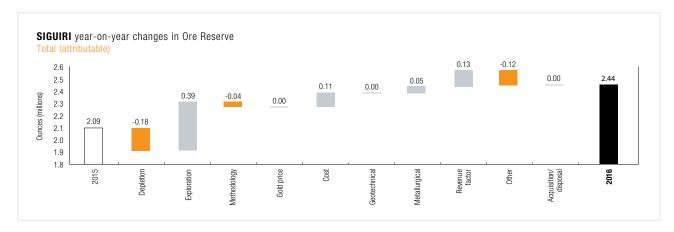
	Gold	Cut-off	D.1. 11	D.1. 1.		1105		
Siguiri	price	grade	Dilution	Dilution	MRF	MRF	MCF	MetRF
					% (based	% (based		
as at 31 December 2016	US\$/oz	g/t Au		g/t	on tonnes)	on g/t)	%	%
Bidini (fresh rock),								
Bidini (transitional)	1,100	0.75	12.2	0.2	80.8	78.4	100.0	93.0
Bidini (oxide)	1,100	0.60	12.2	0.2	80.8	78.4	100.0	93.0
Kami (fresh rock)	1,100	0.75	3.1	0.4	99.0	99.3	100.0	93.0
Kami (oxide)	1,100	0.60	0.8	0.4	78.7	77.4	100.0	93.0
Kami (transitional)	1,100	0.75	5.4	0.4	89.5	90.4	100.0	93.0
Kozan North	1,100	0.53	9.2	0.3	96.6	97.1	100.0	91.0
Seguélén	1,100	0.60	5.2	0.3	96.2	96.4	100.0	91.0
Stockpile (full grade ore)	1,100	_	_	_	100.0	100.0	100.0	88.0
Stockpile (marginal ore)	1,100	_	_	_	100.0	100.0	100.0	91.0
Stockpile (spent heap leach)	1,100	_	_	_	100.0	100.0	100.0	90.0

The Mineral Resource models were modified to include the expected mining dilution and ore losses. These are built into the Mineral Resource block model prior to pit optimisation. Additional modifying factors based on historical information were also applied prior to estimation of Ore Reserve.

## **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Siguiri	Tonnes	Grade	Contained gold	
as at 31 December 2016	million	g/t	tonnes	Moz
Bidini (fresh rock)	0.14	1.28	0.19	0.01
Bidini (oxide)	0.54	0.86	0.47	0.01
Bidini (transitional)	0.10	1.27	0.13	0.00
Kami (fresh rock)	0.15	1.00	0.15	0.00
Kami (oxide)	0.00	0.46	0.00	0.00
Kami (transitional)	0.00	0.56	0.00	0.00
Seguélén	0.56	0.97	0.54	0.02
Total	1.50	0.98	1.47	0.05

Ore Reserve does not include Inferred Mineral Resource, but within the pit design Inferred Mineral Resource is included. For the optimisation the impact of excluding Inferred Mineral Resource is tested to determine if the pit sizes will still generate a positive cash flow at \$1,100/oz gold price.



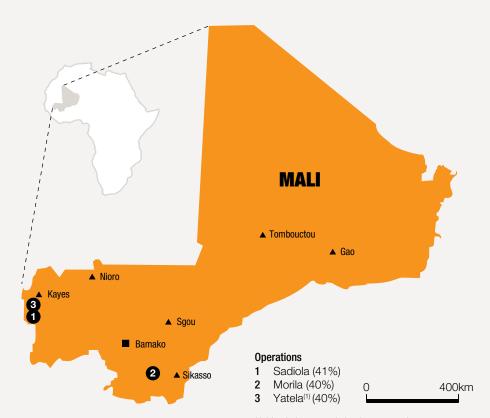
Changes in the Ore Reserve are mainly due to conversion from Inferred Mineral Resource in Bidini and Seguélén pits, inclusion of Seguélén fresh rock Ore Reserve, overall drop in cost and maximise utilisation of the Mineral Resource for oxide deposits by selecting a higher revenue factor shell.



## Mali

AngloGold Ashanti has interests in three mines in the West African country of Mali, with two mines (Sadiola and Morila) being operational and one (Yatela) undergoing closure. Sadiola and Yatela are JV operations with IAMGOLD and the Government of Mali, while Morila is a JV with Randgold and the Government of Mali. Sadiola is currently considering a major pushback to access hard rock, Morila is a mature operation focusing on tailings reclamation and Yatela is currently undergoing closure.

The Sadiola operation is managed by AngloGold Ashanti, while Randgold manages Morila. There is no Mineral Resource or Ore Reserve reported for Yatela.



<sup>(1)</sup> Yatela is currently in closure mode.

## **INCLUSIVE MINERAL RESOURCE**

Mali		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	0	2.37	0	0
	Indicated	61	1.58	96	3
	Inferred	8	1.63	13	0
	Total	69	1.58	109	4

## **EXCLUSIVE MINERAL RESOURCE**

Mali		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	-
	Indicated	20	1.69	34	1
	Inferred	8	1.63	13	0
	Total	28	1.67	47	2

## **ORE RESERVE**

Mali		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	0	2.37	0	0
	Probable	38	1.57	59	2
	Total	38	1.57	59	2

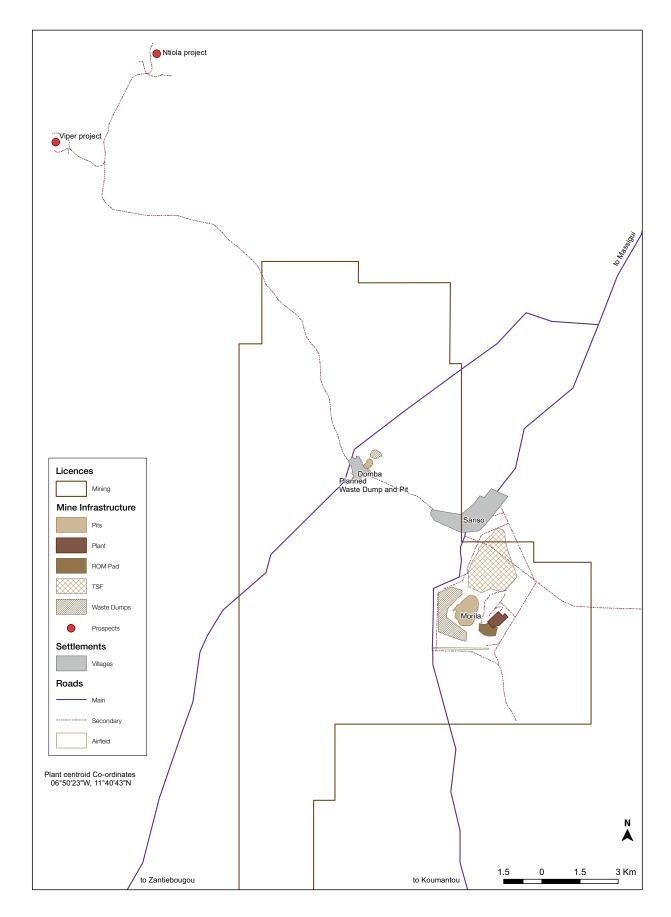
# CONTINENTAL AFRICA continued Morila



## INTRODUCTION

Property description	The mine is operated by Morila SA, a JV 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. In 2009, Morila was converted to a stockpile treatment operation. Closure of the operation was originally scheduled for 2013, but a pit pushback and tailings treatment project has extended its life to 2019.
Location	The Morila mine is situated some 280km south-east of Bamako, the capital city of Mali.
History	In 1996 Morila was discovered by Randgold. A PFS in 1998 supported the fast tracking of the mine, and by August 1998, a bankable FS was under way. In 2000, a JV partner was sought and AngloGold purchased 40% of the mine, and also became the operator of the mine. In February 2001, the Malian president officially opened the mine.
	During 2003, a capital expansion programme was completed and increased the production level to 350,000mt per month by year-end. In 2008 AngloGold Ashanti considered Morila to be non-strategic and Randgold took over the operational responsibility for Morila.
	In 2009 Morila had started its transition to a stockpile and tailings retreatment operation.
Legal aspects and tenure	Morila's exploitation permit PE 99/15 (Decree No 99-217/PM-RM) covers 199.8km² and was issued on 4 August 1999 for 30 years.
Mining method	The main pit has been mined via open pit. Currently no active open pit mining occurs, production is primarily retreatment of tailings and dumps.
Operational infrastructure	All operational infrastructures are in place to support a mining operation including a processing plant, power generation, village and tailing storage facility.
Mineral processing	Currently no open pit mining occurs. Stockpile and tailing materials are being processed. The metallurgical plant utilises a conventional CIL process with an upfront gravity section to extract the free gold and has annual throughput capacity of 4.3Mt.
Risks	No material risks have been identified.







#### **COMPETENT PERSONS**

Morila								
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification			
Mineral Resource and Ore Reserve	Rodney Quick*	SACNASP	400014/05	23 years	BSc Hons (Geology) MSc (Geology)			

<sup>\*</sup> Employed by Randgold Resources Limited at 3rd Floor, Unity Chambers, 28 Halkett Street, St Helier, Jersey, OJE2

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

## GFOLOGY

The Morila deposit occurs within a sequence of amphibolite facies Birimian meta-sediments. The economic mineralisation is located in these meta-sediments within a broad north-northwest trending corridor of shearing. This shear zone has 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 meta-sediments 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).

## **EXPLORATION**

Exploration at Morila has been limited to reviews of potential targets, including the Samacline area and drilling at the Domba Pit in support of the evaluation of Domba as a potential short-term ore source.

## **PROJECTS**

## **DOMBA**

The feasibility report for the Domba project has been submitted to the government, and the mine is expecting to obtain the necessary authorisation. Mining the Domba pit is expected to add an additional three months of higher grade ore to the operation.

#### **BIRIMIAN OPTION AGREEMENT**

In 2016 Morila signed an option agreement with Birimian Gold Mali SARL (Birimian), which provides Morila access to Birimian's Ntiola and Viper projects which are adjacent to the existing Morila permit.

In terms of the arrangements, Morila has an option to acquire the Ntiola and Viper projects after conducting exploration work and a PES

## MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Morila			T	ype of drillin	g		
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	10 x 10	_	✓	_	_	_	-
Indicated	30 x 30,	_	✓	-	-	✓	Auger drilling
	50 x 100						
Inferred	100 x 100	_	_	_	_	✓	Auger drilling
Grade/ore control	10 x 10	_	✓	_	_	_	-

Morila

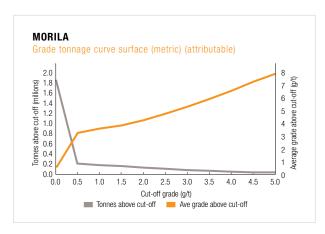
## **INCLUSIVE MINERAL RESOURCE**

Morila		Tonnes	Grade	Contained o	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Satelite pit	Measured	_	_	_	-
	Indicated	0.21	3.23	0.67	0.02
	Inferred	_	_	-	_
	Total	0.21	3.23	0.67	0.02
Tailings storage facilities	Measured	_	_	_	_
	Indicated	8.49	0.53	4.46	0.14
	Inferred	0.38	0.45	0.17	0.01
	Total	8.87	0.52	4.63	0.15
Morila	Total	9.08	0.58	5.30	0.17

<sup>\$1,500/</sup>oz Mineral Resource price used by Randgold (operating partner).

## **ESTIMATION**

The Mineral Resource consists of material from TSF and Domba pit as marginal and mineralised waste stockpiles are depleted. The TSF forms the bulk of the Mineral Resource and was drilled on a spacing of 50m x 50m and estimated using ordinary kriging methods into a 50m x 50m block size.



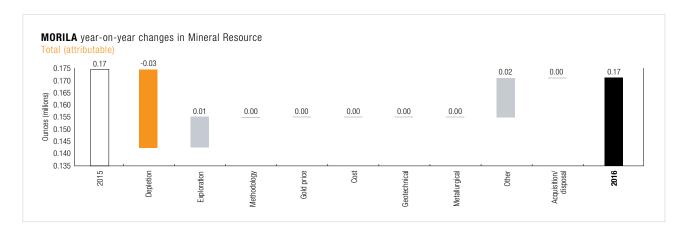


## **EXCLUSIVE MINERAL RESOURCE**

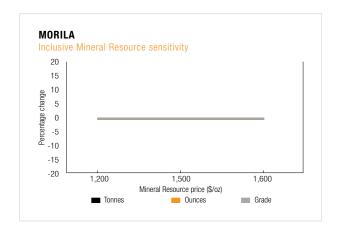
Morila		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	0.38	0.45	0.17	0.01
	Total	0.38	0.45	0.17	0.01

The exclusive Mineral Resource comprise largely of Inferred Mineral Resource from the tailings storage facility and the Domba satellite pit which is still the focus of an economic study.





Changes in the Mineral Resource are mainly due to the TSF Mineral Resource update and the inclusion of the Domba satellite pit.



Morila is insensitive to changes in gold price as it is a mature operation at the end of its life with very little additional opportunity.



Morila

## ORE RESERVE

## **ORE RESERVE**

Morila		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Tailings storage facilities	Proved	_	_	_	_
	Probable	6.18	0.55	3.37	0.11
Morila	Total	6.18	0.55	3.37	0.11

<sup>\$1,000/</sup>oz Ore Reserve prices used by Randgold (operating partner)

## **ESTIMATION**

The Mineral Resource models are used as the basis for the Ore Reserve. 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.

## **ORE RESERVE MODIFYING FACTORS**

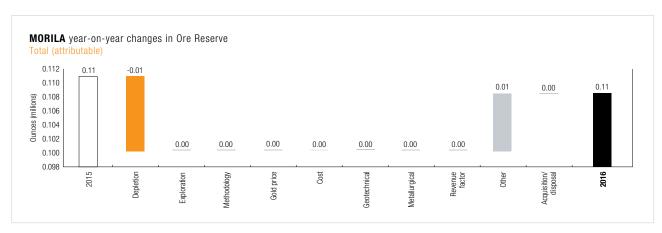
Morila	Gold price	Cut-off grade	Dilution	MCF	MetRF
as at 31 December 2016	US\$/oz	g/t Au	%	%	%
Tailings storage facilities	1,000	0.47	5.00	100.0	57.0

\$1,000/oz Ore Reserve prices used by Randgold (operating partner)

Only 5% dilution has been encountered for with reporting of tonnages from the tailings storage facility.

## **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

There is no Inferred Mineral Resource included in the business plan.



Changes in the Ore Reserve are mainly due to the TSF Ore Reserve being updated as a consequence of a change in the Mineral Resource.

# CONTINENTAL AFRICA continued Sadiola



## INTRODUCTION

Property description	The Sadiola gold deposit is mined by the Société d'Exploitation des Mines d'Or de Sadiola S.A. (SEMOS), that consist of a JV agreement between AngloGold Ashanti (41%), IAMGOLD Corporation (41%) and the government of Mali (18%).
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 property lies within the Galam Bambouk gold area, which straddles the Mali-Senegal border close to the border with Guinea. It is underlain by the Kenieba greenstone belt.
History	The Sadiola area has a history of alluvial gold working dating back to the 11th Century. In 1991-92 IAMGOLD acquired the rights to the concession and explored the area, and in 1993 Anglo American entered into an earn-in option to the property. In 1994 a FS was completed on this property, and accepted by the Mali government.
	In 1995 construction started and in 20 December 1996 the first gold was poured.
	In November 2009, IAMGOLD and AngloGold Ashanti announced that it was acquiring the International Finance Corporation's 6% interest for a total of \$14.5 million.
	In 2011 a FS to expand the processing facility to treat hard rock at Sadiola was completed. Long lead items were purchased before the mining industry downturn that put the project into care and maintenance. Continuous attempts were made to optimise the FS since 2011 with the latest study, Sadiola Sulphide Project (SSP) being completed in 2016. The SSP project remains on hold and will be presented to respective boards of both AngloGold Ashanti and IAMGOLD in 2017. While awaiting this decision the operation continues to mine and process oxide material.
Legal aspects and tenure	SEMOS is bound by the original prospecting and exploitation agreement (including its subsequent legal modifications) entered into on April 5th, 1990 between AGEM and the Mali government. The identity number of the current exploitation area is "DECRET No 00-080/PM-RM DU 06 MARS 2000" and is a modification of all previous exploitation areas. Sadiola is operated under the licence DECRET N°94-257/PM-RM valid from 1 August 1994 to 1 August 2024 covering a total area of 303km². In the current FS update, the SSP project extends operations beyond 2024 and therefore an amended ESIA and associated permits are currently going through the approvals process. Dialog with the Government of Mali has been ongoing throughout the project study phase and as such the amended ESIA and associated approvals are expected to be approved.
Mining method	Current operations are focused on mining of oxide material from the FN pits, north of the Sadiola main pit, which is supplemented with low/marginal grade ore from stockpiles. 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 SSP awaiting board approval.
	Mining is carried out by a contractor, Aveng Moolmans, and monitored by Wenco Fleet Management System 24/7.
Operational infrastructure	The Sadiola gold mine includes a main pit, and several smaller satellite pits, a processing plant, a tailings storage facility and other infrastructure such as a mine village, water supply system, roads, airstrip and communications systems.
	Since the beginning of the operation mining activities have been outsourced.
	All mining occurs within the mining licence boundaries.

Sadiola

## Mineral processing

Ore is treated in a 4.9Mtpa 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 blend currently undergoes preconditioning through separate 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 the run-of-mine sulphide material. This project will extend the life of Sadiola and leverage any further sulphide exploration successes in the region.

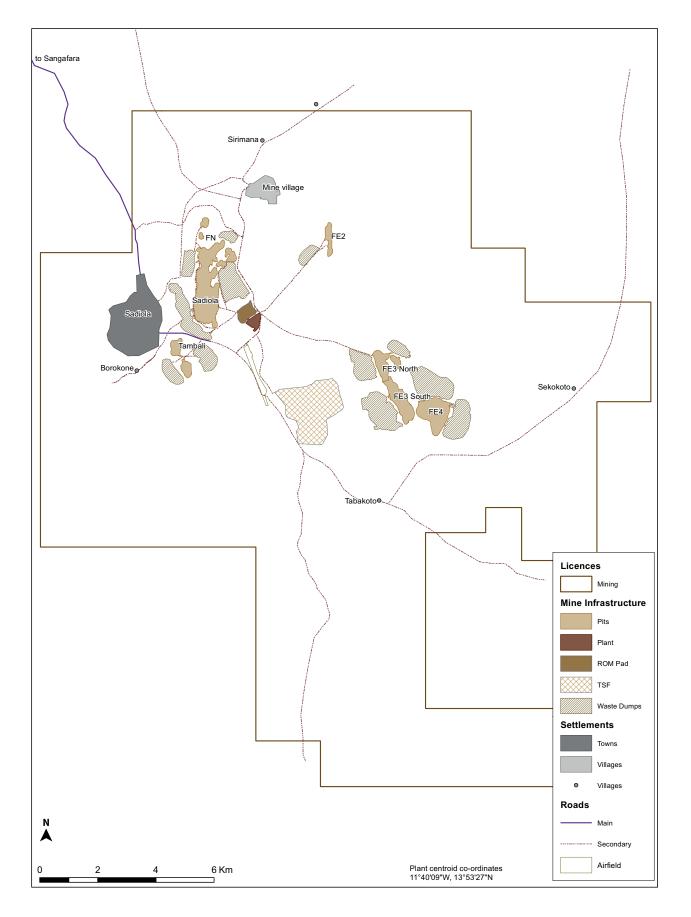
#### **Risks**

With the current LoM schedule the oxide ore from pits will finish in 2018. After this only low grade stockpiles are available and can feed the processing plant until the second quarter 2019. The site brownfields exploration continues to look for opportunities that could extend the LoM until the sulphide project is commissioned.

The SSP project has been re-evaluated based on the current economic climate. Timing is sensitive due to the short mine life that exists when one excludes SSP. The project approval is dependent on approvals from the Government of Mali. There has been ongoing dialog with the Government of Mali throughout the project study phase on outstanding agreements. There is no foreseeable reason that the approvals will not be granted.







Sadiola

#### **COMPETENT PERSONS**

Sadiola					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Geoffrey H. Gushee	MAusIMM	207 957	28 years	BA (Geology), GDE (Mining Engineering), MDP, MEng (Mineral Resource Management)
Ore Reserve	Andrew Bridges	MAusIMM	300 976	19 years	BSc (Hons) Mining Engineering

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.

## **GEOLOGY**

The Sadiola gold deposits are located within the Malian portion of the Keniéba-Kedougou Inlier, a major early Paleoproterozoic-Birimian window along the north-east 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 terrane boundary. Regional metamorphism is to greenschist facies with amphibolite facies metamorphism observed in the contact aureoles around major intrusions.

#### **DEPOSIT TYPE**

The Sadiola deposit is considered a mesothermal shear-hosted gold deposit and can be correlated with an Ashanti-type orogenic gold model.

#### **MINERALISATION STYLE**

The Sadiola gold system displays the Sadiola Hill-style Au-As-Sb mineralisation. Within the Sadiola Main Pit the bulk of the ore is hosted within the brittle-ductile Sadiola Fracture Zone (SFZ) and impure footwall carbonates. Mineralisation also occurs along the array of NNE-trending shears although gold grade decreases with increasing distance from the SFZ.

Mineralisation is shear-hosted and associated with a polyphase hydrothermal alteration history comprising an early calc-silicate phase followed by a potassic alteration stage. The metal associations of the ore typically comprise As-Au-Sb and minor to trace amounts of Cu-W-Mo-Ag-Bi-Zn-Pb-Te-Fe-bearing mineral species.

Structural controls on primary mineralisation in the FE satellite pits are similar to that of Sadiola but later karstification and protracted weathering resulted in the formation of a gold residuum. Lithostratigraphic contacts also appear to have been an efficient interface for channeling fluids.

### Oxide mineralisation

The geometry of the extensive, soft, oxide deposit and its supergene enrichment of gold relates almost exclusively to the weathering history of the primary mineralisation. Intense tropical weathering has produced deep troughs of white to grey, decarbonated, kaolin-rich saprolite, locally abundant nontronite and relative gold enrichment. Penetration of groundwater has caused oxidation of the primary sulphides and the formation of acidic groundwaters, further promoting deeper argillisation of the bedrock.

## **Sulphide mineralisation**

Drilling of the (unweathered) primary mineralisation has allowed detailed investigation of major and minor hydrothermal alteration processes that were active during the formation of the deposit. Primary gold is fine grained, dominantly less than 15µm, with rare grains approaching 50µm. Visible gold is rare. Gold mineralisation is associated with both arsenic and antimony dominated sulphide assemblages of arsenopyrite, pyrrhotite, pyrite, stibnite and gudmuntite as well as potassic, calc-silicate, propylitic alteration and silicification. Much of the mineralisation appears to be related to deformation of the host rocks.

## **MINERALISATION CHARACTERISTICS**

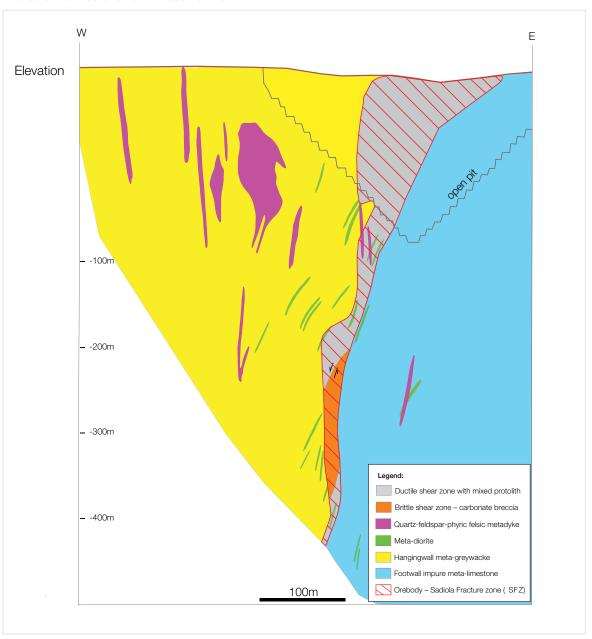
The gold mineralisation in the Sadiola main pit is related to the interaction of the north-striking SFZ and a north-northeast-striking fault array. The SFZ follows the competency contrast between the brittle hangingwall greywacke and the ductile footwall marbles and is mineralised over a drilled strike length of approximately 2,500m. 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 carbonates adjacent to the SFZ. The deposit has been intensely weathered to a maximum depth of 200m.



At the FE pits, located about 7km to the southeast of the Sadiola Main pit, mineralisation 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 north-west-trending stratigraphy. The FE4 deposit is located in an interbedded sandstone and pelite sequence with mineralisation predominantly hosted in breccia along a north-east-striking regional shear and several subsidiary north-northeast-trending faults.

At Tambali, located 2km to the south of the Sadiola main pit, the mineralisation is associated with two sets of structures, orientated north-northeasterly (dipping steeply south-east) and north-westerly (dipping south-west). These structures are often related to thin tourmaline-quartz-rich shears/veins or zones of (mostly north-northeast trending) quartz-feldspar porphyry intrusions that have undergone later shearing. A north-west trending graphite-rich brecciated boundary between south-westerly-dipping sandstones (in the east) and meta-pelites (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. Tambali mineralisation is a subset of the one observed at Sadiola and was subjected to similar structural controls.

## **GEOLOGICAL CROSS-SECTION THROUGH SADIOLA PIT**



Sadiola

## **EXPLORATION**

The objective of the 2016 exploration programme was firstly to explore for additional oxide material along the known mineralised trends and to infill lower confidence Mineral Resource. And secondly, to locate satellite ore with the focus on transitional and fresh rock potential. Exploration also targeted deep mineralised extensions.

A total of 20,671m of RC drilling was completed and targeted five projects.

#### **OXIDE**

Four oxide targets were prospected. At the Sadiola Far North target additional oxide infill targets were generated from the drilling. Follow up drilling at FE2S identified further shallow low grade material but optimisation show limited Ore Reserve potential and it is not considered economically viable. Reconnaissance drilling over prominent geochemical anomalies at FE1W and Voyager East did not return any oxide potential.

#### **SULPHIDE**

Infill drilling was concluded at the Sadiola North pit to upgrade the Inferred oxide and sulphide Mineral Resource. Some of the drill holes were extended to target the deeper fresh rock potential below the pit. Reconnaissance drilling was done at Tambali to define sulphide mineralisation potential along the north east shear extensions. Significant shallow and deep sulphide intersections were achieved which will be followed up.

Core drilling in the later part of the year was conducted to follow up on selected targets. The infill drilling was done to collect additional information on lithology, alteration, main gold bearing structures, and geo-metallurgical samples to update the geological model.

Other exploration activities during 2016, focused on geochemical analysis of the historical termite mound samples. Multi element results from X-ray Fluorescence (XRF) indicates a prominent arsenic anomaly along the Voyager East target. The XRF analyses were also employed to assist geo-metallurgical characterisation and lithological differentiation in the deep Sadiola core drilling and in the RC drill chips from Sadiola Far North.

## **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 current economic and political climate. The project consists of a new pushback in the Sadiola main pit in order to mine the underlying sulphide ore and the modification of the processing plant to be able to treat the sulphide ore. The investment case is influenced by the supply of grid power and the fiscal provisions being negotiated with the government of Mali. The project extends the life of Sadiola by approximately 10 years at an average production of 330Koz pa (100%) and leverages any further sulphide exploration successes in the region.

## MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Sadiola		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	25 x 25	✓	✓	_	_	-	<del>-</del>
Indicated	25 x 25,	✓	✓	_	_	_	_
	50 x 25						
Inferred	50 x 50	✓	1	_	_	_	-
Grade/ore control	5 x 10, 6 x 13	_	/	_	_	_	_

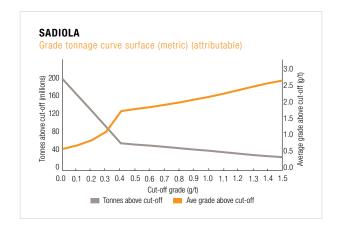
## **INCLUSIVE MINERAL RESOURCE**

Sadiola		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
FE2	Measured	_	_	_	-
	Indicated	0.11	1.48	0.17	0.01
	Inferred	0.00	1.16	0.00	0.00
	Total	0.12	1.48	0.17	0.01
FE3	Measured	_	_	_	-
	Indicated	1.17	2.07	2.43	0.08
	Inferred	0.02	2.63	0.06	0.00
	Total	1.20	2.08	2.49	0.08
FE4	Measured	_	_	-	-
	Indicated	0.08	2.22	0.18	0.01
	Inferred	0.01	2.77	0.04	0.00
	Total	0.10	2.30	0.22	0.01
Tabakoto (Sekokoto)	Measured	-	_	_	_
	Indicated	0.66	1.36	0.90	0.03
	Inferred	0.05	1.13	0.06	0.00
	Total	0.71	1.34	0.96	0.03
Tambali	Measured	_	_	_	_
	Indicated	0.96	1.21	1.16	0.04
	Inferred	0.15	1.16	0.18	0.01
	Total	1.11	1.21	1.33	0.04
SSP (oxides)	Measured	-	_	-	-
	Indicated	2.09	1.13	2.36	0.08
	Inferred	0.27	1.01	0.27	0.01
	Total	2.37	1.11	2.63	0.08
SSP (transitional)	Measured	_	_	_	-
	Indicated	1.12	1.83	2.06	0.07
	Inferred	0.20	1.82	0.36	0.01
	Total	1.32	1.83	2.41	0.08
SSP (sulphides)	Measured	_	_	_	-
	Indicated	38.40	1.87	71.97	2.31
	Inferred	6.47	1.71	11.06	0.36
	Total	44.88	1.85	83.03	2.67
FN	Measured	_	_	_	-
	Indicated	2.07	1.63	3.38	0.11
	Inferred	0.64	1.86	1.19	0.04
	Total	2.71	1.69	4.57	0.15
Total stockpiles	Measured	0.01	2.37	0.02	0.00
	Indicated	5.25	1.13	5.92	0.19
	Inferred	_	_	_	_
	Total	5.26	1.13	5.94	0.19
Sadiola	Total	59.76	1.74	103.76	3.34

Sadiola

#### **ESTIMATION**

The Mineral Resource is taken as the material that falls within the \$1,400/oz economic shell optimised for each individual deposit. A 3D surface is generated to create the outline of the geological model within which grades are estimated. Block sizes are between  $25m \times 25m \times 10m$  and  $30m \times 30m \times 10m$  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 SMU.





The grade tonnage curve does not include stockpiles.

## **EXCLUSIVE MINERAL RESOURCE**

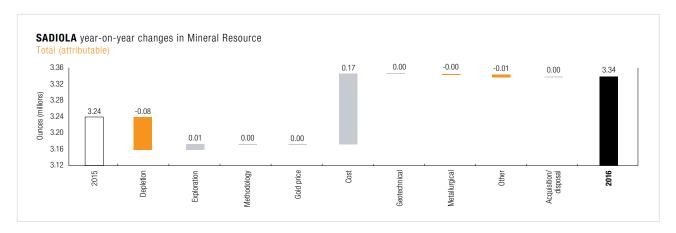
Sadiola	Tonnes	Grade	Contair	ned gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	20.09	1.69	33.93	1.09
	Inferred	7.82	1.69	13.22	0.42
	Total	27.91	1.69	47.14	1.52

The exclusive Mineral Resource is the part of the Mineral Resource that was not converted to Ore Reserve. It is defined as the Mineral Resource that is outside the current Ore Reserve designs but inside the Mineral Resource shells and includes the Inferred Mineral Resource within the Ore Reserve design.

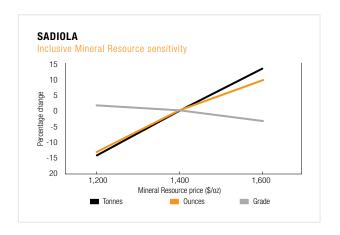
The exclusive Mineral Resource gives an indication of the future potential of the deposit. This material could be converted to Ore Reserve with an increase in the gold price and favourable costs. The Inferred Mineral Resource portion of the Mineral Resource within the Ore Reserve pit design will be converted to the Ore Reserve through grade control drilling.

The exclusive Mineral Resource includes material from FE2 deposits, where the Ore Reserve is mined-out, but some Mineral Resource remains.





Reduced processing cost resulted in lower cut-off grades. These changes have had significant impact on the satellite pits (costs have reduced by 20-30%). Infill drilling at Tabakoto and FN satellite pits resulted in exploration gains.



Sadiola is sensitive to gold price changes due to the marginal nature of the satellite pits.



Sadiola

## ORE RESERVE

## **ORE RESERVE**

Sadiola		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
FE3	Proved	_	-	_	_
	Probable	0.68	2.02	1.37	0.04
	Total	0.68	2.02	1.37	0.04
FE4	Proved	_	_	_	_
	Probable	0.08	2.27	0.18	0.01
	Total	0.08	2.27	0.18	0.01
Tabakoto (Sekokoto)	Proved	_	_	_	_
	Probable	0.18	1.88	0.34	0.01
	Total	0.18	1.88	0.34	0.01
Tambali	Proved	_	_	-	-
	Probable	0.19	1.19	0.23	0.01
	Total	0.19	1.19	0.23	0.01
SSP (oxides)	Proved	_	_	_	_
	Probable	0.73	1.43	1.04	0.03
	Total	0.73	1.43	1.04	0.03
SSP (transitional)	Proved	_	_	_	_
	Probable	0.70	2.10	1.48	0.05
	Total	0.70	2.10	1.48	0.05
SSP (sulphides)	Proved	_	_	_	_
	Probable	22.77	1.92	43.73	1.41
	Total	22.77	1.92	43.73	1.41
FN	Proved	_	_	_	_
	Probable	1.04	1.56	1.62	0.05
	Total	1.04	1.56	1.62	0.05
Total stockpiles	Proved	0.01	2.37	0.02	0.00
	Probable	5.25	1.13	5.92	0.19
	Total	5.26	1.13	5.94	0.19
Sadiola	Total	31.63	1.77	55.92	1.80

## **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.

## **ORE RESERVE MODIFYING FACTORS**

Sadiola	Gold price	Cut-off grade	Dilution	RMF	MCF	MetRF
Oddiold	prioc	grado	Dilution			ıota
				% (based		
as at 31 December 2016	US\$/oz	g/t Au		on tonnes)		%
FE3, FN, Tambali	1,200	0.45	17.6	85.0	100.0	75.0 - 94.0
FE4	1,100	0.80	9.0	97.0	100.0	75.0 - 94.0
Tabakoto (Sekokoto)	1,100	0.80	_	_	100.0	75.0 - 94.0
SSP (oxides)	1,200	0.45	5.0	95.0	100.0	85.0 - 94.0
SSP (transitional)	1,200	0.66	5.0	95.0	100.0	75.0
SSP (sulphides)	1,200	0.65	5.0	95.0	100.0	76.0 - 80.0
Total stockpiles	1,200	0.45	-	_	100.0	

Recovery factor varies according to ore type (Laterite, Saprolite, Siliceous Oxide, Saprolitic Sulphide, Hard Sulphide, Intermediate Oxide, intermediate Sulphide, Transitional, Graphitic). \$1,200/oz Ore Reserve price used by IAMGold for the SSP Project





Sadiola

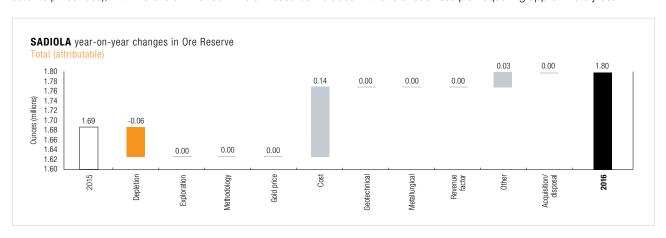
The modifying factors applied to the Ore Reserve for Sadiola are ore loss and dilution. For the satellite pits, due to the nature of the mineralisation, the ore loss and dilution is different to the SSP main pit. These modifying factors have been applied to reflect current mining practices.

The SSP main pit utilises ore loss incorporated into the modelling process. The other satellite pits have variable ore loss and dilution applied dependent on mining method. The pits that are to be mined as part of the current operation have between 0% and 9% applied, while those that are to be mined as part of the SSP have 15% ore loss and 17.6% dilution applied. The latter is to allow for mining by a face shovel rather than an excavator.

## **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Sadiola	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
FE3	0.00	1.80	0.01	0.00
FE4	0.01	2.77	0.04	0.00
Tabakoto (Sekokoto)	0.10	0.63	0.06	0.00
Tambali	0.02	1.30	0.02	0.00
SSP (oxides)	0.04	1.35	0.05	0.00
SSP (transitional)	0.05	1.69	0.09	0.00
SSP (sulphides)	0.65	1.56	1.01	0.03
FN	0.25	1.73	0.43	0.01
Total	1.12	1.53	1.72	0.06

Inferred Mineral Resource material has been included in the business plan as incidental material when the pit is mined. Several of the small oxide pits that are included in the bridging period until the main SSP pit is mined, have a high percentage (14% of the total satellite pit ounces), with the overall Inferred Mineral Resource included in the total business plan equalling approximately 3%.



Year on year increase is related to changes in economics related to the historical mineralised waste stockpile being re-classified to marginal ore as a result of improved processing costs and therefore cut-offs and the satellite pits (FE3 pit, Tambali, SSP North) being evaluated using the SSP process plant costs.

## Tanzania



Geita is AngloGold Ashanti's only operation in Tanzania and one of the larger open pit gold 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.



## **INCLUSIVE MINERAL RESOURCE**

Tanzania	Tonnes	Grade	Contair	ed gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	41	2.99	122	4
	Inferred	22	4.87	106	3
	Total	62	3.64	228	7

## **EXCLUSIVE MINERAL RESOURCE**

Tanzania	Tonnes	Grade	Contair	ed gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	-	_	_	-
	Indicated	24	2.49	60	2
	Inferred	22	4.87	106	3
	Total	46	3.61	166	5

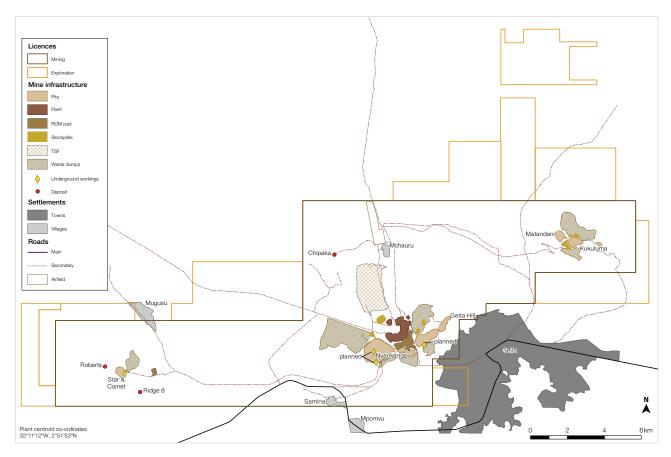
## **ORE RESERVE**

Tanzania	Tonnes	Grade	Contair	ed gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	-	_	_	_
	Probable	16	3.73	61	2
	Total	16	3.73	61	2

## INTRODUCTION

Property description	Geita is wholly owned by AngloGold Ashanti. It is an on-going multiple open pit operation that currently sources ore from two open pits (Nyankanga and Geita Hill). In 2016 underground mining commenced at Star and Comet.
Location	The Geita Gold Mine (GGM) is located approximately 910km from the Tanzanian capital city of Dar es Salaam. GGM falls within the Lake Zone of northern-western Tanzania, approximately 120km west of Mwanza and 4km away from the town of Geita. The mining lease area falls within the Archaean Sukumaland Greenstone Belt of the Lake Victoria goldfields.
History	In 1936 the Geita deposits were first discovered and by 1966 three mines had produced almost 1Moz.
	In 1996 Ashanti acquired the project through acquisition of Cluff Resources.
	In early December 2000, Ashanti reached an agreement to sell AngloGold a 50% interest in Geita for \$324 million. AngloGold Ashanti added its neighbouring Nyamulilima Hill deposits into the JV company.
	In 2004, the merger of AngloGold and Ashanti resulted in the operation being run by AngloGold Ashanti.
	In 2015, the decision was taken to go underground at Star and Comet.
Legal aspects and tenure	The special mining licence (SML45/99) covers approximately 196.17km² which expires on the 26th August 2024. There is a further 120km² of prospecting licences in the immediate vicinity to the SML, however, these do not contain any Ore Reserve.
Mining method	Mining at Geita is currently undertaken by conventional truck-and-shovel open pit mining method on two active pits (Nyankanga and Geita Hill). The open pit mining is conducted using GGM owned, operated and maintained fleet. A contractor provides drilling and blasting services. The open pit portion of Star and Comet was completed in the second quarter of 2014. Underground mining commenced at Star and Comet in 2016 using the services of an underground mining contractor. Ore is hauled from the Star and Comet operation to the central ROM pad by the GGM surface mining fleet.
Operational infrastructure	As an on-going operation GGM currently has an established 5.2Mtpa CIL processing plant capable of processing hard ore. It also has an established TSF with sufficient area to construct wall raises every three years to accommodate planned future production. A full workshop facility is in place to support the maintenance of heavy mining equipment and all light support equipment. Contractor infrastructure supported on the mine site includes workshops for the production and exploration drilling contractor, workshops for the underground mining contractor, as well as a plant for the explosives supplier. GGM has further support infrastructure in place including a mine village, medical clinic, mine store, administration buildings and an airstrip.
Mineral processing	GGM ore processing method is via conventional CIL process. The CIL plant has a throughput capacity of 5.2Mtpa, The circuit contains a primary gyratory crusher, secondary and tertiary crushers, a semi-autogenous mill, ball mill and 12 leach tanks. This is coupled with a gravity circuit through two knelson concentrators. In planning the plant feed blend material hardness, grade and sulphide content are considered in order to optimise throughput and recovery.
Risks	The primary risk remains the declining Ore Reserve profile. The mitigating actions put in place focus on optimising the exploration and project plans to convert both surface and underground Mineral Resource in the near term and with appropriate cost efficiencies for the current economic climate.
	There are regular artisanal and small scale miners activities and illegal intrusions into the mine, but there is a holistic mitigation plan in process to manage this.





## **COMPETENT PERSONS**

Geita					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Craig Duvel	SACNASP	400007/98	22 years	BSc Hons (Geology)
					GDE (Mining Engineering)
Ore Reserve	Janardhan Reddy	MAusIMM	991 581	12 years	BTech

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.

## **GEOLOGY**

## **DEPOSIT TYPE**

The Geita Greenstone Belt (GGB) hosts several world-class shear-hosted Archaean lode gold deposits and forms the northern portion of the regional Sukumaland Greenstone Belt, itself one of several belts that comprise the Lake Victoria Goldfields. Other gold mines hosted in the Lake Victoria Goldfields include Golden Pride, Bulyanhulu, Tulawaka, Buzwagi and North Mara.

The east-west oriented GGB is 60km in length, 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 (BIF), volcaniclastics and meta-basalts. These have been intruded by a variety of felsic to mafic intrusive bodies, dykes and sills. Gabbro dykes accommodated by regional north-northeasterly structures are also prominent geological features in the area.

Geita

North-west trending deformation corridors divide the GGB into three distinct sub-terrains, namely the Nyamulilima Terrain in the west (hosting the Star and Comet, Ridge 8 and Roberts deposits), the Central Terrain in the central part (hosting the Nyankanga, Geita Hill, Lone Cone and Chipaka deposits) and the Kukuluma Terrain to the north-east (hosting the Matandani, Kukuluma and Area 3 West deposits).

### **MINERALISATION STYLE**

Geita's gold mineralisation is preferentially hosted in BIF, cherts and ironstones that have been affected by both ductile and dominant brittle deformation associated with shear zones. The shears preferentially exploit fold axial planes as well as the contacts between the supracrustal and intrusive rocks.

The GGB has been through a protracted history of deformation, which resulted in a large-scale synformal configuration in the Central Terrain, with west-northwest trending limbs connected by a north-east trending hinge zone. The deposits of the Central Terrain are mainly located within the relatively low-strain hinge zone. The Nyankanga deposit is hosted in a BIF-dominated supracrustal package that is extensively intruded by, and locally form a roof-pendant within the dioritic Nyankanga Intrusive Complex. At Geita Hill, dioritic rocks are present as sills and dykes intruded into a supracrustal sequence that has been subject to extensive polyphase folding.

To the west, the Nyamulilima Terrain comprises a semi-circular structure surrounding intrusive centers, which internally encompasses structural systems of variable scale that locally control gold mineralisation. At Star and Comet, a folded sedimentary package of BIF intercalated with clastic and tuffaceous meta-sediments is intruded by a tonalitic complex.

The Kukuluma Terrain trends west-northwesterly, with sub-vertical limbs being dominant over compressed, multiphase folded zones. The three major deposits in the area (Kukuluma, Matandani and Area 3) are located along a 5km long east-southeast mineralisation trend. The geology of the deposits is dominated by volcano-sedimentary rocks that are polydeformed and intruded by syn- to latefolding diorite bodies. Host rocks for mineralisation are fine-grained iron-rich clastic sediments, cherts, BIF and tuffaceous rocks, with local intercalated carbonaceous shales.

## **MINERALISATION CHARACTERISTICS**

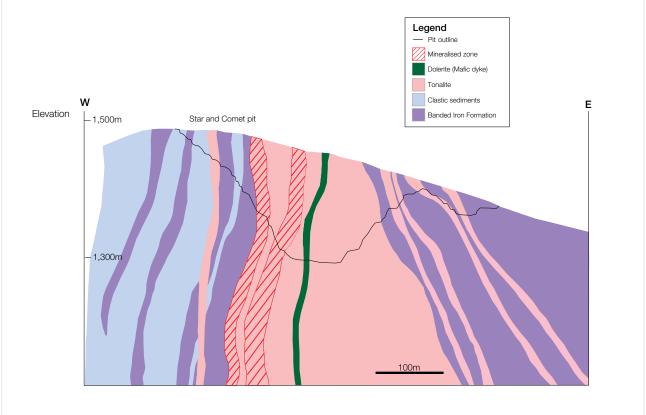
Gold mineralisation at Nyankanga occurs within a northeast-trending and northwest-dipping anastomosing shear system, typically along the lowermost shears, with higher grade mineralisation mainly proximal to the basal contact of BIF packages. Mineralisation is associated with chlorite-carbonate-silica alteration and pyrite-dominant sulphide in the damage zones surrounding the shear surfaces as veins, veinlets, local breccias and sulphide replacement of magnetite layers. At Geita Hill, mineralisation at the deposit scale is controlled by a narrow NE-trending and NW-dipping shear zone that exploits the axial surfaces of F3 folds. The bulk of the ore is also carried by damage zones adjacent to the main shear.

At Star and Comet, a major mineralised shear zone runs NNW-SSE through the deposit where it is localised along the contact of BIF and tonalite. An envelope of mostly brittle deformation up to 10m thick affecting both lithologies occurs either side of the shear zone and controls distribution of mineralisation. Most of the gold mineralisation is hosted in pyrrhotite patches associated with strong silicification together with carbonate alteration.

Within the Kukuluma Terrain, steeply dipping ductile/brittle gold-fertile shear zones are developed along, or close to, the edges of an elongate diorite body, hosted in iron-rich host rocks and locally exploiting axial surfaces of tight folds. Gold mineralisation in the Kukuluma terrain is strongly associated with pyrrhotite, pyrite and arsenopyrite concentrations, accompanied by strong carbonate and silica alteration of host rocks. Gold is present in gold minerals and sulphides, dominantly in arsenopyrite.



**GEOLOGICAL CROSS-SECTION THROUGH STAR AND COMET** 



## **EXPLORATION**

Infill drilling concentrated on Nyankanga underground, Star and Comet Cut 2 underground and Star and Comet Cut 3 underground. The aim of the infill drilling was to upgrade the confidence in the Mineral Resource to bring material within the underground mine design to Inferred and Indicated classification.

Delineation drilling was completed at several deposits to test for extensions to mineralisation that can be exploited by both open pit and shallow underground methods. At Nyamulilima the drilling focused on testing the down-plunge extensions of the Star and Comet Cut 2 and Cut 3 orebodies. At Prospect 30 the drilling aimed to confirm the updated geological and mineralisation models on this satellite target. At Geita Hill East the drilling confirmed continuation of mineralisation approximately 100m down-dip of previous drilling. At Matandani pit drilling aimed to test the downdip extension of high grade mineralisation below the pit.

Following the successful completion of a 2D Seismic survey in 2015, a major 3D Seismic survey project was completed over a 20km² area covering the Nyankanga and Geita Hill deposits. The survey will produce high resolution results to a depth of 1,500m below these deposits. The data processing was completed in late 2016 and modelling and targeting will commence in early 2017.

Geological mapping focused on two target areas, one in the Central terrain and the other in the Nymulilima terrain, detailed mapping in Nyankanga and Geita Hill pits for the purposes of updating the geological models to be used in underground mine planning and exploration, as well as on the new exposures created by the Seismic survey road network over the Central terrain.

Geita

## **PROJECTS**

GGM's exploration strategy will be focused on three areas. The first is the upgrading and extension of surface and underground Mineral Resource on the core producing deposits. The second is the aggressive exploration of Satellite targets within the lease area which have potential to produce satellite deposit ore sources. The third is exploration to support major projects.

In the core areas underground mining was successfully started at Star and Comet Cut 2 in 2016. Development to Star and Comet Cut 3 was initiated from the Cut 2 platform and the underground ore mining at Star and Comet Cut 3 is planned to ramp up in 2017. Underground exploration drilling and mapping has been successfully implemented and ramped up on these two deposits. Detailed mine design, planning and permitting for Nyankanga underground was completed in 2016 and underground development will commence in 2017. Infill drilling from surface was completed for Block 5 at Nyankanga underground, while detailed planning and preparation for the exploration drilling of the remaining blocks from underground platforms was completed in 2016. Following the successful implementation of underground operations at Star and Comet and Nyankanga the underground exploration and development will be expanded to include Geita Hill and Ridge 8 deposits post 2017.

There are approximately 50 Satellite targets within GGM's leases. Resourcing of the Satellite target exploration programme has lagged behind the core areas following the gold price decline in 2013 and the development of these targets has not kept pace with the core areas. The Satellite target exploration programme has been re-planned and dedicated resources are being put in place to support a more aggressive exploration programme on the Satellite targets in 2017. Consistent with previous years, the ten targets ranked as Priority 1 will remain first on the schedule as they have potential to provide near term value in the mine plan.

The other major project on GGM is the Refractory Ore project which encompasses the four deposits on Kukuluma terrain and their potential extensions: Matandani, Kukuluma, Area 3W and Area 3CS. Drilling was completed in 2015 within Matandani pit, which contains the largest sulphide Mineral Resource potential, in order to obtain samples for further metallurgical test work. Metallurgical scoping test work was successfully concluded in 2016. A PFS will commence in 2017 on the back of these test work results.

## MINERAL RESOURCE

## DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Geita	ita		Type of drilling				
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured		_	_	_	_	_	
Indicated	10 x10, 20 x 20, 25 x 25,	1	✓	-	-	-	Classification studies were undertaken and revealed optimal spacing for the project areas
	40 x 20, 40 x 40						p-5,5-1-0.
Inferred	40 x 40, 50 x 50, 80 x 40	✓	✓	-	-	-	-
Grade/ore control	5 x 10, 10 x 5, 25 x 15	-	✓	-	-	-	Depths vary from 10m to 30m for routine grade control drilling



#### **INCLUSIVE MINERAL RESOURCE**

Geita		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Area 3 West (oxide)	Measured	_	_	_	_
	Indicated	0.22	2.61	0.58	0.02
	Inferred	0.00	2.27	0.00	0.00
	Total	0.22	2.60	0.58	0.02
Chipaka	Measured	_	_	_	_
	Indicated	0.42	2.18	0.91	0.03
	Inferred	1.02	2.35	2.40	0.08
	Total	1.44	2.30	3.30	0.11
Geita Hill (open pit)	Measured	_	_	_	_
· · · · ·	Indicated	6.28	2.83	17.75	0.57
	Inferred	1.06	3.09	3.27	0.11
	Total	7.34	2.86	21.02	0.68
Geita Hill (underground)	Measured	_	_	_	_
(* 3 3 3 1,	Indicated	_	_	_	_
	Inferred	9.12	4.42	40.34	1.30
	Total	9.12	4.42	40.34	1.30
Kalondwa Hill	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	0.39	4.14	1.62	0.05
	Total	0.39	4.14	1.62	0.05
Kukuluma (oxides)	Measured				
	Indicated	0.02	3.79	0.08	0.00
	Inferred	0.01	2.42	0.02	0.00
	Total	0.03	3.37	0.10	0.00
Kukuluma (transitional)	Measured	_	_		_
(10.10.10.)	Indicated	0.12	4.33	0.52	0.02
	Inferred	0.03	5.06	0.15	0.00
	Total	0.15	4.47	0.67	0.02
Kukuluma (sulphides)	Measured				_
(	Indicated	0.03	4.85	0.12	0.00
	Inferred	0.40	4.07	1.63	0.05
	Total	0.43	4.11	1.75	0.06
Lone Cone	Measured	_	_		
	Indicated	2.37	2.67	6.32	0.20
	Inferred	1.04	3.12	3.25	0.10
	Total	3.41	2.81	9.58	0.31
Matandani (oxides)	Measured				
iviatal idal II (oxides)	Indicated	0.63	2.73	1.71	0.05
	Inferred	0.19	3.20	0.61	0.02
	Total	0.82	2.84	2.31	0.07
Matandani (transitional)	Measured				- 0.07
	Indicated	0.05	4.01	0.20	0.01
	Inferred	0.08	4.65	0.20	0.01
	-	0.13			0.02
	Total	0.13	4.41	0.58	0.0

## CONTINENTAL AFRICA continued

Geita

#### **INCLUSIVE MINERAL RESOURCE** continued

Geita		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Matandani (sulphides)	Measured	_	-	_	-
	Indicated	0.04	4.59	0.20	0.01
	Inferred	1.61	4.86	7.84	0.25
	Total	1.66	4.85	8.04	0.26
Nyankanga (open pit) cut 7	Measured	_	_	_	_
	Indicated	3.34	3.56	11.89	0.38
	Inferred	0.02	3.59	0.09	0.00
	Total	3.37	3.56	11.98	0.39
Nyankanga (open pit) cut 8	Measured	_	_	_	_
	Indicated	8.06	5.24	42.28	1.36
	Inferred	0.92	2.45	2.26	0.07
	Total	8.99	4.96	44.54	1.43
Nyankanga (underground)	Measured	_	_	_	_
, s = 3	Indicated	0.80	7.50	6.03	0.19
	Inferred	4.15	7.18	29.80	0.96
	Total	4.96	7.23	35.83	1.15
Ridge 8 (open pit)	Measured				
	Indicated	0.93	2.27	2.11	0.07
	Inferred	0.00	1.20	0.00	0.00
	Total	0.93	2.26	2.11	0.07
Ridge 8 (underground)	Measured				
and a comment of the	Indicated	0.32	7.34	2.36	0.08
	Inferred	1.03	7.45	7.66	0.25
	Total	1.35	7.42	10.02	0.32
Roberts	Measured				
	Indicated	3.15	1.82	5.74	0.18
	Inferred	0.09	3.97	0.37	0.01
	Total	3.25	1.88	6.12	0.20
Star and Comet (open pit)	Measured	-			
Star and Somet (Spon play	Indicated	0.27	3.25	0.87	0.03
	Inferred	0.11	5.89	0.68	0.02
	Total	0.38	4.04	1.54	0.05
Star and Comet (underground) cut 2	Measured				-
otal and domet (anderground) out 2	Indicated	0.11	9.26	1.02	0.03
	Inferred	0.09	7.41	0.65	0.02
	Total	0.20	8.44	1.67	0.05
Star and Comet (underground) cut 3	Measured	- 0.20	0.44	1.07	0.00
Star and Comet (underground) cut 3	Indicated		7 70	6.09	0.00
	Indicated	0.90 0.42	7.73 7.44	6.98 3.10	0.22 0.10
	Total	1.32			0.10
Stockpila (full grade are)			7.64	10.07	0.32
Stockpile (full grade ore)	Measured	- 0.47	2.05		0.05
	Indicated	0.47	3.25	1.53	0.05
	Inferred		- 0.05		-
	Total	0.47	3.25	1.53	0.05



#### **INCLUSIVE MINERAL RESOURCE** continued

Geita		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Stockpile (marginal ore)	Measured	_	_	_	_
	Indicated	11.55	0.93	10.73	0.35
	Inferred	_	_	_	_
	Total	11.55	0.93	10.73	0.35
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	62.46	3.64	227.62	7.32



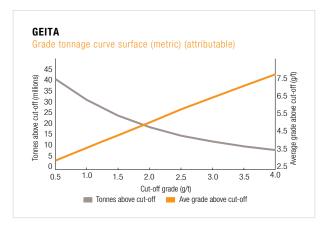
## CONTINENTAL AFRICA continued

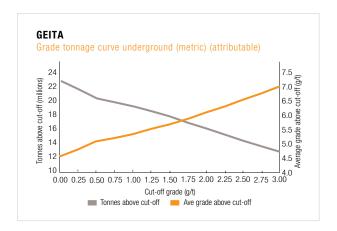
Geita

#### **ESTIMATION**

For the open pits 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 SMU. The Mineral Resource is reported within a \$1,400/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.

For the underground Mineral Resource at Star and Comet, Nyankanga and Geita Hill the geological model and the mineralised boundary as explained for the open pits remains the same. A high grade wireframe is delineated within the broader lower grade mineralised envelope. In this instance all geological controls are adhered to when determining this domain. Ordinary kriging models are then constructed within the low and high grade domains and numerous validation exercises are completed to ensure robust estimates are achieved. The ultimate open pit designs are used as the limiting boundaries between open pit and underground during the model compilation. The underground stopes and development are evaluated using the ordinary krig models while the open pit designs are evaluated using the UC models.





The grade tonnage curve does not include stockpiles.

#### **EXCLUSIVE MINERAL RESOURCE**

Geita		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	24.24	2.49	60.34	1.94
	Inferred	21.81	4.87	106.12	3.41
	Total	46.05	3.61	166.45	5.35

The exclusive Mineral Resource at Geita consists of:

- the underground Mineral Resource (with the exception of Star and Comet Cut 3 Underground where a maiden underground Ore Reserve has been declared)
- all Mineral Resource that is located between the Ore Reserve pit shell (at a gold price of \$1,100/oz) and the Mineral Resource pit shell (at a gold price of \$1,400/oz)
- material within the Ore Reserve pit shell and Star and Comet Cut 3 mine design that is at Inferred classification or falls below the Ore Reserve cut-off grade and above the Mineral Resource cut-off grade

This material forms potential extensions to the current LoM if it is converted to Ore Reserve. A significant portion of this material is in the Inferred Mineral Resource category and infill drilling programmes are planned to upgrade potentially economic areas to Indicated Mineral Resource.

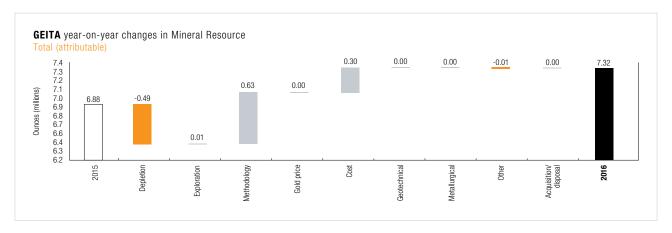
In instances where the mineralisation extends down-dip, below the current LoM design pit shell and where it could potentially be economically exploited by underground mining methods, a 35m crown pillar forms part of the exclusive Mineral Resource below the open pit limits.



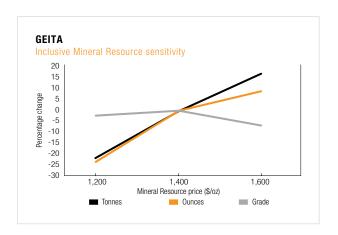
#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

Geita		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	2.14	7.66	16.39	0.53
	Inferred	14.81	5.51	81.55	2.62
	Total	16.95	5.78	97.94	3.15

Star and Comet Cut 2, Geita Hill and Nyankanga deposits all have depth extensions and are potential underground projects. Scoping studies performed on these projects show them to be economically viable at the Mineral Resource gold price of \$1,400/oz. Currently no infrastructure is in place to access this Mineral Resource and they have been separately categorised as Mineral Resource below infrastructure.



As at 31st December 2016 there is an increase of approximately 0.44Moz (6.4%) in comparison to the previous year's declaration. The significant movements are depletion of 0.49Moz which has been off set by a gain of 0.30Moz due to a decrease in costs and a gain of 0.63Moz on the updated underground Mineral Resource models.



Geita is very sensitive to a drop in gold price as it is transitioning from an open pit to an underground operation.

## CONTINENTAL AFRICA continued

Geita

#### ORE RESERVE

#### **ORE RESERVE**

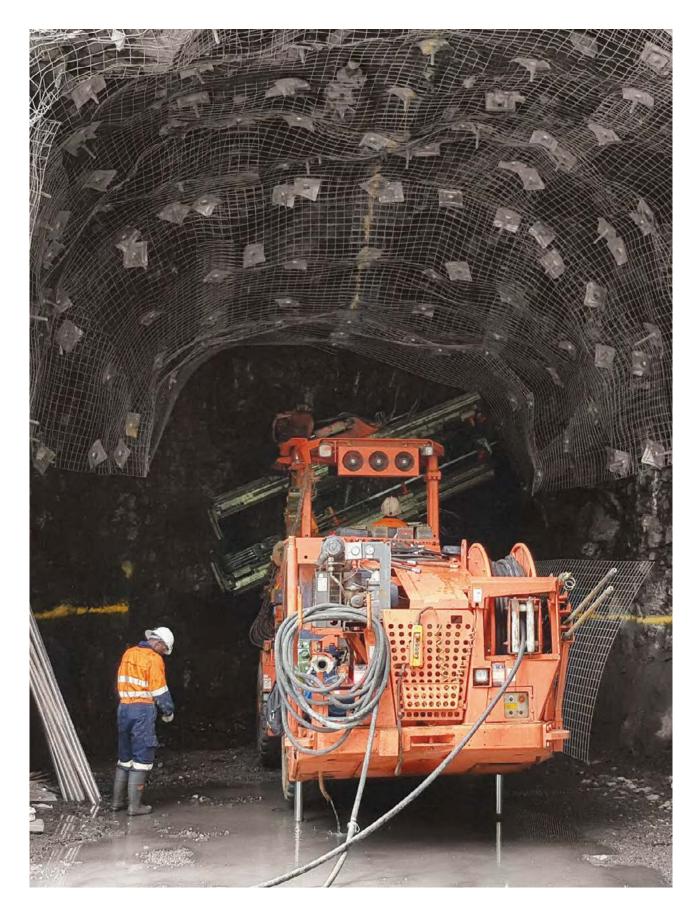
Geita		Tonnes	Grade	Contained o	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Geita Hill (open pit)	Proved	_	_	_	_
	Probable	2.94	2.90	8.53	0.27
	Total	2.94	2.90	8.53	0.27
Nyankanga (open pit) cut 7	Proved	-	-	_	-
	Probable	3.01	3.40	10.23	0.33
	Total	3.01	3.40	10.23	0.33
Nyankanga (open pit) cut 8	Proved	_	_	_	_
	Probable	5.80	5.63	32.62	1.05
	Total	5.80	5.63	32.62	1.05
Star and Comet (underground) cut 3	Proved	-	_	_	_
	Probable	0.71	6.31	4.46	0.14
	Total	0.71	6.31	4.46	0.14
Stockpile (full grade ore)	Proved	-	_	_	_
	Probable	0.47	3.18	1.50	0.05
	Total	0.47	3.18	1.50	0.05
Stockpile (marginal ore)	Proved	_	_	_	_
	Probable	3.48	1.10	3.84	0.12
	Total	3.48	1.10	3.84	0.12
Geita	Total	16.41	3.73	61.17	1.97

#### **ESTIMATION**

The Mineral Resource models are used as the basis for Ore Reserve estimation. Input parameters consider for estimation include the Ore Reserve gold 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 for the open pit sources. Pit designs are then done on selected shells and signed off by all relevant parties to ensure compliance to specifications. Underground designs are completed, evaluated and signed off. These designs are incorporated into the production and treatment scheduling stages to yield ore tonnes and grades. Financial evaluations completed for production and treatment schedules to check cash flow analysis from the estimated Ore Reserve.

The Ore Reserve for GGM operating, prospective pits and underground mine areas were estimated using updated economic factors, latest Mineral Resource models, geological, geotechnical, mining engineering and metallurgical parameters. The environmental, sociopolitical, legal and regulatory factors were also considered.





## CONTINENTAL AFRICA continued

Geita

#### **ORE RESERVE MODIFYING FACTORS**

	Gold	Cut-off					
Geita	price	grade	RMF	MRF	MRF	MCF	MetRF
			% (based	% (based	% (based		
as at 31 December 2016	US\$/oz	g/t Au	on tonnes)	on tonnes)	on g/t)	%	%
Geita Hill (open pit)	1,100	1.50	90.0	108.0	92.0	98.0	89.3
Nyankanga (open pit) cut 7 and 8	1,100	1.40	95.0	105.0	95.0	98.0	92.7
Star and Comet (open pit)	1,100	1.60	90.0	108.0	92.0	98.0	90.5
Star and Comet (underground) cut 3	1,100	4.50	_	_	_	98.0	90.5
Stockpile (full grade ore)	1,100	1.45	_	_	_	98.0	91.0
Stockpile (marginal ore)	1,100	0.95	_	_	-	98.0	91.0

Dilution included in MRF and considered MCF of 98%

Modifying factors are applied during the production scheduling stage with the aim of closely estimating the tonnes, grade and metal that would be delivered to the ROM pad (i.e. Ore Reserve). The aim is to be able to fully account for all variance along the chain from the Mineral Resource model to process plant received and gold produced.

During the year, Geita continued to implement various elements of mine to mill improvements supported with blast movement tracking technology. The modifying factors considered are based on reconciliation, which is ongoing between Mineral Resource models, grade control models, mine design perimeters, actual mining and plant feed, specifically on the open pits. Limited historical data is available for the underground mine and the factors are based on recent drilling results from geology and from similar type underground deposits and mining methods as suggested by underground planning experts in the group.

For the open pits the MRF is applied during the production scheduling stage. Dilution included in MRF. These factors are also applied in the optimisation process, in the software package, to ensure the optimal selected shell reflects the impact of these factors.

The underground mines have the dilution and mining recovery losses separately applied during the production scheduling stage. Mining recovery factor is estimated to cater for recovery losses from pillars and a further factor might be applied to cater for these pillars, depending on if they are mined-out at a later stage or not during detailed pit designs and scheduling process.

The MCF is applied after the production scheduling stage for both open pit and underground in the treatment schedule. The aim is to be able to fully account for all variance along the chain from the Mineral Resource model to process plant received and gold produced

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Geita	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Geita Hill (open pit)	0.44	3.72	1.65	0.05
Nyankanga (open pit) cut 8	0.23	1.73	0.39	0.01
Total	0.67	3.04	2.04	0.07

No Inferred Mineral Resource is included in the final Ore Reserve reporting however, Inferred Mineral Resource within the Ore Reserve pit shell is included in the business plan. This material forms potential extensions to the current LoM if it is converted to Ore Reserve and infill drilling programmes are planned to upgrade potentially economic areas to Indicated Mineral Resource.

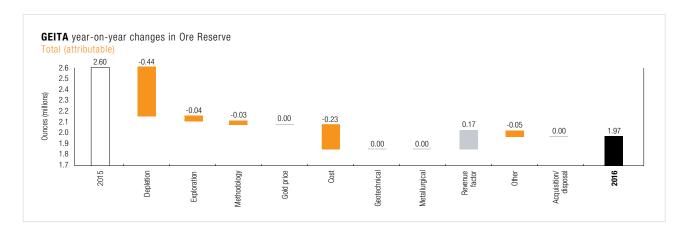
For Nyankanga, the Inferred Mineral Resource is not included in the pit optimisation and therefore does not contribute to the economic assessment of the optimised pit. Although the selected Geita Hill East shells included around 16.2% of Inferred Mineral Resource, the Indicated Mineral Resource component on its own, is still able to yield favourable economic results for the final designed pit. The Inferred Mineral Resource in business plan is present within the final pit shell as exclusive Mineral Resource.

Inferred Mineral Resource is not included in the Star and Comet underground mine design and Ore Reserve estimation process and therefore it does not contribute to the economic assessment of the underground Ore Reserve.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

There is no Ore Reserve reported below infrastructure.





Year on year the Ore Reserve declined by 32% and 24%, in ore tonnes and metal content respectively. Driven primarily by changes in the overall economic parameters, specifically in Geita Hill East and depletions. Other areas contributing negatively to the Ore Reserve include model changes at Nyankanga and Geita Hill and mining methodology change (from open pit to underground) at Star and Comet.



## SECTION 4

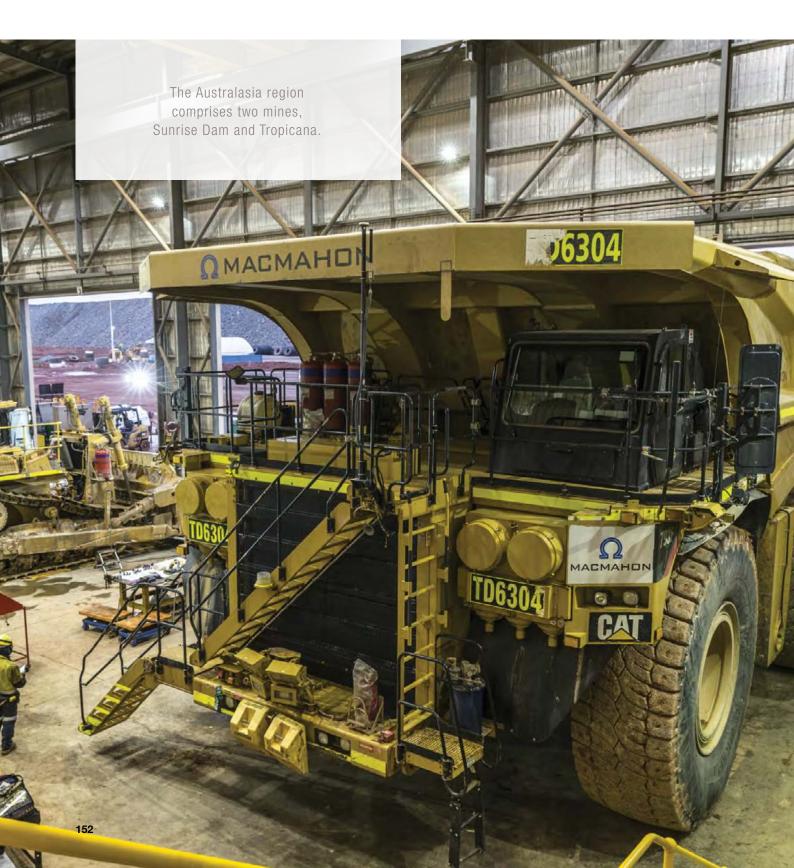
# AUSTRALASIA



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Sunrise Dam / 156

Tropicana / 164

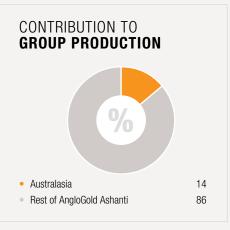


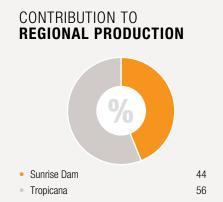
# AUSTRALASIA Regional overview



## AUSTRALASIA







#### **Operations**

- 1 Sunrise Dam
- 2 Tropicana (70%)

## 1,000km

#### **KEY STATISTICS**

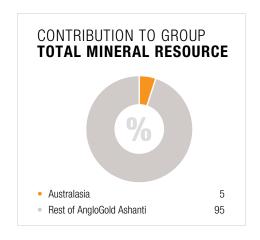
	Units	2016	2015	2014
Operational performance				
Tonnes treated/milled	Mt	8.9	8.2	7.8
Recovered grade	oz/t	0.058	0.068	0.078
	g/t	1.82	2.12	2.43
Gold production (attributable)	000oz	520	560	620
Total cash costs	\$/oz	793	702	804
Total production costs	\$/oz	1,056	919	1,070
All-in sustaining costs (1)	\$/oz	1,067	875	986
Capital expenditure (attributable)	\$m	109	78	91

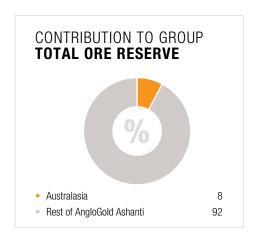
<sup>(1)</sup> Excludes stockpile write-offs.

#### Regional Overview

As at 31 December 2016, the total attributable Mineral Resource (inclusive of the Ore Reserve) for the Australasia region was 11.5Moz (2015: 9.3Moz) and the attributable Ore Reserve, 4.0Moz (2015: 3.1Moz).

This is equivalent to around 5% and 8% of the group's Mineral Resource and Ore Reserve. Production from Australasia was steady at 520koz in 2016, equivalent to 14% of group production.





AngloGold Ashanti operates two mines in Western Australia: Sunrise Dam, which is wholly-owned, and Tropicana gold mine, a joint-venture with Independence Group NL, who holds a 30% stake.

#### **INCLUSIVE MINERAL RESOURCE**

Australasia		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	31	1.08	33	1
	Indicated	113	2.02	230	7
	Inferred	49	1.92	95	3
	Total	193	1.85	357	11

#### **EXCLUSIVE MINERAL RESOURCE**

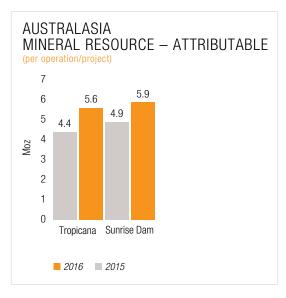
Australasia		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	8	0.67	5	0
	Indicated	72	1.85	133	4
	Inferred	49	1.92	95	3
	Total	129	1.80	233	7

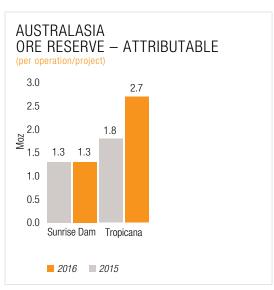
#### **ORE RESERVE**

Australasia		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	Tonnes	Moz
	Proved	23	1.23	28	1
	Probable	42	2.32	97	3
	Total	64	1.94	124	4









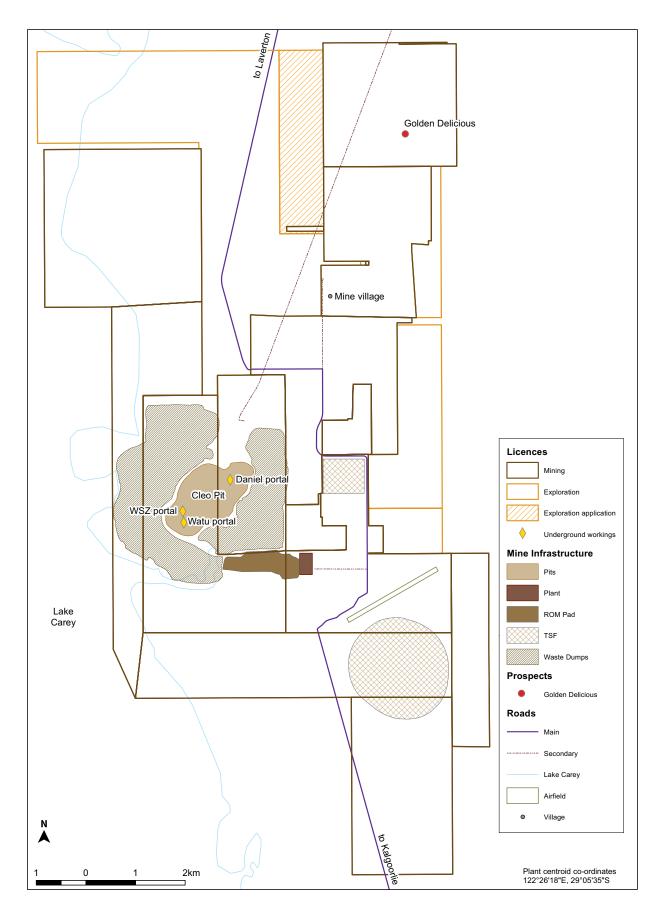
# AUSTRALASIA continued Sunrise Dam

## INTRODUCTION

Property description	Sunrise Dam is an underground mine that is wholly owned by AngloGold Ashanti.
Location	Sunrise Dam is approximately 220km north-northeast of Kalgoorlie and 55km south of Laverton in Western Australia.
History	Open pit production began in 1997 and has now been completed at a final depth of 500m below surface. Underground mining commenced in 2003 with a number of different mining methods being applied, depending on the style of mineralisation and grade of the geological domain. By 2014 the mine was wholly an underground mining operation supplemented with stockpile processing.
Legal aspects and tenure	The Sunrise Dam Ore deposit is contained within a package of mining leases covering over 7,800Ha, which are in good standing with expiry dates ranging from 2029 to 2032. The Mineral Resource for the Sunrise Dam underground mine is contained within M39/217 (490.05ha) and M39/347 (939.2ha). M39/347 contains the primary Ore Reserve and will be mined into the foreseeable future. The Golden Delicious Mineral Resource is contained within the M38/426 mining lease (666.4ha). The remaining mining leases contain mine infrastructure, tailings stage facilities, and stockpiles.
Mining method	Mining is carried out by contractors. The underground mine is undergoing a significant growth phase with production expected to reach 3.6mt of ore by 2020. The primary mining method is bulk mechanised sublevel open stoping using stabilising pillars and waste back fill where possible.
Operational infrastructure	All required surface infrastructure is in place including a fully functional camp, plant, power plant and reticulation, offices and road system. The third electrical feeder to the underground mine has been completed during the year which will provide sufficient electrical capacity for the underground mine to continue to ramp up to 3.6Mtpa.
Mineral processing	Ore is treated in a conventional gravity and CIL process plant.
Risks	None.







Sunrise Dam

#### **COMPETENT PERSONS**

Sunrise Dam					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Fraser Clark	MAusIMM	226 390	15 years	BSc Hons (Geology)
					Postgraduate Certificate in Geostatistics
Ore Reserve	Peter Merry	MAusIMM	306 163	15 years	BEng (Mining)
					GDE (Mining Engineering)

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

Sunrise Dam is considered to be a mesothermal gold deposit typical of many orebodies found in the Archaean greenstone belts of Western Australia.

#### **MINERALISATION STYLE**

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:

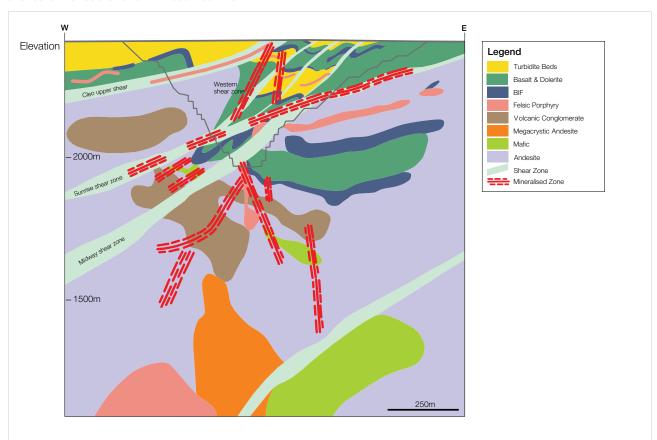
- shear-related and high strain, e.g. Sunrise Shear Zone
- stockwork development in planar faults with brittle characteristics (these occur in all rock types and are commonly concentrated at contacts within the volcanic stratigraphy or the porphyry margin and within hinge positions within the magnetite shales) e.g. Cosmo, Dolly, Vogue
- placer-style mineralisation hosted within the fluvial sediments

#### **MINERALISATION CHARACTERISTICS**

Mineralisation is typically hosted in quartz-carbonate veins and breccias with varying quantities of pyrite and arsenopyrite. Gold occurs as free gold and is also occulded in the sulphides. The gold mineralisation is often associated with strongly altered country rocks proximal to the shear and fracture network that the hydrothermal fluids have passed through.







#### **GEOLOGICAL CROSS-SECTION THROUGH SUNRISE DAM**

#### **EXPLORATION**

During 2016, the exploration plan was focused on Mineral Resource expansion drilling and Mineral Resource infill drilling. The Mineral Resource expansion drilling focused on drill testing the under explored portions of the mine at depth and along strike to supply additional Mineral Resource into the LoM plan. Significant drill platforms have been established at the southern end of the mine to access the strike and depth extensions of the Vogue orebody. Strategic drill platforms have also been established to facilitate systematic exploration of the middle and northern regions of the property. The priority target is Carey Shear which was successfully explored with step-out drilling adding 326koz of Inferred Mineral Resource during the year. The Carey Shear remains open along strike and down-dip, providing significant upside potential as the exploration proceeds Mineral Resource conversion.

Mineral Resource development drilling took place concurrently and focused on drilling in the southern strike extension of the upper part of the Vogue orebody. This has been highly successful during the year adding 185Koz to the Vogue Mineral Resource. Significant Indicated Mineral Resource additions also occurred in Cosmo North which added 61Koz.

#### **PROJECTS**

There are two projects in progress at Sunrise Dam, they are:

- The Recovery Enhancement project which is looking to evaluate the feasibility of using fine grind and flotation to improve the process plant recovery. This project is currently in FS with construction planned for late 2017
- The Materials Handling project which is exploring the options for reducing the long term materials handling costs at the mine by replacing part of the truck and haul operations used to transport material to the process plant

Sunrise Dam

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Sunrise Dam			T	ype of drillin	g		
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured		_	_	_	_	_	-
Indicated	40 x 20	✓	1	_	_	_	
Inferred	40 x 40	✓	1	_	_	_	
Grade/ore control	9 x 10	_	/	_	_	_	_

#### **INCLUSIVE MINERAL RESOURCE**

Sunrise Dam		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Golden Delicious	Measured	0.66	1.47	0.97	0.03
	Indicated	2.40	1.24	2.98	0.10
	Inferred	0.02	0.89	0.02	0.00
	Total	3.09	1.29	3.97	0.13
Stockpile (open pit)	Measured	11.52	0.98	11.27	0.36
	Indicated	_	_	_	_
	Inferred	_	_	_	_
	Total	11.52	0.98	11.27	0.36
Underground	Measured	_	_	_	_
	Indicated	49.53	2.41	119.36	3.84
	Inferred	25.37	1.88	47.77	1.54
	Total	74.90	2.23	167.12	5.37
Stockpile (underground)	Measured	0.15	2.54	0.38	0.01
	Indicated	_	_	_	_
	Inferred	_	_	-	_
	Total	0.15	2.54	0.38	0.01
Sunrise Dam	Total	89.66	2.04	182.74	5.88

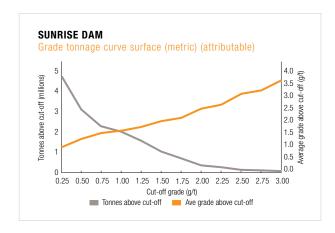
#### **ESTIMATION**

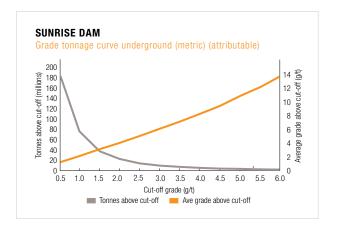
Estimation of the underground Mineral Resource uses the geological model boundaries to subdivide all drill hole data into appropriate domains. The geostatistical method of ordinary block kriging is used to estimate the Mineral Resource. High-grade restraining is used to limit the effects of outlier grade values. Dense patterns of underground RC are completed prior to the final mine design, upon which, grade control models are created using conditional simulation. This allows for the probabilistic determination of the optimal mining stope configuration.

Mining of the open pit Mineral Resource was completed during 2012, and mining of the crown pillar at the base of the pit finished in early 2014. Remaining stockpiled material is estimated based on detailed grade control drilling completed prior to mining. Grades were estimated by means of the conditional simulation geostatistical method.

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 characteristics of the general population they are then cutback to an appropriate upper limit for the population.







#### **EXCLUSIVE MINERAL RESOURCE**

Sunrise Dam		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	0.66	1.47	0.97	0.03
	Indicated	41.37	2.23	92.19	2.96
	Inferred	25.40	1.88	47.79	1.54
	Total	67.43	2.09	140.95	4.53

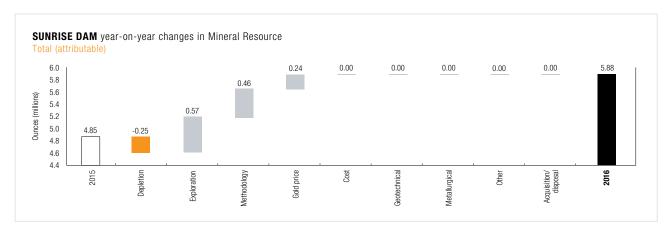
The exclusive Mineral Resource includes a large portion of the underground Indicated Mineral Resource as the material is of a lower-grade and therefore fails to meet Ore Reserve cut-off grade requirements as well a small amount of Golden Delicious. The entire Inferred Mineral Resource in the underground mine is included in the exclusive Mineral Resource. Much 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 estimation process.

#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

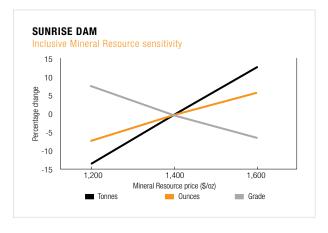
Sunrise Dam		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	-	_	_	_
	Indicated	3.23	2.21	7.16	0.23
	Inferred	14.84	1.96	29.16	0.94
	Total	18.07	2.01	36.32	1.17

The Mineral Resource below infrastructure occurs in three of the mine areas - Vogue below 1,600mRL and Cosmo East below 1,550mRL and the entire Carey Shear.

Sunrise Dam



The increase in Mineral Resource from 2015 was largely due to successful exploration, a higher local gold price, AUD1817/oz (2015: AUD1704/oz), as well as methodology change brought about by relaxing the required drill density to achieve an Indicated Mineral Resource classification and calibrating the grade – tonnage profiles in the Mineral Resource estimate to the grade control models. In 2016, Golder Associates conducted a detailed simulation study to determine the optimal drill hole spacing required to classify an Indicated Mineral Resource. The outcome of this study demonstrated that the drill hole spacing could be relaxed without having a detrimental effect on the tonnage and grade estimates.



As a low grade underground mine Sunrise Dam is sensitive to changes in gold price.

#### ORE RESERVE

#### **ORE RESERVE**

OHE HEGEHVE					
Sunrise Dam		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Stockpile (open pit)	Proved	11.52	0.98	11.27	0.36
	Probable	_	_	_	_
	Total	11.52	0.98	11.27	0.36
Underground	Proved	_	_	_	_
	Probable	10.56	2.86	30.15	0.97
	Total	10.56	2.86	30.15	0.97
Stockpile (underground)	Proved	0.15	2.54	0.38	0.01
	Probable	_	_	_	_
	Total	0.15	2.54	0.38	0.01
Sunrise Dam	Total	22.23	1.88	41.80	1.34



#### **ESTIMATION**

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 on 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.

#### **ORE RESERVE MODIFYING FACTORS**

Sunrise Dam	Gold price	Cut-off grade	Dilution	Dilution	MRF	MRF	MCF	MetRF
					% (based	% (based		
as at 31 December 2016	AUD/oz	g/t Au	%	g/t	on tonnes)	on g/t)	%	%
Stockpile (open pit)	1,500	0.60	0.0	0.00	100.0	100.0	100.0	85.0
Underground	1,500	1.23	5.0	0.20	99.0	99.0	100.0	80.9
Stockpile (underground)	1,500	1.23	5.0	0.20	99.0	99.0	100.0	80.9

No significant changes in the modification factors used in the Ore Reserve as gold price and costs were fairly constant year-on-year.

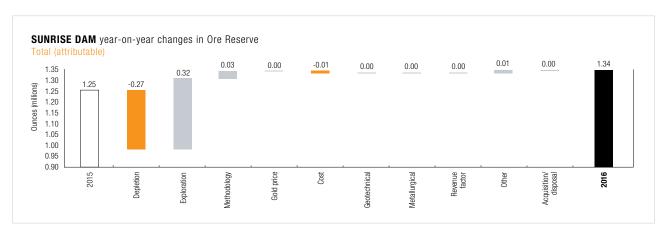
#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Sunrise Dam	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Underground	2.63	3.27	8.60	0.28
Total	2.63	3.27	8.60	0.28

The Inferred Mineral Resource in the business plan includes extensions of all geological domains with the notable addition of areas of the Carey Shear domain being included for the first time. Further exploratory drilling during 2017 is planned with the aim of increasing confidence in these areas to bring them into the Ore Reserve.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

No Ore Reserve reported below infrastructure.



Year-on-year changes in Ore Reserve are due to a wider drill spacing being used that has resulted in more Indicated Mineral Resource available for conversion. The increase in the underground Ore Reserve is therefore a result of a large increase in the conversion of Inferred to Indicated Mineral Resource during 2016, particularly in the Vogue domain.

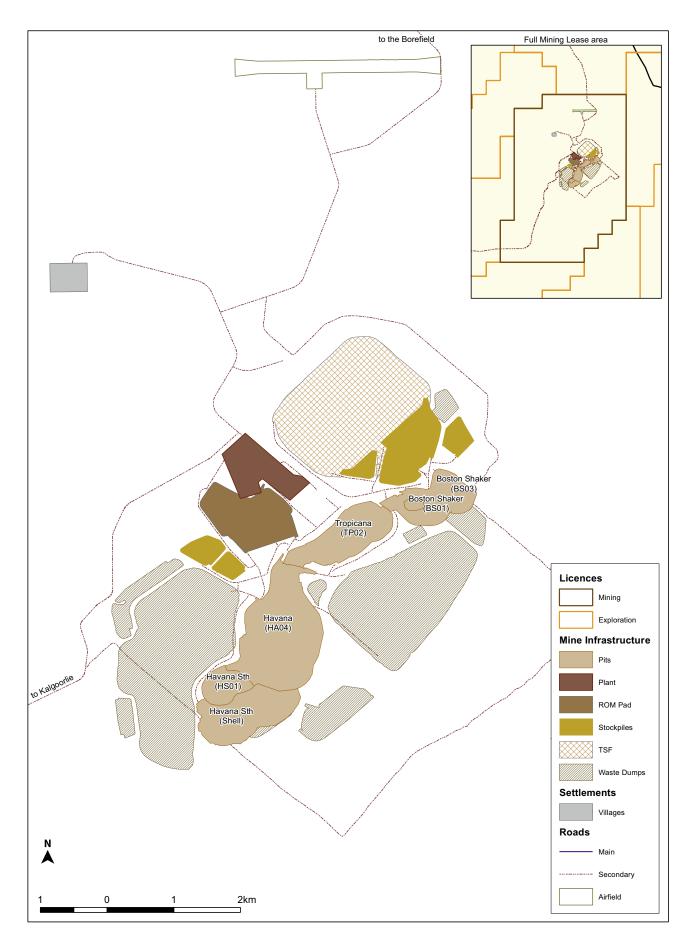
# AUSTRALASIA continued Tropicana

## INTRODUCTION

Property description	Tropicana is a JV between AngloGold Ashanti (70%), which manages the operation, and Independence Group NL (30%).
Location	Tropicana is located 200km east of Sunrise Dam and 330km east-northeast of Kalgoorlie, Western Australia. Tropicana is the first deposit discovered in this remote portion of the Great Victoria Desert.
History	Open pit mining began during 2012, with first gold production occurring during September 2013. Tropicana celebrated reaching the one million ounce milestone during 2015.
Legal aspects and tenure	Tropicana has security of tenure for all current exploration licences and the mining lease that covers its future Ore Reserve:
	<ul> <li>M39/1096 valid from 11 March 2015 to 10 March 2036 covering a total area of 27,228ha.</li> </ul>
	The previous 31 mining leases comprising the 27,228ha (including M39/980, M39/981, M39/982 and M39/1052) were conditionally surrendered in favour of the grant of the single mining lease M39/1096 on 11 March 2015 for 21 years with all existing rights and obligations preserved. This process was completed with the cooperation of the Department of Mines and Petroleum.
Mining method	Mining activities are undertaken by Macmahon in an alliance partnership with AngloGold Ashanti. Mining is conventional open cut, drill and blast, followed by truck and excavator operation to develop the deposits (Havana, Tropicana and Boston Shaker). The total annual movement rate is approximately 60Mtpa.
Operational infrastructure	All infrastructure facilities are in place and operational. The processing and tailings storage facilities are operating well, consistent with design specifications. The infrastructure includes, but it is not limited to a dedicated gas and diesel power station, water supply, processing plant, mine, dewatering infrastructure, tailing dump facility, workshops, camp facilities and airstrips.
Mineral processing	The processing plant comprises crushing, high pressure grinding rolls, one stage grinding and CIL recovery and has a capacity of 7.0 to 7.5Mtpa is anticipated.
Risks	None.







Tropicana

#### **COMPETENT PERSONS**

Tropicana					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Mark Kent	MAusIMM	203 631	19 years	BSc Hons (Geology)
					MSc (Mineral Resource Evaluation)
Ore Reserve	Jason Vos	MAusIMM	310 219	21 years	BEng (Mining)

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

Together, the Tropicana, Havana South and Boston Shaker deposits define a north-east trending mineralised corridor, approximately 1.2km wide and 5km long, that has been tested to a vertical depth of more than 1,200m. The Mineral Resource remains open down-dip of Tropicana, Havana and Boston Shaker deposits and has the potential to be extended 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 of between 0.5m and 15m thick.

#### **MINERALISATION STYLE**

The Tropicana deposit comprises a mineralised zone up to 50m thick, hosted predominantly 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.

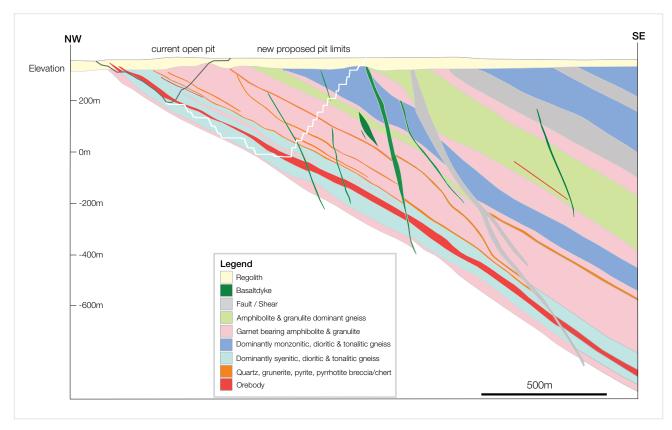
#### **MINERALISATION CHARACTERISTICS**

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**

During 2016 the Tropicana Joint Venture (TJV) brownfields exploration programmes completed Mineral Resource development drilling at Tropicana for the Long Island Mining Study, and near mine exploration continued to explore for potential open pit satellite Mineral Resource, within 60km of the mine. The Mineral Resource development drilling completed an initial 100 x 100m spaced drill programme to scope the down-dip extent of the Tropicana Mineralisation System in early 2016, and successfully identified significant extensions of the Tropicana mineralisation at Havana South and Boston Shaker. Mineral Resource Development drilling continued through 2016, completing infill drilling at Havana South, Havana, Tropicana and Boston Shaker. The results of the Mineral Resource development work will update the 2016 Mineral Resource, for the Long Island Mining Study, scheduled for completion mid-2017. The near mine exploration programmes comprise a mix of advanced and early stage exploration including DD, RC and AC drilling, testing prospects such as Madras, New Zebra, Paradise, Angel Eyes and Sanpan, following a comprehensive target generation exercise in early 2016. The results of the 2016 exploration drilling and targeting work provide a comprehensive pipeline of exploration targets, with a focus on near mine exploration going forward in 2017.

#### **PROJECTS**

Tropicana is currently undertaking the Long Island FS. The Long Island Study is based on waste overburden mining of the depth extensions of the Tropicana mineralised system that uses the completed Tropicana pit as an initial void into which waste will be backfilled. The proposed backfilling of the Tropicana pit in conjunction with waste overburden mining will greatly reduce the cost of mining waste by introducing short, horizontal hauls instead of the long uphill hauls out of the pit to surface waste dumps that would be required by conventional mining.

The drilling programme to support the study is nearing completion and work is continuing on aspects such as bench height, the grade control approach, the mining rate and the optimal mining fleet configuration. A programme of 161,000m of RC and DD carried out during 2015 and 2016 to test the strike extent and down-dip extensions of the known mineralised system has been highly successful, contributing to a 45% increase in Ore Reserve and a 27% increase in the Mineral Resource, highlighting the significant upside potential of the system.

#### Tropicana

It is anticipated that the FS study will be completed in Q2 2017 and the initial Long Island cutback would commence in 2019 when the Tropicana pit has been mined to full depth.

The Plant Optimisation Project, which aimed to lift throughput to 7.5mtpa, has been completed, with commissioning of two additional CIL tanks in October 2016.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Tropicana		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	25 x 25	✓	✓	_	_	_	-
Indicated	50 x 50	✓	✓	_	_	_	-
Inferred	100 x 100	✓	✓	_	_	_	-
Grade/ore control	10 x 12	_	1	_	_	_	-

#### **INCLUSIVE MINERAL RESOURCE**

Tropicana		Tonnes	Grade	Containe	d gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Boston Shaker Stage 1 - BS01	Measured	0.92	1.91	1.76	0.06
	Indicated	0.01	1.33	0.01	0.00
	Inferred	_	_	_	-
	Total	0.93	1.90	1.77	0.06
Havana Stage 2 – HA02	Measured	0.01	2.48	0.02	0.00
	Indicated	2.11	2.15	4.53	0.15
	Inferred	_	_	_	-
	Total	2.12	2.15	4.55	0.15
Boston Shaker Stage 3 – BS03	Measured	0.42	1.84	0.77	0.02
	Indicated	3.19	2.20	7.00	0.23
	Inferred	0.83	1.89	1.57	0.05
	Total	4.44	2.10	9.35	0.30
Havana Stage 3 – HA03	Measured	0.86	2.40	2.06	0.07
	Indicated	6.57	1.70	11.14	0.36
	Inferred	0.00	0.47	0.00	0.00
	Total	7.43	1.78	13.21	0.42
Tropicana Stage 2 – TP02	Measured	3.91	1.79	7.02	0.23
	Indicated	6.56	1.84	12.09	0.39
	Inferred	0.00	2.15	0.00	0.00
	Total	10.48	1.82	19.12	0.61
Havana Stage 4 – HA04	Measured	0.06	1.43	0.09	0.00
	Indicated	19.17	1.78	34.04	1.09
	Inferred	0.00	0.94	0.00	0.00
	Total	19.24	1.77	34.14	1.10
Havana South Stage 1 – HS01	Measured	_	-	_	-
	Indicated	8.94	1.26	11.29	0.36
	Inferred	0.02	1.71	0.03	0.00
	Total	8.96	1.26	11.32	0.36



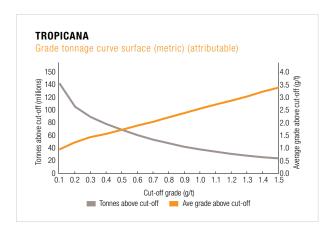
#### **INCLUSIVE MINERAL RESOURCE** continued

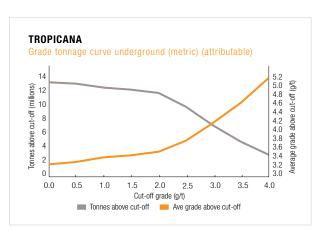
Tropicana		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Havana South Shell	Measured	_	_	_	_
	Indicated	10.24	1.10	11.21	0.36
	Inferred	14.77	1.28	18.96	0.61
	Total	25.01	1.21	30.17	0.97
Stockpile (open pit)	Measured	12.06	0.73	8.81	0.28
	Indicated	_	_	_	_
	Inferred	-	_	-	_
	Total	12.06	0.73	8.81	0.28
Underground	Measured	-	_	-	_
	Indicated	4.74	3.38	15.99	0.51
	Inferred	8.30	3.15	26.17	0.84
	Total	13.04	3.23	42.16	1.36
Tropicana	Total	103.70	1.68	174.58	5.61

#### **ESTIMATION**

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. The recoverable gold Mineral Resource for the open pit is estimated by Local Uniform Conditioning (LUC). UC estimates the proportion of material recovered by mining above a cut-off grade, assuming a specified SMU, LUC goes a step further to position the SMU-size block within the estimated panel based on the most likely position of the higher grade SMU blocks relative to the lower grades SMU blocks.

The underground Mineral Resource estimate uses all available drilling targeting the down plunge and along strike extents of the mineralisation, outside the current open pit limits. The geostatistical method of ordinary kriging is used to estimate the underground Mineral Resource.





Tropicana

#### **EXCLUSIVE MINERAL RESOURCE**

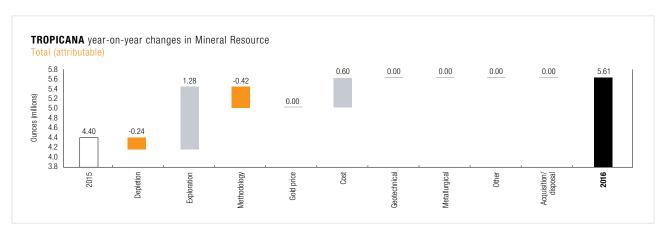
Tropicana		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	7.27	0.59	4.32	0.14
	Indicated	30.43	1.34	40.83	1.31
	Inferred	23.93	1.95	46.73	1.50
	Total	61.63	1.49	91.88	2.95

The exclusive Mineral Resource includes Inferred Mineral Resource at depth in the designed pits and optimised shells, as well as the underground Mineral Resource, which is not yet drilled to a level of confidence to support an Ore Reserve.

#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

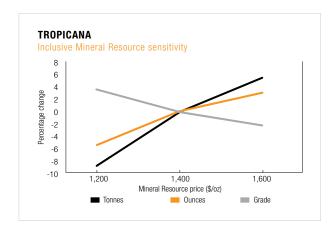
Tropicana		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	_	_	_	_
	Indicated	4.74	3.38	15.99	0.51
	Inferred	8.30	3.15	26.17	0.84
	Total	13.04	3.23	42.16	1.36

The underground Mineral Resource is considered as being below infrastructure, as no development has yet taken place or is currently planned.



The Mineral Resource has increased significantly due to exploration success within and below the previous Mineral Resource limits. This success, coupled with some innovative thinking around mine planning led to the start of waste-dumping within the mined-out pits, has reduced the mining costs, and also allowed for the extension of the underground Mineral Resource to cover all areas down-dip from the open pits.





The open pit Mineral Resource is sensitive to gold price changes in the Havana South and Boston Shaker areas at the south and north of the mine, respectively. In other areas, the pit designs are fixed based on the current business plan.

## ORE RESERVE

#### **ORE RESERVE**

Tropicana	Total	42.07	1.97	82.70	2.66
	Total	6.43	0.92	5.95	0.19
	Probable	_	-	_	_
Stockpile (open pit)	Proved	6.43	0.92	5.95	0.19
	Total	5.37	1.75	9.38	0.30
	Probable	5.37	1.75	9.38	0.30
Havana South Stage 1 - HS01	Proved	_	-	_	_
	Total	14.21	2.21	31.39	1.01
	Probable	14.19	2.21	31.33	1.01
Havana Stage 4 – HA04	Proved	0.03	1.90	0.05	0.00
	Total	8.25	2.17	17.90	0.58
	Probable	5.12	2.21	11.31	0.36
Tropicana Stage 2 - TP02	Proved	3.13	2.11	6.59	0.21
	Total	5.35	2.26	12.09	0.39
	Probable	4.71	2.15	10.15	0.33
Havana Stage 3 – HA03	Proved	0.64	3.05	1.94	0.06
	Total	1.70	2.55	4.32	0.14
	Probable	1.69	2.54	4.30	0.14
Havana Stage 2 – HA02	Proved	0.01	2.81	0.02	0.00
	Total	0.75	2.23	1.67	0.05
·	Probable	0.00	1.61	0.01	0.00
Boston Shaker Stage 1 – BS01	Proved	0.75	2.24	1.67	0.05
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Tropicana		Tonnes	Grade	Contained g	old

Tropicana

#### **ESTIMATION**

The Ore Reserve for Tropicana is based on an operating LoM plan and a PFS. For the operating LoM plan, a FS was completed in 2010, which determined a technically achievable and financially economic mine plan. The pits that make up the operating LoM plan are Tropicana, Havana, Boston Shaker and Havana South. The PFS is based on an expansion of Havana. All Ore Reserve is estimated by reporting physicals (volumes, tonnes, grades, material types, etc.) against the Mineral Resource model within detailed staged pit designs. Ore Reserve physicals are then put through a financial model for economic evaluation.

#### **ORE RESERVE MODIFYING FACTORS**

Tropicana	Gold price			MetRF
as at 31 December 2016	AUD/oz	g/t Au	%	%
	1,500	0.70	100.0	90.0

The metallurgical recovery is based upon historical performance of the process plant to date. This is the only factor applied in the Ore Reserve estimation process. Mining selectivity was accounted for during the Mineral Resource estimation process, which produced a diluted Mineral Resource model. Consequently, no further adjustment was made and 100% mining recovery and no grade dilution were assumed during the Ore Reserve estimation process.

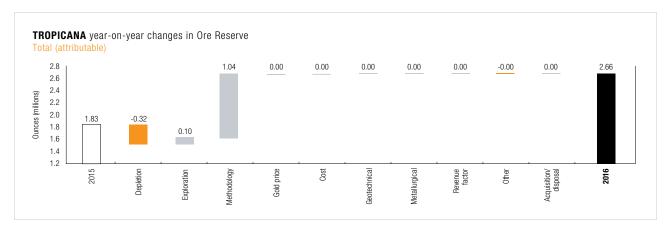
#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Tropicana	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Tropicana Stage 2 – TP02	0.00	0.07	0.00	0.00
Havana Stage 4 – HA04	0.00	1.68	0.00	0.00
Havana South Stage 1 - HS01	0.01	3.56	0.02	0.00
Total	0.01	3.29	0.02	0.00

All Mineral Resource categories, including the Inferred Mineral Resource, were included in the business plan but excluded from the Ore Reserve. It is noted that there is an insignificant percentage of Inferred Mineral Resource (approximately 0.1% by tonnage) within the pit designs used.

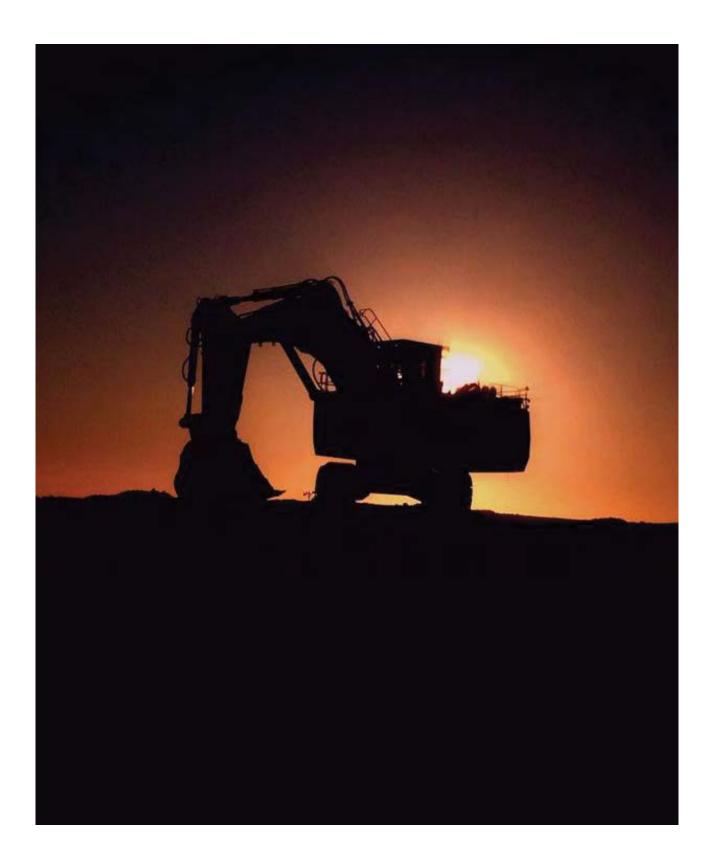
#### **ORE RESERVE BELOW INFRASTRUCTURE**

No Ore Reserve reported below infrastructure.



Changes in the Ore Reserve are mainly due to the addition of a large cutback on the Havana pit and depletion during 2016 operations.





## SECTION 5

# AMERICAS



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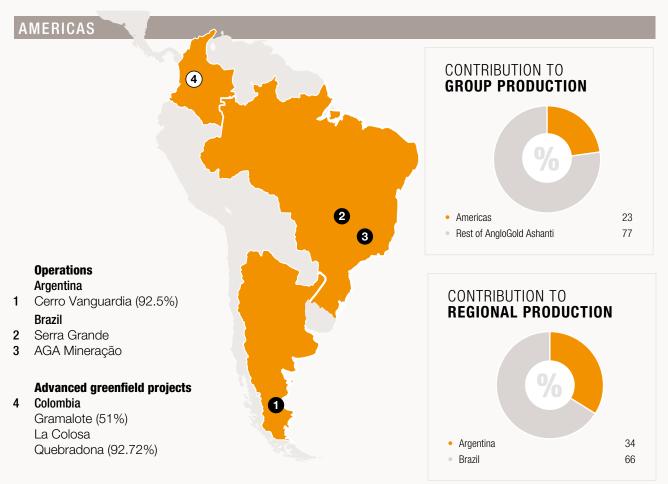
Colombia / 230



## **AMERICAS**

## Regional overview





#### **KEY STATISTICS**

	Units	2016	2015	2014
Operational performance (1)				
Tonnes treated/milled	Mt	7.0	7.0	6.8
Recovered grade	oz/t	0.106	0.108	0.104
	g/t	3.64	3.71	3.58
Gold production (attributable)	000oz	820	948	996
- Continuing operations		808	831	785
- Discontinued operations		-	117	211
Silver (attributable)	Moz	4.9	4.4	3.1
Total cash costs	\$/oz	578	576	676
Total production costs	\$/oz	909	845	918
All-in sustaining costs (2)	\$/oz	875	792	974
Capital expenditure (100% basis)	\$m	225	196	225

<sup>(1)</sup> Operational performance data for the Americas region is for the continuing operations (excludes CC&V which was sold effective 3 August 2015), unless otherwise stated. Comparative data for operational performance has been restated

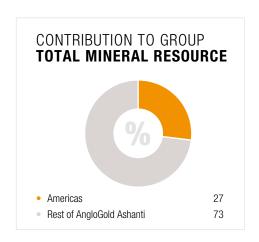
<sup>(2)</sup> Excludes stockpile write-offs

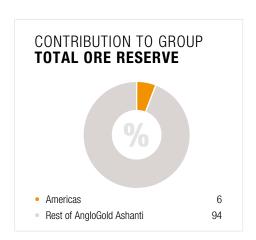
## AMERICAS continued

#### Regional overview

As at 31 December 2016, the total attributable Mineral Resource (inclusive of the Ore Reserve) for the Americas region was 58.1Moz (2015: 57.6Moz) and the attributable Ore Reserve, 3.1Moz (2015: 3.2Moz).

This is equivalent to around 27% and 6% of the group's Mineral Resource and Ore Reserve respectively. Combined production for the Americas was 820koz of gold in 2016, equivalent to 23% of group production.





AngloGold Ashanti has three operations in the Americas, the Cerro Vanguardia mine in Argentina (AngloGold Ashanti 92.5% and Formicruz 7.5%), AngloGold Ashanti Córrego do Sítio Mineração operations (which is referred to as AGA Mineração and includes the Cuiabá, Lamego and Córrego do Sítio (CdS) mines) and Serra Grande, both in Brazil, and three advanced greenfield projects in Colombia.

The projects in Colombia form a significant contribution to AngloGold Ashanti's Mineral Resource with the three projects, La Colosa, Quebradona (AngloGold Ashanti 92.72% and B2Gold 7.28%) and Gramalote (AngloGold Ashanti 51% and B2Gold 49%) contributing 37.6Moz.

#### **INCLUSIVE MINERAL RESOURCE**

Americas		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	49	3.41	168	5
	Indicated	1,044	0.96	1,001	32
	Inferred	908	0.70	638	21
	Total	2,002	0.90	1,807	58

#### **EXCLUSIVE MINERAL RESOURCE**

Americas		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	36	3.38	121	4
	Indicated	1,032	0.90	925	30
	Inferred	907	0.70	631	20
	Total	1,974	0.85	1,677	54

#### **ORE RESERVE**

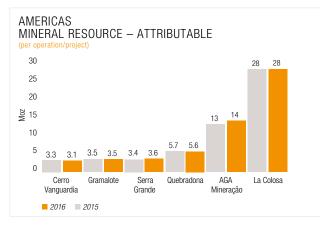
Americas		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	12	2.67	32	1
	Probable	15	4.54	66	2
	Total	27	3.69	98	3

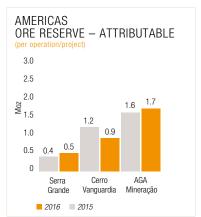












## AMERICAS continued

## **Argentina**

#### COUNTRY OVERVIEW

AngloGold Ashanti has a single operation in Argentina, the Cerro Vanguardia mine, which is a JV with Formicruz (a state company operating in the province of Santa Cruz). Formicruz holds a 7.5% interest in the mine, with the remaining 92.5% belonging to AngloGold Ashanti. Production is from both underground and open pit mining and is fed either into a Merrill Crowe plant or onto a heap-leach.



#### **INCLUSIVE MINERAL RESOURCE**

	Indicated Inferred	21	3.20 2.78	69 10	2
	Measured	9	1.80	16	1
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Argentina		Tonnes	Grade	Contain	ed gold

#### **EXCLUSIVE MINERAL RESOURCE**

Argentina		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	4	2.10	8	0
	Indicated	19	2.61	49	2
	Inferred	3	1.69	5	0
	Total	26	2.43	62	2

#### **ORE RESERVE**

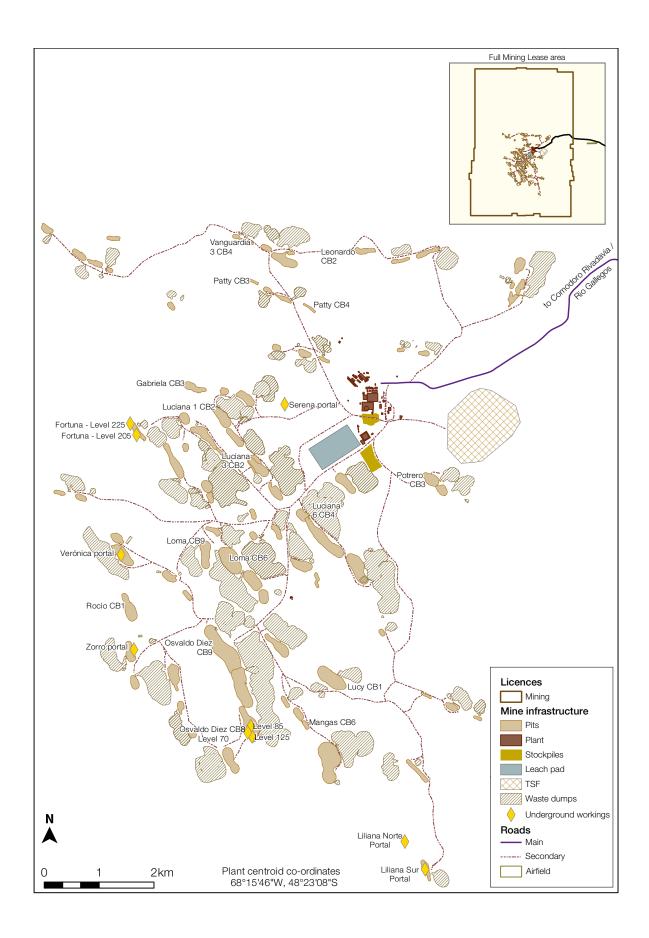
Argentina		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	6	1.47	9	0
	Probable	4	4.85	21	1
	Total	10	2.88	29	1

# AMERICAS continued Cerro Vanguardia



## INTRODUCTION

different parts of the property, are mined at the same time. AngloGold Ashanti has a 92.5% stake in Vanguardia, the company's sole operation in Argentina, with Fomicruz, a state company operating province of Santa Cruz, owning the remaining 7.5%. The climate is semi-arid and although snow rare, winter is mild and exploration activities are normally possible all year round.  Location  Cerro Vanguardia is located in Santa Cruz province, southern Patagonia, Argentina, approximately 1 north-northwest of the coastal town of Puerto San Julián. Access to the area is by aircraft from Bi Aires to Comodoro Rivadavia (380km) or Rio Gallegos (510km) and subsequently by road to the mine Gold exploration at the site started in late 1980s by the state owned Fomicruz and Minera Mincon between Anglo American Argentina Holdings Limited and the local private company Perez Comp Cerro Vanguardia started out as an open pit operation in 1998, which was supplemented in 2010 with start of shallow underground mining to access high-grade material. The heap-leaching operation stin 2012. The mine has been operated by AngloGold Ashanti since 1998.  Legal aspects and The mining lease encompasses an area of approximately 543km². The licence 402642/CV/97 covers to the Core Reserve and was issued on the 27 December 1996 and expires on the 26 December 2036.  Mining method  Cerro Vanguardia uses conventional open pit mining with a doubled bench height of 20m and induderground, longhole stoping. Open pit mining is distributed between multiple operating pits, by three to five at any one time, depending on the plant feed requirements. Currently, there are underground mines which are operated at same time, located at Fortuna, Osvaldo 8, Verónica Zorro veins. Two more are in development (Liliana and Serena). The underground workings, which be production in 2010, account for around 30% of total production, a percentage that will increase in the few years. Low-grade material is stockpiled and processed as heap-leaching.  Operational		
north-northwest of the coastal town of Puerto San Julián. Access to the area is by aircraft from Bu Aires to Comodoro Rivadavia (380km) or Rio Gallegos (510km) and subsequently by road to the minuments.  Gold exploration at the site started in late 1980s by the state owned Fomicruz and Minera Mincon between Anglo American Argentina Holdings Limited and the local private company Perez Company Cerro Vanguardia started out as an open pit operation in 1998, which was supplemented in 2010 wistart of shallow underground mining to access high-grade material. The heap-leaching operation started in 2012. The mine has been operated by AngloGold Ashanti since 1998.  Legal aspects and The mining lease encompasses an area of approximately 543km². The licence 402642/CV/97 covers to Core Reserve and was issued on the 27 December 1996 and expires on the 26 December 2036.  Mining method Cerro Vanguardia uses conventional open pit mining with a doubled bench height of 20m and underground, longhole stoping. Open pit mining is distributed between multiple operating pits, type three to five at any one time, depending on the plant feed requirements. Currently, there are underground mines which are operated at same time, located at Fortuna, Osvaldo 8, Verónica Zorro veins. Two more are in development (Liliana and Serena). The underground workings, which is production in 2010, account for around 30% of total production, a percentage that will increase in the few years. Low-grade material is stockpiled and processed as heap-leaching.		Cerro Vanguardia is a gold-silver mine. A number of open pits and multiple underground mines, located in different parts of the property, are mined at the same time. AngloGold Ashanti has a 92.5% stake in Cerro Vanguardia, the company's sole operation in Argentina, with Fomicruz, a state company operating in the province of Santa Cruz, owning the remaining 7.5%. The climate is semi-arid and although snow is no rare, winter is mild and exploration activities are normally possible all year round.
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Tenure  Ore Reserve and was issued on the 27 December 1996 and expires on the 26 December 2036.  Mining method  Cerro Vanguardia uses conventional open pit mining with a doubled bench height of 20m and a underground, longhole stoping. Open pit mining is distributed between multiple operating pits, type three to five at any one time, depending on the plant feed requirements. Currently, there are underground mines which are operated at same time, located at Fortuna, Osvaldo 8, Verónica Zorro veins. Two more are in development (Liliana and Serena). The underground workings, which is production in 2010, account for around 30% of total production, a percentage that will increase in the few years. Low-grade material is stockpiled and processed as heap-leaching.  Operational		Gold exploration at the site started in late 1980s by the state owned Fomicruz and Minera Mincorp (JN between Anglo American Argentina Holdings Limited and the local private company Perez Companc) Cerro Vanguardia started out as an open pit operation in 1998, which was supplemented in 2010 with the start of shallow underground mining to access high-grade material. The heap-leaching operation started in 2012. The mine has been operated by AngloGold Ashanti since 1998.
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·		Cerro Vanguardia uses conventional open pit mining with a doubled bench height of 20m and in the underground, longhole stoping. 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 four underground mines which are operated at same time, located at Fortuna, Osvaldo 8, Verónica and Zorro veins. Two more are in development (Liliana and Serena). The underground workings, which began production in 2010, account for around 30% of total production, a percentage that will increase in the nex few years. Low-grade material is stockpiled and processed as heap-leaching.
maintenance facilities, warehouses and sewage processing plant. Four natural gas power generato by a 40km long pipeline provide electricity to the operation. Natural gas is also used for heating. offices facilities are conveniently located in the main mining area. Dewatering supplies water for use as processing water and camp consumption. Due to the particular features of the mine, and in order	structure	Most of the infrastructure is located on a single area. It includes a camp site with capacity for more than 1,000 people, Merrill Crowe plant, heap-leaching facilities, cyanide recycling plant, mine laboratory maintenance facilities, warehouses and sewage processing plant. Four natural gas power generators fee by a 40km long pipeline provide electricity to the operation. Natural gas is also used for heating. Mine offices facilities are conveniently located in the main mining area. Dewatering supplies water for use both as processing water and camp consumption. Due to the particular features of the mine, and in order to optimise hauling, all pits have local single or multiple waste dumps. The tailings dam is located in and contained by a natural depression.
		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 avoic recovery losses due to higher than planned silver grades.
Production capacity of the heap-leach facility, which was commissioned in the last quarter of 2012		The metallurgical plant, has a daily capacity of 3,000t and includes a cyanide recovery facility Production capacity of the heap-leach facility, which was commissioned in the last quarter of 2012 and processes lower-grade material, is around 2.0Mtpa at gold and silver grades of around 0.65g/t and 17g/t respectively.
rate fluctuations (ARS versus US\$). The low grades from the open pits and difficult hydrogeological		The Mineral Resource and Ore Reserve is sensitive to gold and silver prices as well as to local exchange rate fluctuations (ARS versus US\$). The low grades from the open pits and difficult hydrogeological and geotechnical conditions for underground are on-going risks that are managed on a day to day basis.





#### **COMPETENT PERSONS**

Cerro Vanguardia					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Juan Paredes	MAusIMM	227 738	20 years	PhD (Geology)
Ore Reserve	Javier Santillan	MAusIMM	319 366	13 years	BSc (Mining Engineering)

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

The Middle to Upper Jurassic ignimbrites and volcanic rocks from Chon Aike formation host a low-sulphidation epithermal 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).

#### **MINERALISATION STYLE**

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 orebodies comprise a series of low-sulphidation epithermal vein deposits containing gold and large quantities of silver, produced as a by-product.

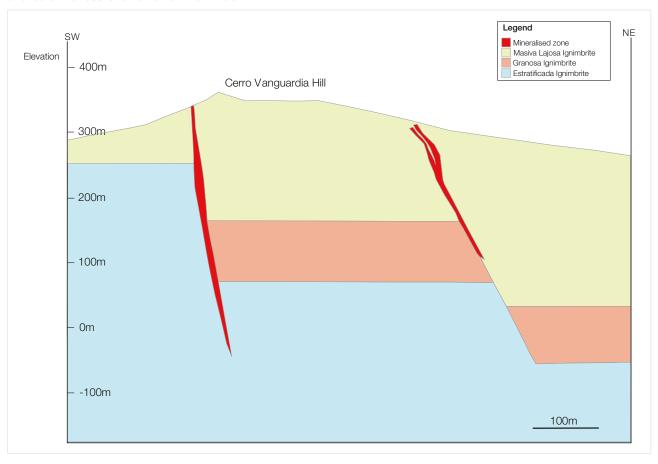
#### **MINERALISATION CHARACTERISTICS**

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. 40Ar/39Ar dating on adularia from the Osvaldo Diez vein yielded ages of around 153Ma, while the age of the thick sequence of ignimbrites hosting the veins has been dated between 166 to 150Ma.

Cerro Vanguardia

#### **GEOLOGICAL CROSS-SECTION OF CERRO VANGUARDIA AREA**



#### **EXPLORATION**

The 2016 exploration programme comprised of 2,749m of DD and 3,546m of RC, as well as 14,000m of trenches and more than 4,000m of channel sampling.

Surface exploration targeted poorly explored areas of the outer parts of the district while the drilling focused on the identification and development of the Mineral Resource in the central core area and around the southern part of the main central zone.

The main veins drilled during 2016 were: Liliana, Mangas, Patty, Paula, Serena Sur and Verónica. At Liliana and Mangas the downdip extension of mineralisation was identified. At Patty, Paula and Verónica, small, shallow ore shoots were defined and at Serena Sur, near-surface, open pit, high-grade Mineral Resource was also delineated. The additional Mineral Resource generated was separated into full-grade vein material and low-grade heap-leaching 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 NPV leaving behind the thinner lower grade veins.

The startup of the heap-leach in 2012 turned low-grade material associated with some of these veins into new exploration targets. Currently, the heap-leach Mineral Resource consists only of stockworks material that is being mined concurrently with ore destined for the metallurgical plant or from stockpiles. A project was therefore initiated to identify the lower grade veins that were previously unmined and that could be mined for heap-leaching. This is ongoing.

The underground mining at Cerro Vanguardia complements the open pit production and will gradually become more dominant. The tonnage from the open pits will decrease as the high-stripping-ratio open pits are replaced by underground operations. The underground mines are currently producing 330,000tpa and are expected to increase production to 420,000tpa next year and then up to 500,000tpa. Currently, several veins are being mined from underground with additional projects planned.

Mapping and new exploration supported by geophysics is focused on discovering new veins, domes and other potential bulk-tonnage, low-grade deposits not previously investigated. This work is ongoing mainly in the less known western and southern areas of the property, and is complemented with the search for any possible concealed high-grade ore shoots located within the central part of the district.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Cerro Vanguardia			T	ype of drillin	g		
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	12 x 5	_	✓	_	✓	_	_
Indicated	40 x 40	✓	✓	_	✓	_	_
Inferred	80 x 80	✓	✓	_	✓	_	-
Grade/ore control	6 x 15, 12 x 5	_	1	_	1	_	_

#### **INCLUSIVE MINERAL RESOURCE**

Cerro Vanguardia		Tonnes	Grade	Contained o	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Vein (open pit)	Measured	1.95	5.21	10.14	0.33
	Indicated	8.94	5.31	47.45	1.53
	Inferred	1.12	5.52	6.20	0.20
	Total	12.01	5.31	63.79	2.05
Stockwork material	Measured	2.41	0.64	1.55	0.05
	Indicated	11.11	0.55	6.14	0.20
	Inferred	2.03	0.50	1.02	0.03
	Total	15.55	0.56	8.70	0.28
Vein (underground)	Measured	0.23	9.11	2.14	0.07
	Indicated	1.36	11.03	15.04	0.48
	Inferred	0.47	6.01	2.85	0.09
	Total	2.07	9.66	20.03	0.64
Heap leach stockpile	Measured	4.55	0.58	2.64	0.08
	Indicated	_	_	_	_
	Inferred	-	-	_	_
	Total	4.55	0.58	2.64	0.08
Cerro Vanguardia	Total	34.19	2.78	95.16	3.06

Cerro Vanguardia

#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: SILVER (Ag)**

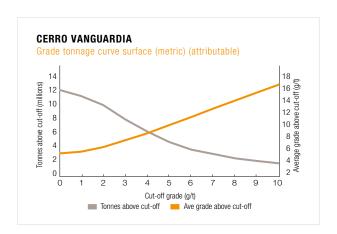
Cerro Vanguardia		Tonnes	Grade	Contained	silver (Ag)
	Category		g/t		
	Measured	9	45.43	416	13
	Indicated	21	74.11	1,587	51
	Inferred	4	79.85	289	9
Cerro Vanguardia	Total	34	67.05	2,292	74

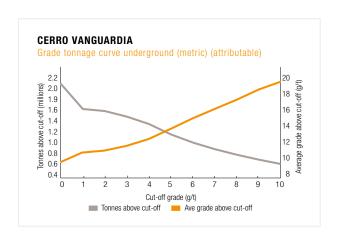
#### **ESTIMATION**

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 then used to create a 3D model. This model is subsequently overlain with a  $5m \times 25m \times 5m$  block model.

Volumetric measurements of the deposit are computed 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 for the classification of the Mineral Resource. This has been validated to conform to the internal AngloGold Ashanti 15% rule guidelines. For the veins where simulations are not done, drill density is used to classify the Mineral Resource.









#### **EXCLUSIVE MINERAL RESOURCE**

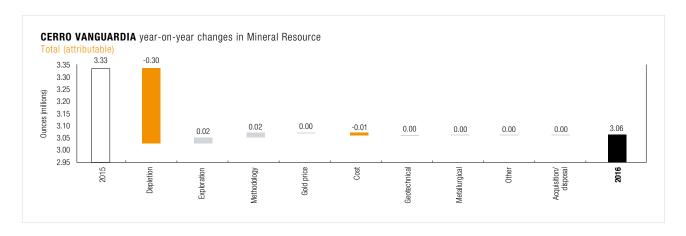
Cerro Vanguardia	guardia			Contain	ed gold
as at 31 December 2016	Category		g/t	tonnes	Moz
	Measured	3.75	2.10	7.89	0.25
	Indicated	18.83	2.61	49.15	1.58
	Inferred	2.97	1.69	5.03	0.16
	Total	25.55	2.43	62.07	2.00

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.

Where the grades of gold and silver 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.

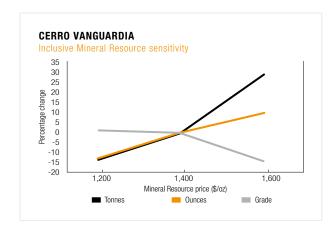
#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

Cerro Vanguardia	Tonnes	Grade	Contain	ed gold
Category	million	g/t	tonnes	Moz
Measured	_	_	_	_
Indicated	_	_	_	_
Inferred	0.30	0.35	0.10	0.00
Total	0.30	0.35	0.10	0.00



Year-on-year changes in Mineral Resource are mainly related to depletion.

#### Cerro Vanguardia



The Mineral Resource is sensitive to changes in gold price. A great deal of low-grade material is present in the deposit which is reflected in the large tonnage increase and grade decrease at elevated gold prices.

#### ORE RESERVE

#### **ORE RESERVE**

Cerro Vanguardia	Cerro Vanguardia		Grade	Contained g	gold
as at 31 December 2016	Category	million	g/t		Moz
Vein (open pit)	Proved	0.56	6.36	3.58	0.12
	Probable	1.67	5.44	9.10	0.29
	Total	2.24	5.67	12.68	0.41
Stockwork material	Proved	5.18	0.60	3.12	0.10
	Probable	1.39	0.82	1.14	0.04
	Total	6.57	0.65	4.26	0.14
Vein (underground)	Proved	0.22	9.24	2.08	0.07
	Probable	1.20	8.67	10.41	0.33
	Total	1.43	8.76	12.49	0.40
Cerro Vanguardia	Total	10.23	2.88	29.43	0.95

### **ORE RESERVE BY-OPERATION: SILVER (Ag)**

Cerro Vanguardia			Grade	Contained	silver (Ag)
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	6	35.67	213	7
	Probable	4	83.17	354	11
	Total	10	55.46	567	18

#### **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 20g/t to 30g/t of silver per 1g/t of gold.

Ore Reserve depletion includes material that comes from the operational dilution, which constitutes an additional low grade tonnage that is mined as part of the ongoing operation. Mineral Resource is estimated *in situ* and thus does not include this dilution.



#### **ORE RESERVE MODIFYING FACTORS**

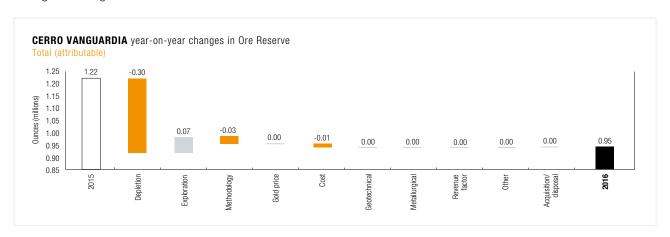
Cerro Vanguardia	Gold price	Cut-off grade	Dilution	MRF	MRF	MCF	MetRF
				% (based on	% (based on		
as at 31 December 2016	ARS/oz	g/t Au		tonnes)	g/t)		%
Vein (open pit)	14,969	2.60	45.0	97.0	96.0	93.0	95.9
Stockwork material	14,969	0.46	_	97.0	96.0	93.0	61.8
Vein (underground)	14,969	5.00	45.0	97.0	96.0	93.0	95.9

A detailed reconciliation process compares estimated versus mined ore, including comparison between predicted grades and tonnes produced in the processing plant and these comparisons are used in determining the modifying factors to use in the Ore Reserve calculations.

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

Cerro Vanguardia	Tonnes	Grade	Contain	ed gold
as at 31 December 2016		g/t	tonnes	Moz
Vein (open pit)	0.56	4.19	2.33	0.07
Stockwork material	0.28	0.33	0.09	0.00
Vein (underground)	0.30	9.47	2.81	0.09
Total	1.13	4.63	5.23	0.17

The Inferred Mineral Resource is normally located in the deeper parts of the orebody, such as the bottom of the open pits and deeper portions of the underground Mineral Resource. It is considered in the business plan in order to delineate the final designs of the open pits, improving efficiency in Mineral Resource utilisation. In the current business plan, around 5% of the open pits and 16% of the underground designs consist of Inferred Mineral Resource.



Ore Reserve reduction primarily due to depletion and changes in estimation methodology offset by exploration additions in the open pits. Changes in the mining method have resulted in the reduction of planned dilution.



# Brazil

### COUNTRY OVERVIEW



AngloGold Ashanti's operations in Brazil comprise AngloGold Ashanti Córrego do Sítio Mineração (AGA Mineração) in the Quadrilátero Ferrífero Minas Gerais state and Mineração Serra Grande in Goiás state. AGA Mineração consists of several operations, namely Cuiabá, Lamego and Córrego do Sítio (CdS) as current operating mines and Nova Lima Sul as a Conceptual project.

#### **INCLUSIVE MINERAL RESOURCE**

Brazil	Tonnes	Grade	Contain	ed gold	
as at 31 December 2016	Category		g/t	tonnes	Moz
	Measured	24	5.88	139	4
	Indicated	23	5.81	136	4
	Inferred	46	5.89	270	9
	Total	93	5.87	544	18

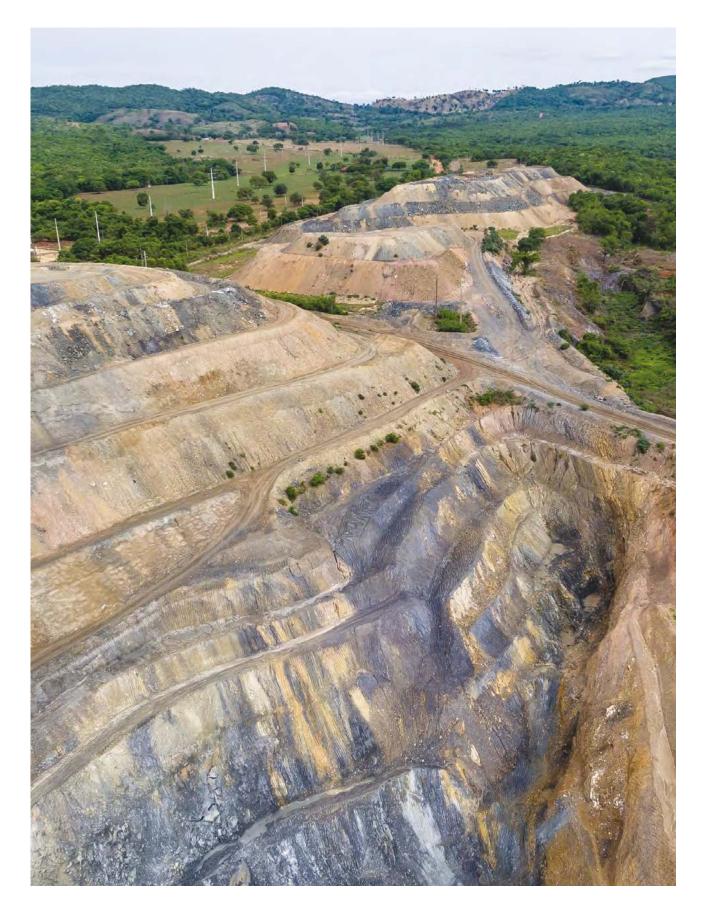
### **EXCLUSIVE MINERAL RESOURCE**

Brazil		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	15	6.51	100	3
	Indicated	14	5.88	80	3
	Inferred	45	5.91	267	9
	Total	74	6.03	447	14

#### **ORE RESERVE**

Brazil		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category		g/t	tonnes	Moz
	Proved	6	3.85	23	1
	Probable	10	4.41	45	1
	Total	16	4.20	68	2

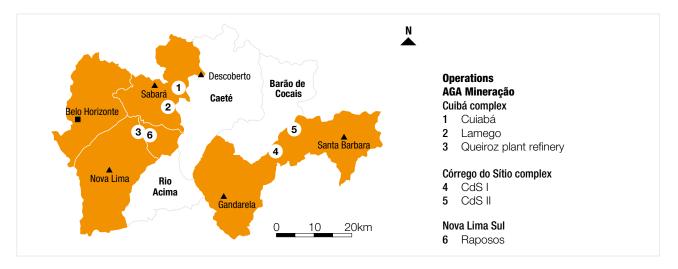




# AMERICAS continued AGA Mineração

#### INTRODUCTION

Property description	AGA Mineração encompasses the mining operations at Cuiabá, Lamego, CdS and the project, Nova Lima Sul.
Location	The AGA Mineração mining complex is located in south-eastern Brazil, in the state of Minas Gerais. Operations are 30km from the capital of the state (Belo Horizonte) in the case of Cuiabá and Lamego, and about 100km in the case of CdS, in the municipalities of Nova Lima, Sabará and Santa Bárbara respectively.
Legal aspects and tenure	Under the current Brazil Mining Code and pertinent complementary legislation, mining concessions and mining "manifests" are valid up to the depletion of the Ore Reserve and Mineral Resource, provided all obligations and the required periodic reporting to the Federal Government are met. AGA Mineração has mining rights over 61,864ha.



### MINERAL RESOURCE

#### **INCLUSIVE MINERAL RESOURCE**

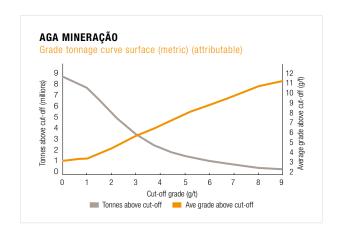
AGA Mineração		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category		g/t	tonnes	Moz
	Measured	15.85	6.78	107.43	3.45
	Indicated	17.98	6.19	111.25	3.58
	Inferred	33.32	6.45	215.01	6.91
AGA Mineração	Total	67.15	6.46	433.69	13.94

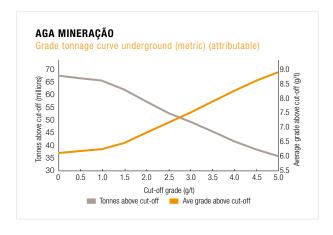
#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: SULPHUR (S)**

AGA Mineração		Tonnes	Grade	Contained	sulphur (S)
as at 31 December 2016	Category	million	%S	tonnes million	pounds million
	Measured	9	6.6	0.60	1,332
	Indicated	8	6.6	0.51	1,119
	Inferred	10	7.0	0.73	1,603
AGA Mineração	Total	27	6.8	1.84	4,054

Sulphur is a by-product of the Cuiabá and Lamego mining operations. 74% of the sulphur is from Cuiabá and 26% from Lamego.







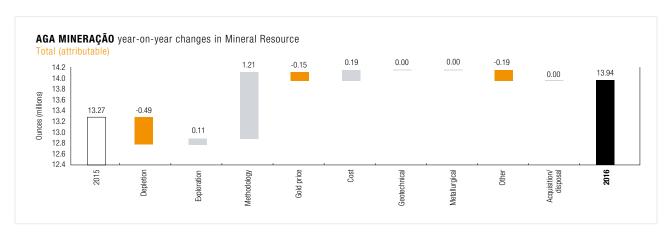
#### **EXCLUSIVE MINERAL RESOURCE**

AGA Mineração		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t		Moz
	Measured	11.15	7.35	81.98	2.64
	Indicated	11.30	5.92	66.90	2.15
	Inferred	32.78	6.48	212.43	6.83
	Total	55.24	6.54	361.31	11.62

#### MINERAL RESOURCE BELOW INFRASTRUCTURE

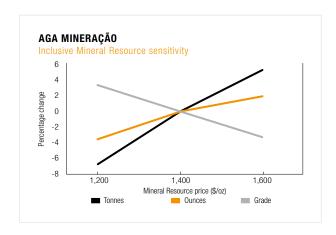
AGA Mineração		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category		g/t	tonnes	Moz
	Measured	1.52	3.72	5.65	0.18
	Indicated	7.70	5.79	44.56	1.43
	Inferred	26.57	6.73	178.78	5.75
	Total	35.78	6.40	228.99	7.36

The Mineral Resource below infrastructure is made up of 48% (3.55Moz) CdS, 34% (2.49Moz) Cuiabá, 7% (0.48Moz) Lamego and 11% (0.82Moz) Nova Lima Sul.



Mainly the result of open pit gains at Rosalino, some underground additions at Cuiabá and CdS, positive results from surface drilling at Carvoaria and reduced costs at Lamego.

AGA Mineração



The combined mining operations at Cuiabá, Lamego, CdS and the project, Nova Lima Sul are not very sensitive to changes in gold price.

#### ORE RESERVE

#### **ORE RESERVE**

AGA Mineração		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category	million	g/t		Moz
	Proved	3.62	4.74	17.19	0.55
	Probable	7.05	5.16	36.38	1.17
AGA Mineração	Total	10.67	5.02	53.57	1.72

#### **ORE RESERVE BY-PRODUCT: SULPHUR (S)**

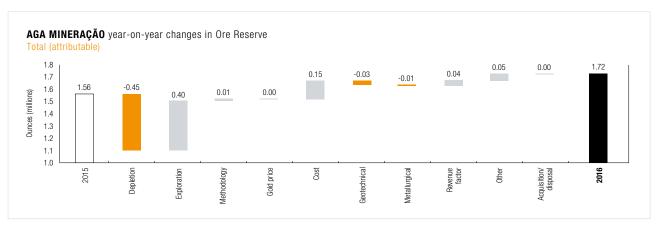
AGA Mineração		Tonnes	Grade	Contained	sulphur (S)
as at 31 December 2016	Category	million	%S	tonnes million	pounds million
	Proved	2	5.6	0.13	286
	Probable	5	5.3	0.29	635
	Total	8	5.4	0.42	921

Sulphur is a by-product of the Cuiabá and Lamego mining operations. 92% of the Sulphur is from Cuiabá and 8% from Lamego.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

AGA Mineração		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Proved	0.01	7.21	0.05	0.00
	Probable	1.78	6.03	10.74	0.35
	Total	1.79	6.03	10.79	0.35

The Ore Reserve below infrastructure is made up of 72% (0.25Moz) Cuiabá and 28% (0.10Moz) Lamego.



Ore Reserve increase is due to exploration additions at Cuiabá and change in costs driven by exchange rate at CdS and Cuiabá offset by changes in mining method at depth at Cuiabá and removal of the barrier pillar at the São Bento Mine (CdS).

# AMERICAS continued AGA Mineração - Córrego do Sítio



#### INTRODUCTION

Property description	CdS is composed of a number of underground and open pit operations. The southern portion of this mining complex is referred to as CdS I while the central portion (formerly known as São Bento) has beer renamed CdS II and northern portion is called CdS III.
	The majority of the Ore Reserve is in the CdS I area (Carvoaria, Laranjeiras and Cachorro Bravo underground mines and the Rosalino open pit).
Location	CdS is located in the Municipality of Santa Bárbara, 100km east of the city of Belo Horizonte, the capita of Minas Gerais state.
History	Exploration across the CdS area by AngloGold Ashanti began in the 1980s. A FS for the oxide Ore Reserve, to be mined by open pit and treated in a heap-leach plant, was approved in 1987. From 2002 development of underground exploration drifts began, and a FS for the sulphide Ore Reserve, to be mined underground and treated in a sulphide plant, was concluded in 2010. Implementation followed from 2010 and the ramp-up was concluded in 2012.
Legal aspects and tenure	CdS I includes one underground operation and a number of individual open pit operations, and is hosted by three geographically contiguous concessions granted by DNPM (the Brazilian National Department for the Mineral Production, the licensing authority) to AGA Mineração, as follows:
	<ul> <li>DNPM Mining Concession 930.181/2008 with 2,977.83ha in area</li> </ul>
	<ul> <li>DNPM Mining Concession 833.472/2003 with 7.57ha in area</li> </ul>
	<ul> <li>The DNPM Mining Concession 830.129/1982 with 460.13ha in area</li> </ul>
	CdS II includes one active underground operation (formerly known as the São Bento Mine), and is hosted by two geographically contiguous concessions granted by DNPM to AGA Mineração.
	• The DNPM Mining Concession 930.556/2000 with 2,015.54ha in area; and
	<ul> <li>The DNPM Mining Concession 830.943/1979 with 556.37ha in area.</li> </ul>
	All five CdS mining concessions are in good standing.
	DNPM Mining Concession 830.943/1979, hosts the deepest portion of the former São Bento mine and has been granted a temporary mining suspension by AGA Mineração. New documentation, based on a revised mine plan has to be submitted to the Federal Government (DNPM), if and when AGA Mineração decides to resume the underground operation on this concession area. A new Brazilian mining code is currently under discussion, however, it is not anticipated to change the company's rights, which are already established.
Mining method	The mining method for CdS is sub-level stoping. Each panel consists of three levels, with secondary development drives being some 300m along strike in the NE-SW direction and cross cuts, 300m in a south-west direction. The stopes are 15m in height. Some of the mining sequence is still bottom/up though all of CdS I is being converted to top/down sequences. According to geotechnical guidance, a si pillar of 4m in height is designed between panels, and 4m rib pillars are used each 30m along the strike. The stope drilling is executed via fan drilling in ascending and descending directions. The loading and hauling operations are performed by 8t front-end loaders and 30t articulated trucks, at an approximate rate of 1,500tpd.

AGA Mineração — Córrego do Sítio

# Operational infrastructure

CdS infrastructure consists of two treatment plants, namely, the sulphides plant for the underground mines at CdS II and the heap-leach plant for the oxide ore mined by open pit mine at CdS I, as well as a tailings dam for the sulfide plant, the neutralised tailings deposit for the oxide material and numerous waste dumps for the open pit mines at CdS I.

Ancillary facilities comprise a water treatment facility, effluents treatment facilities, equipment workshops, laboratory, warehouses, explosives and accessories magazines, fuel stations, electric substations as well as offices, medical clinic, cafeteria, dressing rooms, bathrooms, storerooms, garage, fuel stations, explosives magazines, a Centre of Environmental Studies (CEA), nursery and other facilities to assist the needs of the mine.

The mine power is supplied from the state electric grid. Water is primarily sourced from recycling of the underground mine water and supplementary water catchment wells.

Good communication infrastructure is available in the area.

#### Mineral processing

There are two metallurgical plants in CdS: the heap-leach plant for the oxide ore and the sulphide plant.

The sulphide process consists of crushing, grinding and gravity concentration, flotation, thickening, acidulation, pressure oxidation (POX autoclave), CCD (counter current decantation), CIL extraction, elution, neutralisation, electro-winning and tailings disposal. The plant and POX circuit have a capacity as of 600ktpa.

The heap-leaching process consist of crushing, agglomeration, stacking, leaching, adsorption, elution and electro-winning.

#### Risks

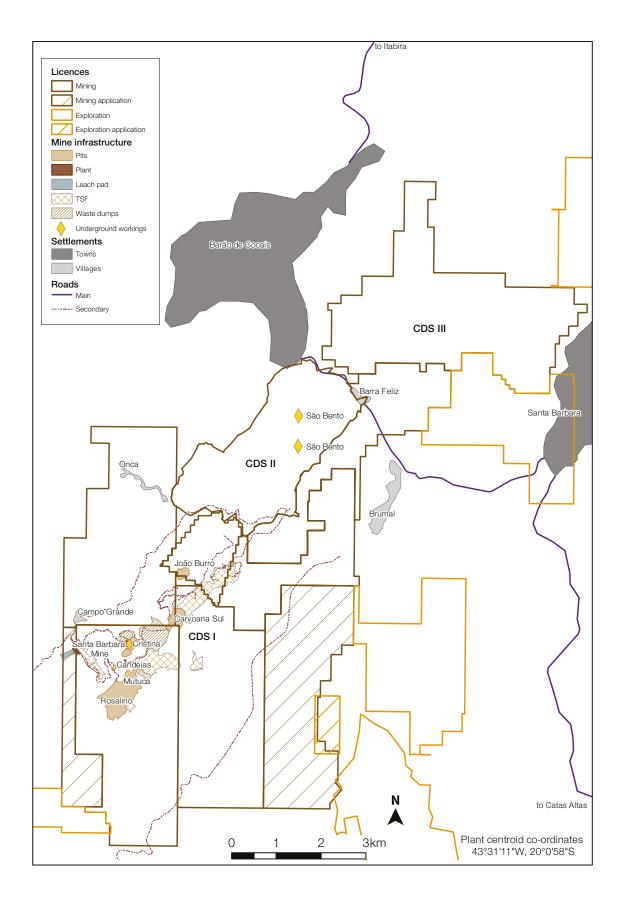
The major risk to the operation is the lack of Ore Reserve flexibility. Such risks are controlled and mitigated by integrated planning with the exploration team and monitoring of the execution of the plan.

An independent external Mineral Resource and Ore Reserve audit has been undertaken in 2016 and found no fatal flaws, in process or output.

However, the Ore Reserve estimation process for the Rosalino open pit operation was found to have not been performed to the same standard as the underground operations and therefore was not considered by the auditor to be at an appropriate level to enable the Mineral Resource to Ore Reserve conversion or the declaration of an Ore Reserve under either the SAMREC Code (2016) or the JORC Code (2012). AngloGold Ashanti supports the auditors view regarding the sulphide and transitional material, however it differs regarding the oxide component, as it believes there is sufficient production and reconciliation history for an oxide Ore Reserve to be reported for the Rosalino pit.







AGA Mineração — Córrego do Sítio

#### **COMPETENT PERSONS**

AGA Mineração – Córrego do Sítio							
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification		
Mineral Resource	Rodrigo Martins	MAusIMM	311 050	12 years	BSc (Geology)		
					MSc (Geology)		
Ore Reserve	Cristóvão dos Santos	MAusIMM	312 542	9 years	MSc (Mining Engineering)		

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.

#### **GEOLOGY**

#### **MINERALISATION STYLE**

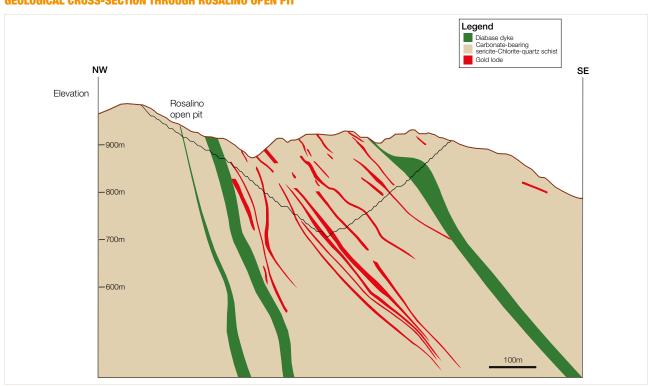
CdS is located in the eastern part of the lower to middle greenschist facies Archaean Rio das Velhas greenstone belt. The CdS I, II and III gold deposits and associated targets are located in a gold trend that extends for about 14km in a north-easterly direction, from Grota Funda (CdS I areas) in the south to Jambeiro (CdS III 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. 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.

#### **MINERALISATION CHARACTERISTICS**

The CdS deposits consist of narrow north-east/south-west elongated lenses of mineralisation dipping 60° to 70° south-east and plunging 20°, to 30° north-east. 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 free and coarse gold and also as microscopic or sub-microscopic inclusions in arsenopyrite and sometimes iron-antinomy sulphide berthierite (FeSb<sub>2</sub>S<sub>4</sub>). Other typical sulphide minerals are pyrrhotite, pyrite and chalcopyrite.

#### **GEOLOGICAL CROSS-SECTION THROUGH ROSALINO OPEN PIT**





#### **EXPLORATION**

In 2016, 55,000m of drilling was executed along the CdS trends with the exploration work focused on:

- supporting the production plan of the mines through Mineral Resource conversion
- assessing high grade mineralisation targets
- evaluating the potential of near-mine areas and the region

Mineral Resource drilling at the Rosalino (CdS I) and Pinta Bem (CdS II) targets was undertaken on the oxide Mineral Resource aimed at converting Inferred to Indicated Mineral Resource. A mapping and drilling programme at Pinta Bem target has confirmed the orebody model previously interpreted. At the Rosalino target, the drilling programme intercepted the orebody below the projected open pit. The best results came from Rosalino where the drilling campaign resulted in an addition to the Mineral Resource and improved knowledge of the extension on orebody model.

The review of the geological potential continued for CdS II, particularly the São Bento Mineral Resource and for CdS III (Santa Quitéria). The São Bento lode model has been updated based on geological cross sections from São Bento historical data. Drilling campaign is ongoing, aiming at Mineral Resource addition between levels 21 and 23 at the São Bento mine.

Surface Drilling was undertaken at CdS III on Anomalia I and Anomalia II targets aiming at Mineral Resource addition and conversion. In addition, several new targets have been identified due to the geological and structural mapping, surface geochemistry, geophysic surveys, and trenches sampling. The exploration on Mina de Pedra, Jambeiro and Mina de Pedra Sul targets is in progress and exploratory drilling was performed to test grade models inferred by galleries mapping and legacy data.

In support of mine production at CdS I, the exploration drilling was concentrated along three different orebodies namely Cachorro Bravo, Laranjeiras and Carvoaria. The results have confirmed the mineralisation along the structures, adding some Mineral Resource. Finally, mapping and exploratory drilling at the Bocaina target showed potential to add Mineral Resource.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

AGA Mineração – Córro	ego do Sítio		Тур	oe of drilling			
Category	Spacing m (-x-)	Diamond RC		Blasthole Cha	nnel Otl	ner Comments	
Measured	25 x 25	✓	_	_	✓		
Indicated	25 x 40,	✓	✓	-	-		
	30 x 25,						
	50 x 30,						
	50 x 50						
Inferred	30 x 25,	1	/	-	1		
	40 x 100,						
	50 x 30,						
	100 x 50,						
	100 x 100,						
	200 x 200						
Grade/ore control	3 x 3,	_	1	_	/		
	5 x 4,						
	5 x 5						

AGA Mineração — Córrego do Sítio

#### **INCLUSIVE MINERAL RESOURCE**

AGA Mineração – Córrego do Sítio		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t		Moz
CdS I (sulphides) – Cachorro Bravo	Measured	1.31	6.34	8.34	0.27
	Indicated	0.62	6.50	4.05	0.13
	Inferred	0.60	5.95	3.57	0.11
	Total	2.54	6.29	15.95	0.51
CdS I (sulphides) – Carvoaria	Measured	0.35	9.75	3.37	0.11
	Indicated	0.64	6.95	4.45	0.14
	Inferred	1.17	8.98	10.54	0.34
	Total	2.16	8.50	18.37	0.59
CdS I (sulphides) - Secondary orebodies	Measured	_	_	_	_
	Indicated	0.11	6.19	0.66	0.02
	Inferred	0.73	4.90	3.60	0.12
	Total	0.84	5.07	4.26	0.14
CdS I (sulphides) - Laranjeiras	Measured	1.28	5.81	7.45	0.24
	Indicated	0.91	5.16	4.70	0.15
	Inferred	1.57	6.57	10.29	0.33
	Total	3.76	5.97	22.44	0.72
CdS I (sulphides) - Rosalino (open pit)	Measured	0.60	3.99	2.39	0.08
	Indicated	1.85	4.58	8.47	0.27
	Inferred	0.28	4.27	1.18	0.04
	Total	2.72	4.42	12.03	0.39
CdS I (sulphides) – Rosalino (underground)	Measured	0.24	3.97	0.94	0.03
	Indicated	0.87	4.12	3.60	0.12
	Inferred	4.13	3.98	16.43	0.53
	Total	5.24	4.00	20.97	0.67
CdS I (oxides) - Rosalino (open pit)	Measured	1.32	3.08	4.07	0.13
	Indicated	0.44	2.56	1.13	0.04
	Inferred	0.05	1.98	0.10	0.00
	Total	1.82	2.92	5.31	0.17
CdS I (oxides) – Secondary orebodies	Measured	0.83	3.31	2.75	0.09
	Indicated	1.05	2.83	2.99	0.10
	Inferred	0.97	2.21	2.14	0.07
	Total	2.85	2.76	7.88	0.25
CdS I (transitional)	Measured	0.01	6.45	80.0	0.00
	Indicated	0.25	7.13	1.81	0.06
	Inferred	0.29	6.57	1.92	0.06
	Total	0.56	6.82	3.80	0.12
CdS I (transitional) – Rosalino (underground)	Measured	0.03	6.49	0.17	0.01
	Indicated	0.02	4.22	0.10	0.00
	Inferred	0.06	4.86	0.29	0.01
	Total	0.11	5.11	0.55	0.02
CdS I (transitional) - Rosalino (open pit)	Measured	0.55	3.05	1.67	0.05
	Indicated	0.26	2.63	0.69	0.02
	Inferred	0.01	3.00	0.03	0.00
	Total	0.82	2.91	2.40	80.0



AGA Mineração – Córrego do Sítio	AGA Mineração – Córrego do Sítio		Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
CdS II (sulphides) – Sangue de Boi	Measured	0.06	9.70	0.54	0.02
	Indicated	0.44	7.78	3.40	0.11
	Inferred	1.64	6.57	10.77	0.35
	Total	2.13	6.90	14.70	0.47
CdS II (sulphides) – São Bento mine	Measured	_	_	_	_
	Indicated	0.45	7.96	3.58	0.12
	Inferred	5.06	6.08	30.79	0.99
	Total	5.51	6.23	34.38	1.11
CdS II (sulphides) – Pinta Bem	Measured	-	_	_	_
	Indicated	0.31	3.21	0.99	0.03
	Inferred	0.53	3.36	1.77	0.06
	Total	0.84	3.30	2.76	0.09
CdS II (sulphides) – Secondary orebodies	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	0.81	7.10	5.72	0.18
	Total	0.81	7.10	5.72	0.18
CdS II (oxides)	Measured	_	_	_	_
	Indicated	1.57	3.49	5.46	0.18
	Inferred	1.32	3.24	4.29	0.14
	Total	2.89	3.37	9.75	0.31
CdS II (transitional)	Measured	_	_	_	_
	Indicated	0.11	3.78	0.42	0.01
	Inferred	0.16	3.86	0.62	0.02
	Total	0.27	3.83	1.04	0.03
AGA Mineração – Córrego do Sítio	Total	35.87	5.08	182.30	5.86

#### **ESTIMATION**

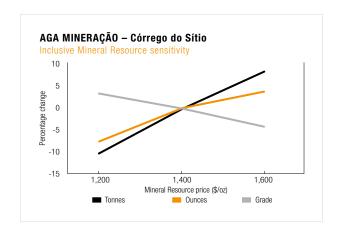
Drilling and underground sampling data is split into representative domains using a geological model created from mapping and logging. The Mineral Resource is estimated by ordinary kriging, and classified using conditional simulation or drill spacing.

#### **EXCLUSIVE MINERAL RESOURCE**

AGA Mineração – Córrego do Sítio		Tonnes	Grade	Contair	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	4.07	5.19	21.13	0.68
	Indicated	7.81	4.88	38.11	1.23
	Inferred	19.38	5.37	104.04	3.34
	Total	31.27	5.22	163.28	5.25



AGA Mineração — Córrego do Sítio



Córrego do Sítio is sensitive to changes in gold price varying in ounces from -7% to 4% with lower and higher prices respectively.

#### ORE RESERVE

### **ORE RESERVE**

AGA Mineração – Córrego do Sítio		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category		g/t		
CdS I (sulphides) - Cachorro Bravo	Proved	0.10	3.71	0.38	0.01
	Probable	0.22	4.35	0.97	0.03
	Total	0.32	4.15	1.35	0.04
CdS I (sulphides) - Carvoaria	Proved	0.12	6.52	0.76	0.02
	Probable	0.28	4.70	1.31	0.04
	Total	0.40	5.24	2.08	0.07
CdS I (sulphides) – Laranjeiras	Proved	0.18	4.24	0.75	0.02
	Probable	0.19	3.93	0.73	0.02
	Total	0.36	4.08	1.49	0.05
CdS I (oxides) – Rosalino (open pit)	Proved	0.88	2.43	2.14	0.07
	Probable	0.13	2.05	0.28	0.01
	Total	1.02	2.38	2.42	0.08
CdS II (sulphides) – Sangue de Boi	Proved	0.04	5.51	0.22	0.01
	Probable	0.42	5.11	2.12	0.07
	Total	0.46	5.14	2.34	0.08
CdS II (sulphides) – São Bento mine	Proved	_	_	_	_
	Probable	0.10	4.18	0.43	0.01
	Total	0.10	4.18	0.43	0.01
CdS II (oxides)	Proved	_	_	_	_
	Probable	0.31	2.62	0.82	0.03
	Total	0.31	2.62	0.82	0.03
AGA Mineração – Córrego do Sítio	Total	2.97	3.67	10.92	0.35



#### **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.

#### **ORE RESERVE MODIFYING FACTORS**

AGA Mineração –	Gold	Cut-off	Stoping							
Córrego do Sítio	price	grade	width	Dilution	RMF	RMF	MRF	MRF	MCF	MetRF
					% (based	% (based		% (based		
as at 31 December 2016	BRL/oz	g/t Au	cm	%	on tonnes)	on g/t)	on tonnes)	on g/t)	%	%
CdS II (oxides)	4,041	0.68	_	_	100.0	100.0	100.0	100.0	100.0	70.0*
CdS I (oxides) -										
Rosalino (open pit)	4,041	0.58	_	_	100.0	100.0	100.0	100.0	100.0	75.7*
CdS I (sulphides) -										
Cachorro Bravo	4,041	2.78	404.0	52.0	98.0	119.0	102.0	87.0	90.0	90.0**
CdS I (sulphides) -										
Carvoaria	4,041	2.78	279.0	53.0	98.0	119.0	102.0	87.0	90.0	90.0**
CdS I (sulphides) -										
Laranjeiras	4,041	2.78	341.0	50.0	98.0	119.0	102.0	87.0	90.0	90.0**
CdS II (sulphides) -										
Sangue de Boi	4,041	2.81	333.0	42.0	98.0	119.0	102.0	87.0	90.0	90.0**
CdS II (sulphides) -										
São Bento mine	4,041	2.81	404.0	45.0	98.0	119.0	102.0	87.0	90.0	90.0**

<sup>\*</sup> Not considering dilution or mining recovery because Ore Reserve is calculated based on regularised model

As the CdS underground mines have been in operation since 2011, the technical and economic modifying factors derive from historical data and reasonable levels of certainty exist on CdS projections.

For the Ore Reserve estimates, a minimum thickness is applied for stope design. Other factors derive from historic data, such as the dilution, ore loss and the MCF as well as the metallurgical recovery applied in the estimates.

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

III EIIIED IIIIEEEEEEEEEEEEEEEEEEEEEEEE				
AGA Mineração – Córrego do Sítio	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
CdS I (sulphides) – Cachorro Bravo	0.01	4.09	0.03	0.00
CdS I (sulphides) - Carvoaria	0.00	2.96	0.00	0.00
CdS I (sulphides) – Laranjeiras	0.01	3.31	0.04	0.00
CdS II (oxides)	0.12	2.93	0.36	0.01
CdS II (sulphides) - Sangue de Boi	0.09	3.47	0.32	0.01
Total	0.23	3.20	0.75	0.02

The Inferred Mineral Resource is located in the mining panels in the lower areas of some sulphide deposits such as Cachorro Bravo, Laranjeiras and Carvoaria underground mine in CdS I and Sangue de Boi underground mine in CDS II.

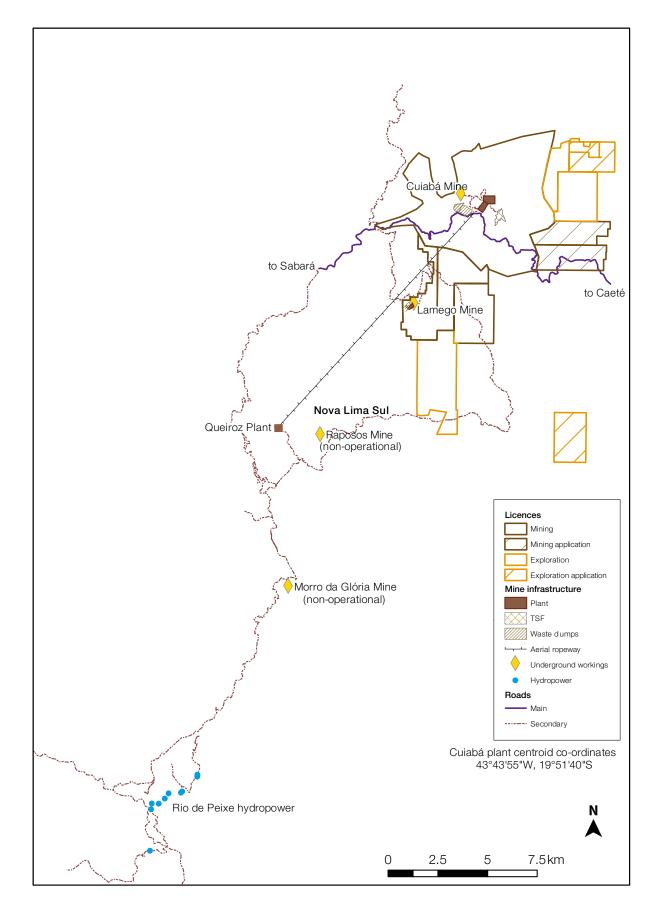
<sup>\*\*</sup> The gold reported represents the total Ore Reserve without metallurgical recovery, however it was considered in the cut-off grade calculation. The percentage grade dilution and the MCF are already included in the Ore Reserve reported

# AMERICAS continued AGA Mineração - Cuiabá

## INTRODUCTION

Property description	An ongoing underground operation, that is wholly-owned by AngloGold Ashanti.
Location	The Cuiabá mine is located near Sabará, southeast of the city of Belo Horizonte within the mining district referred to as the Iron Quadrangle. This region is the largest producer of iron ore and gold in Brazil.
History	Artisanal miners starting in 1740 carried out the first mining in the area. Saint John Del Rey Mining Company Ltd acquired the mine in 1834. Exploration and 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 date.
Legal aspects and tenure	The Cuiabá Mineral Resource and Ore Reserve are fully hosted by a single concession granted by the DNPM the "Mine Manifest DNPM title 000.323/1973", held by AGA Mineração, covering a total area of 3,662ha. A new Brazilian mining code is currently under discussion, however, it is not anticipated to change the company's rights, which are already established.
Mining method	Cuiabá mine has two mining methods: cut-and-fill and longhole stoping. To improve the safety and productivity of the operation, in 2011, the mining method was changed from cut-and-fill to longhole stoping (sub-level stoping and variations). Cut-and-fill is still applied in stopes with lower inclination, requiring the use of in-stope pillars in large-width stopes.
Operational infrastructure	Two plants connected by an aerial ropeway (Cuiabá Gold plant and Queiroz plant) and a set of small hydropower plants (Rio de Peixe).  Cuiabá mine has a shaft system (846m deep) for production and personal transport, the current nominal airflow capacity is 1,035m³/s, at which 320m³/s are refrigerated.
	Tailings deposition is at one of four sites located at Cuiabá, Calcinado, Rapaunha and Cocuruto.  Rio de Peixe hydroelectric complex is a set of seven small hydropower plants that generate energy from three dams (Ingleses, Miguelão and Codorna), connecting directly to the Queiroz Plant.
Mineral processing	Cuiabá and Lamego Mines feed the Cuiabá Gold (flotation) and Queiroz (roaster, carbon circuit and refinery) plants, currently at 1.7Mtpa for a metallurgical recovery of 93.3%. At Cuiabá Gold Plant, crushing and milling of the ore is followed by flotation and filtration in order to produce a concentrate, which is transported by aerial ropeway to Queiroz for further treatment. Approximately 25% to 30% of gold is recovered through a gravity circuit at the Cuiabá plant. The backfill plant is also located at Cuiabá. The Queiroz Plant is located in Nova Lima and comprises two different circuits for refractory ore (from Cuiabá) and non-refractory ore (used for the Raposos mine production in the past) with facilities for pyrometallurgy and hydrometallurgy. The concentrate is roasted, and the calcine proceeds to a carbon circuit for further refining. The sulphide gas is captured for processing through the acid plant; approximately 230ktpa of sulphuric acid are produced as a by-product.
Risks	No legal or environmental risks identified. Strategic studies in place are managing some possible risks such as low level of Ore Reserves and the reliance on Inferred Resources in the production plan and rock engineering constraints at depth.





AGA Mineração - Cuiabá

#### **COMPETENT PERSONS**

AGA Mineração – Cuiabá					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Rodrigo Martins	MAusIMM	311 050	12 years	BSc (Geology)
					MSc (Geology)
Ore Reserve	Paulo Peruzzo	MAusIMM	312 703	27 years	BSc (Mining Engineering)

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

The area in which Cuiabá is located is known as the Iron Quadrangle and is host to a number of historic and current gold mining operations, as well as a number of open pit limestone and iron ore operations. The geology of the Iron Quadrangle is composed of Proterozoic and Archaean volcano-sedimentary sequences and pre-Cambrian granitic complexes.

Cuiabá is a "gold-only" Archaean banded iron formation (BIF)-hosted gold deposit. The deposit consists of an intermediate meta-mafic sequence of the Archaean Greenstone Belt type. It is characterised by hydrothermal alteration of the rocks, with the mineralisation occurring mainly in BIF layers, and subordinately in quartz veins or in the host schists. The host to the gold mineralisation is the volcano-sedimentary Nova Lima Group that occurs at the base of the Rio das Velhas Super Group. The upper sequence of the Rio das Velhas Super Group is the meta-sedimentary Maquiné Group. The gold mineralisation at Cuiabá has features and characteristics that are in agreement with the epigenetic orogenic gold deposit model presented for Archaean gold-lode deposits.

#### **MINERALISATION STYLE**

Cuiabá mine has gold mineralisation associated with sulphides and quartz veins in BIF and volcanic sequences. Structural control and fluid flow ascension are the most important factors for gold mineralisation with a common association between large-scale shear zones and their associated structures. Where BIF is mineralised 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.

#### **MINERALISATION CHARACTERISTICS**

Apparent intersections of thrust faults with tight isoclinal folds, in a ductile environment, tend 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.

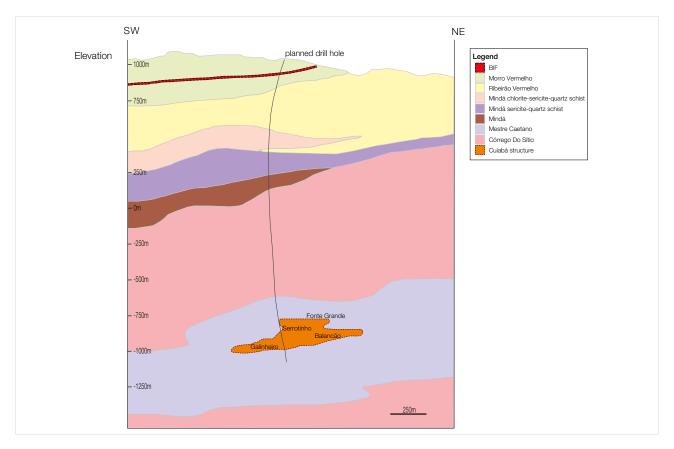
Sulphide mineralisation consists of pyrite and pyrrhotite with subordinate arsenopyrite and chalcopyrite; the latter tends to occur as a late-stage fracture fill and is not associated with gold mineralisation. Wallrock alteration is typically carbonate, potassic and silicic, showing clear zonation in 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 orebodies at Cuiabá are as follows:

- normal limb: Fonte Grande Sul and Serrotinho
- · overturned limb: Balancão, Galinheiro and Canta Galo

Secondary orebodies occur in hydrothermaly altered schists at the footwall of Galinheiro (Galinheiro footwall orebody) and hydrothermaly altered schists/quartz veins near the footwall of Fonte Grande Sul – Serrotinho (quartz vein orebody).



#### GEOLOGICAL CROSS-SECTION THROUGH DEEP DRILLING PLAN LEVEL 28 CUIABÁ MINE



#### **EXPLORATION**

In 2016, 67,000m of drilling was completed, with underground drilling comprising almost 65,500m of this total. Underground exploration was focused in two areas, Mineral Resource conversion and Mineral Resource addition representing 83% (55,000m) and 17% (10,500m) of the underground drilling respectively.

For the Mineral Resource conversion, Galinheiro levels 9, 12 and 15, Balancão levels 15-17, Serrotinho level 19, Cantagalo level 14, Galinheiro Footwall (footwall of Fonte Grande Sul) and Fonte Grade Sul levels 17-19 were the main targets converted. Mineral Resource conversion drilling also continued at Fonte Grande Sul from a hangwall drive specifically developed for that purpose.

The Mineral Resource addition drilling was focused on Serrotinho Blue Sky level 19, Galinheiro levels 15 and 19 to 21 and Galinheiro Footwall (footwall of Fonte Grande Sul) orebody.

During 2016, a deep exploration drill programme was started to assess the continuity of Cuiabá orebodies at depth. Drilling is being performed using a directional core barrel to direct the drilling and control the natural deviation that affects the trajectory of the drill hole as well as to drill deflections out of the mother holes.

AGA Mineração — Cuiabá

#### **PROJECTS**

In the near term, Cuiabá will increase plan confidence by achieving production stability and building flexibility through targeted production interventions and by attaining Ore Reserve and developed stope stocks targets. Operational effectiveness will be the foundation for the strategic approach. Currently, the mine team is reviewing the mine plan in order to meet the current cash generation needs looking to the inclusion of Galinheiro orebody and to maximise production from the secondary orebodies, both near and within infrastructure.

Over the next five years, Cuiabá plans to optimise the orebody capability by targeting the secondary and satellite veins in conjunction with the main orebodies. Lamego mine will be integrated into Cuiabá plans as the mine looks to maximise orebody capability by balancing selectivity against bulk mining.

In the long term, Cuiabá plans to maintain sustainable production by continuing to explore and convert the Mineral Resource below infrastructure and bring the full economic endowment to production.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

AGA Mineração – Cuiab	a	Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	10 x 20,	✓	_	_	✓	_	_
	20 x 30						
Indicated	20 x 40,	✓	_	_	✓	_	-
	40 x 60						
Inferred	40 x 60,	✓	_	_	_	_	_
	80 x 120						
Grade/ore control	5 x 5	1	_	_	1	_	-





#### **INCLUSIVE MINERAL RESOURCE**

AGA Mineração – Cuiabá		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Main Deposits – Fonte Grande Sul	Measured	1.12	9.92	11.16	0.36
	Indicated	0.96	10.52	10.12	0.33
	Inferred	1.80	14.53	26.21	0.84
	Total	3.89	12.21	47.49	1.53
Main Deposits - Serrotinho	Measured	0.54	12.92	7.01	0.23
	Indicated	0.57	12.98	7.36	0.24
	Inferred	0.69	12.45	8.65	0.28
	Total	1.80	12.76	23.02	0.74
Narrow Veins – Balancão	Measured	0.76	8.52	6.48	0.21
	Indicated	1.29	11.24	14.46	0.46
	Inferred	0.64	12.62	8.06	0.26
	Total	2.69	10.80	29.00	0.93
Narrow Veins – Galinheiro	Measured	0.59	9.36	5.50	0.18
	Indicated	0.91	7.94	7.27	0.23
	Inferred	0.88	7.24	6.38	0.21
	Total	2.38	8.03	19.14	0.62
Narrow Veins – Canta Galo	Measured	0.33	8.10	2.64	0.08
	Indicated	0.11	8.65	0.96	0.03
	Inferred	0.18	10.41	1.83	0.06
	Total	0.61	8.87	5.43	0.17
Secondary Areas – Satellite orebodies	Measured	0.79	6.11	4.85	0.16
	Indicated	0.17	6.71	1.15	0.04
	Inferred	0.32	6.08	1.92	0.06
	Total	1.28	6.18	7.92	0.25
Secondary Areas – Galinheiro Footwall	Measured	-	_	_	_
	Indicated	0.44	7.86	3.45	0.11
	Inferred	0.51	6.96	3.52	0.11
	Total	0.95	7.37	6.97	0.22
Secondary Areas - Sill Pillars	Measured	1.83	10.36	18.98	0.61
	Indicated	0.37	10.37	3.87	0.12
	Inferred	1.00	12.73	12.73	0.41
	Total	3.21	11.10	35.58	1.14
Secondary Areas – Quartz vein	Measured	_	_	_	_
	Indicated	_	-	_	_
	Inferred	0.72	7.26	5.23	0.17
	Total	0.72	7.26	5.23	0.17
AGA Mineração – Cuiabá	Total	17.53	10.26	179.79	5.78

#### **ESTIMATION**

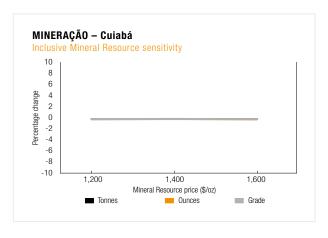
The Cuiabá dataset consists of channel samples and drill hole samples. The 3D modelling and estimation is performed with two estimation domains, namely the thick mineralisation, consisting of Fonte Grande Sul and Serrotinho, and the narrow-vein domain consisting of Balancão, Galinheiro and Canta Galo. All channel and drill hole samples are used in the creation of 3D geological models and for identifying 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 Mineral Resource, following a standard internal AngloGold Ashanti methodology.

AGA Mineração — Cuiabá

#### **EXCLUSIVE MINERAL RESOURCE**

AGA Mineração – Cuiabá		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category		g/t		Moz
	Measured	4.05	10.87	44.01	1.41
	Indicated	0.89	18.89	16.85	0.54
	Inferred	6.73	11.06	74.52	2.40
	Total	11.68	11.59	135.38	4.35

The exclusive Mineral Resource consists primarily of the Inferred Mineral Resource that is in the process of being upgraded via infill drilling. The exclusive Mineral Resource is located below infrastructure, starting on level 18 (at Fonte Grande Sul and Serrotinho), level 15 (at Galinheiro), between level 10 and corresponding sub-levels to level 14 as well as below level 16 (at Galinheiro Footwall), between levels 15-16 as well as below level 17 (at Balancão and Canta Galo), and below level 21 (Fonte Grande Sul Deeps and Serrotinho Deeps). In addition, secondary areas consisting of old stoping panels, quartz vein orebody and satellite deposits, as well as sill pillars for all orebodies are also included.



Cuiabá mine is not sensitive to changes in gold price.

#### ORE RESERVE

#### **ORE RESERVE**

AGA Mineração – Cuiabá		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Main Deposits - Fonte Grande Sul	Proved	0.62	6.65	4.15	0.13
	Probable	0.81	6.25	5.06	0.16
	Total	1.43	6.43	9.21	0.30
Main Deposits - Serrotinho	Proved	0.18	7.88	1.38	0.04
	Probable	0.59	7.26	4.29	0.14
	Total	0.77	7.40	5.67	0.18
Narrow Veins – Balancão	Proved	0.67	4.68	3.12	0.10
	Probable	1.67	5.94	9.96	0.32
	Total	2.34	5.59	13.08	0.42
Narrow Veins – Galinheiro	Proved	0.41	6.20	2.51	0.08
	Probable	0.96	4.31	4.16	0.13
	Total	1.37	4.87	6.67	0.21
Narrow Veins - Canta Galo	Proved	0.05	3.79	0.17	0.01
	Probable	0.16	4.52	0.74	0.02
	Total	0.21	4.36	0.91	0.03
Secondary Areas – Galinheiro Footwall	Proved	_	_	_	_
	Probable	0.17	7.16	1.19	0.04
	Total	0.17	7.16	1.19	0.04
AGA Mineração – Cuiabá	Total	6.28	5.85	36.73	1.18



#### **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.

#### **ORE RESERVE MODIFYING FACTORS**

AGA Mineração – Cuiabá	Gold price	Cut-off grade	Stoping width	Dilution	MCF	MetRF
as at 31 December 2016	BRL/oz	g/t Au		%	%	%
Main Deposits – Fonte Grande Sul	4,041	3.07; 3.61*	600.0	44.6	94.1	93.3
Main Deposits – Serrotinho	4,041	3.07; 3.61*	600.0	46.8	94.1	93.3
Narrow Veins – Balancão	4,041	3.07; 3.61*	200.0	52.3	94.1	93.3
Narrow Veins - Galinheiro	4,041	3.07; 3.61*	200.0	44.4	94.1	93.3
Narrow Veins - Canta Galo	4,041	3.07; 3.61*	200.0	38.4	94.1	93.3
Secondary Areas – Galinheiro Footwall	4,041	3.07; 3.61*	400.0	36.1	94.1	93.3

<sup>\*</sup> COG = 3.07g/t in areas where primary development already done; COG = 3.61g/t in areas where primary development not yet in place

Two cut-off grades are calculated and applied in the Ore Reserve estimation process. The higher cut-off grade is applied upon the Mineral Resource which are still to be accessed by primary development, bearing such costs and additional projected capital expenses (full cut-off grade); the lower cut-off grade is applied upon the Mineral Resource where primary development already exists, which bear all the downstream costs, except for capital development (COG without development).

Dilution is considered in two stages: planned dilution, inherent to the mining area, is incorporated as a function of operational needs, related to the size of the equipment involved; operational dilution, which is a result of drilling and blasting processes, ore mucking in the stopes, and its transfer to the loading station, follows. The latter is independent of the width of the structure and has been considered as of 5% for cut-and-fill and 12% for longhole mining method.

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

AGA Mineração – Cuiabá	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Main Deposits – Fonte Grande Sul	0.08	5.74	0.45	0.01
Main Deposits - Serrotinho	0.24	7.00	1.65	0.05
Narrow Veins – Balancão	0.57	7.30	4.14	0.13
Narrow Veins – Galinheiro	0.37	4.54	1.69	0.05
Narrow Veins - Canta Galo	0.15	5.56	0.82	0.03
Secondary Areas - Galinheiro Footwall	0.14	4.81	0.69	0.02
Total	1.54	6.11	9.44	0.30

According to the standards adopted by AngloGold Ashanti, Inferred Mineral Resource is included for the purpose of defining the business plan and is associated with an exploration plan, but is not included as Ore Reserve.

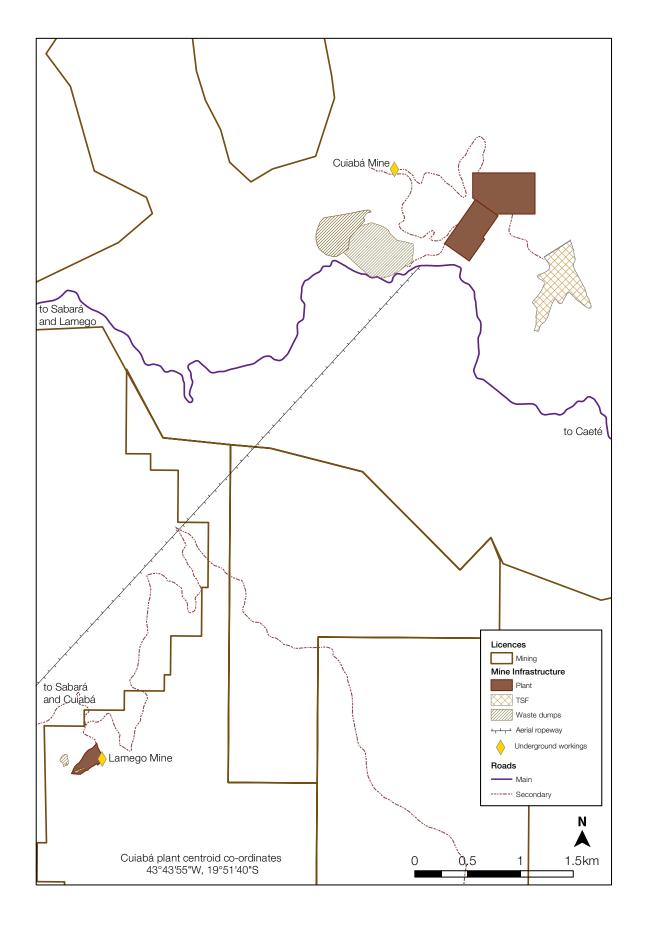


# AMERICAS continued AGA Mineração - Lamego

## INTRODUCTION

Property description  Location	An ongoing underground operation, wholly-owned by AngloGold Ashanti, with an estimated production rate of 450ktpa until 2017, downsizing to 350ktpa thereafter.
Location	
	Lamego is located in the north west of the Iron Quadrangle, close to the Cuiabá gold mine. The mine is located to the east of Belo Horizonte, the capital of Minas Gerais State, in the southeast of Brazil.
History	Exploration began in the area in 1985 with a drilling campaign along a 5.7km strike length of iron formation and the opening of 2.5km of development of the Arco da Velha, Queimada and Cabeça de Pedra orebodies. After the successful completion of FS, project approval was given and implementation began in 2010 with first gold poured soon afterwards.
Legal aspects and tenure	The Lamego mining operation are hosted by three geographically contiguous DNPM concessions granted to AGA Mineração:
	<ul> <li>The DNPM Mining Concession 830.720/1981 with 577.14ha in area</li> </ul>
	The DNPM Mining Concession 831.554/1983 with 462.09ha in area
	The DNPM Mining Concession 832.238/2003 with 583.45ha in area
	A new Brazilian mining code is currently under discussion, however, it is not anticipated to change the company's rights, which are already established
Mining method	The mining methods are cut-and-fill and longhole open stope. Cut-and-fill is typically used for the larger mining areas, when the orebodies exceed 20m spans. While this method allows for selectivity, it has constraints in terms of productivity. Longhole open stope on the other hand is less selective, but allows higher productivity.
Operational infrastructure	As a satellite operation to Cuiabá, Lamego ore is primarily crushed at the site and hauled by trucks to Cuiabá.
	Ore is hauled in Lamego mine via ramps, one for each orebody, exiting the same portal, the average tramming distance is 4km for the 20t and 30t trucks. The ore is crushed by a primary crusher and transported by road to the Cuiabá flotation plant. The mine has an airflow as of 295m³/s. Lamego has a natural water supply system and a plant for water and sewage treatment.
Mineral processing	Cuiabá and Lamego mines feed the Cuiabá gold plant (flotation) and Queiroz (roaster, carbon circuit and refinery) plants, currently at 1.7Mtpa for a metallurgical recovery of 93.3%. At the Cuiabá gold plant, crushing and milling of the ore is followed by flotation and filtration in order to produce a concentrate, which is transported by aerial ropeway to Queiroz for further treatment. Approximately 25% to 30% of gold is recovered through a gravity circuit at the Cuiabá plant. The backfill plant is also located at Cuiabá. The Queiroz plant is located in Nova Lima, it was built with two different metallurgical routes to treat refractory ore and non-refractory ore. The concentrate is roasted, and the calcine proceeds to a carbon circuit for further refining. The sulphide gas is captured for processing through the acid plant; approximately 230ktpa of sulphuric acid are produced as a by-product.
Risks	There are no major or significant risks. However, as a low grade operation, the accurate prediction of grade and the management of its variability is critical to ensure a successful operation.





AGA Mineração - Lamego

#### **COMPETENT PERSONS**

AGA Mineração – Lamego					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Rodrigo Martins	MAusIMM	311 050	12 years	BSc (Geology)
					MSc (Geology)
Ore Reserve	Alexandre Heberle	MAusIMM	317 105	11 years	BSc (Mining Engineering)

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.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

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 meta-chert (MCH), while 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 phillite and clorite/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 north-east 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.

#### **MINERALISATION STYLE**

The gold mineralisation at Lamego is characterised by orebodies associated with two horizons of chemical sedimentary rocks: BIF and 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, while in the MCH and quartz veins, the gold occurs either as native gold or in sulphides. Lamego shows similar rock assemblage, but with higher structural complexity than Cuiabá. The BIF which contains the mineralisation is more structurally deformed and is sometimes described as a MCH.

#### **MINERALISATION CHARACTERISTICS**

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





#### **GEOLOGICAL CROSS-SECTION THROUGH CARRUGEM LEVEL 9.1 LAMEGO MINE**

#### **EXPLORATION**

In 2016, 11,543m of underground drilling was completed, with two of the main orebodies being prioritised, Carruagem Levels 9 to 10 and Queimada Level 4.

Carruagem orebody was drilled from the hangingwall drive developed for this purpose. Drilling along strike of the Carruagem orebody, testing the BIFs on the limbs and targeted Mineral Resource addition for the mine.

At Queimada the exploration drilling aimed at Mineral Resource conversion confirmed the expectation in terms of grades and continuity. Development is planned to intersect ore on Level 4 in 2017.

Exploration at Lamego continues to focus on identifying new Mineral Resource opportunities close to the current mine infrastructure.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

AGA Mineração – Lam	ego			ype of drillin			
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	10 x 12,	✓	_	_	1	_	_
	12 x 13,						
	20 x 10						
Indicated	125 x 25	✓	_	_	_	_	_
Inferred	300 x 50	✓	-	_	_	_	-
Grade/ore control	2 x 3	_	-	_	1	_	-

AGA Mineração — Lamego

#### **INCLUSIVE MINERAL RESOURCE**

AGA Mineração – Lamego		Tonnes	Grade	Contained gold	
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Main Deposits - Arco da Velha	Measured	0.60	3.85	2.30	0.07
	Indicated	0.79	3.76	2.96	0.10
	Inferred	0.70	2.53	1.77	0.06
	Total	2.09	3.37	7.03	0.23
Main Deposits - Cabeça de Pedra	Measured	0.37	3.68	1.36	0.04
	Indicated	0.78	3.24	2.54	0.08
	Inferred	0.93	3.12	2.92	0.09
	Total	2.09	3.27	6.82	0.22
Main Deposits – Carruagem	Measured	2.16	6.52	14.07	0.45
	Indicated	0.77	6.60	5.06	0.16
	Inferred	0.74	4.87	3.58	0.12
	Total	3.66	6.21	22.71	0.73
Secondary Areas – Queimada	Measured	0.00	6.10	0.03	0.00
	Indicated	0.50	5.52	2.75	0.09
	Inferred	0.56	5.39	3.02	0.10
	Total	1.06	5.46	5.79	0.19
Secondary Areas – Arco NE	Measured	-	-	_	_
	Indicated	_	_	_	_
	Inferred	0.76	3.22	2.45	0.08
	Total	0.76	3.22	2.45	0.08
AGA Mineração – Lamego	Total	9.65	4.64	44.80	1.44

#### **ESTIMATION**

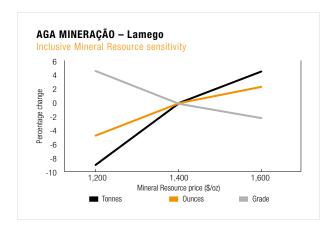
The geological model is used to sub-divide the sampling information into domains for estimation. The estimation method applied at Lamego is ordinary kriging and classification of the Mineral Resource is based on conditional simulation.

#### **EXCLUSIVE MINERAL RESOURCE**

AGA Mineração – Lamego		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category		g/t	tonnes	
	Measured	2.84	5.47	15.56	0.50
	Indicated	2.19	4.18	9.14	0.29
	Inferred	3.16	3.54	11.16	0.36
	Total	8.19	4.38	35.85	1.15

The exclusive Mineral Resource is made up of ore not included in the Ore Reserve, due to economic considerations plus the ore contained in the sill pillars and stope pillars. Those pillars have been designed in the Ore Reserve estimation process according to geomechanical parameters.





Lamego mine is insensitive to gold price changes within the \$1,200/oz to \$1,600/oz range.

#### ORE RESERVE

#### **ORE RESERVE**

AGA Mineração – Lamego		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Main Deposits - Arco da Velha	Proved	0.11	3.12	0.35	0.01
	Probable	0.26	3.04	0.79	0.03
	Total	0.37	3.07	1.14	0.04
Main Deposits - Cabeça de Pedra	Proved	-	_	_	_
	Probable	0.07	3.20	0.21	0.01
	Total	0.07	3.20	0.21	0.01
Main Deposits - Carruagem	Proved	0.27	4.51	1.23	0.04
	Probable	0.44	4.85	2.11	0.07
	Total	0.71	4.72	3.34	0.11
Secondary Areas – Queimada	Proved	0.00	4.75	0.02	0.00
	Probable	0.27	4.54	1.21	0.04
	Total	0.27	4.55	1.23	0.04
AGA Mineração – Lamego	Total	1.42	4.18	5.92	0.19

#### **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.

#### **ORE RESERVE MODIFYING FACTORS**

AGA Mineração – Lamego	Gold price	Cut-off grade	Stoping width	Dilution	MCF	MetRF
as at 31 December 2016	BRL/oz	g/t Au	cm	%	%	%
Main Deposits - Arco da Velha	4,041	2.43	350.0	14.9	94.5	93.3
Main Deposits - Cabeça de Pedra	4,041	2.43; 2.75	350.0	13.9	94.5	93.3
Main Deposits - Carruagem	4,041	2.43; 2.75	2,000.0	10.0	94.5	93.3
Secondary Areas – Queimada	4,041	2.75	350.0	15.0	94.5	93.3

Two cut-off grades are calculated and applied in the Ore Reserve estimation process. The higher cut-off grade is applied to the Mineral Resource which are still to be accessed by primary development, bearing such costs and additional projected capital expenses (full cut-off grade); the lower cut-off grade is applied to the Mineral Resource where primary development already exists, which carries all the downstream costs, except for capital development.

AGA Mineração — Lamego

Dilution is considered in two stages: planned dilution, inherent to the mining area is incorporated as a function of operational needs, related to the size of the equipment involved. Operational dilution, which is a result of drilling and blasting processes, ore mucking in the stopes, and transfer to the loading station, follows. The latter is independent of the width of the structure and has been considered as 5% for both cut-and-fill and longhole open stoping mining methods.

#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

AGA Mineração – Lamego	Tonnes	Grade	Contain	ed gold
as at 31 December 2016	million	g/t	tonnes	Moz
Main Deposits - Cabeça de Pedra	0.06	3.31	0.21	0.01
Main Deposits - Carruagem	0.05	4.26	0.22	0.01
Secondary Areas – Queimada	0.27	3.79	1.01	0.03
Total	0.38	3.77	1.43	0.05

According to the standards adopted by AngloGold Ashanti, Inferred Mineral Resource is included for the purpose of defining the business plan and associated with an exploration plan, but is not included as Ore Reserve.







### INTRODUCTION

Property description	Nova Lima Sul comprise the underground mines of Raposos and Morro da Glória. The project is currently in care and maintenance pending a decision around its future. No Ore Reserve is reported for 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 area corresponds to an area of 7,000km², close to the cities of Nova Lima, Raposos and Rio Acima.				
History	The first formal mining company to start operations in the area is São João Del Rey Mining Co. Ltd in 1834. It was subsequently acquired by Mineração Morro Velho in the early 1900s.				
	Raposos mine reported production from 1929 to 1999 is 1.08Moz.				
	Morro da Glória was an exploration project with drilling and underground exploratory development. Development to access the orebody produced 5,000oz from 1992 to 1994.				
Legal aspects and tenure	Nova Lima Sul is an exploration project wholly owned by AngloGold Ashanti and is made up of a number of DNPM Mining Concession including;				
	<ul> <li>Mining Concession No. 308-II 02/03/1936, DNPM 322/1973, covering an area of 2,826.33ha</li> </ul>				
	<ul> <li>Mining Concession No. 308-VI 02/03/1936, DNPM 326/1973, covering an area of 7,465.22ha</li> </ul>				
	<ul> <li>Mining Concession No. 308 V 02/03/1936, DNPM 325/1973, covering an area of 1,014.53ha</li> </ul>				
	New individual mining plans have to be delivered to the Federal Government (DNPM Federal Agency), if and when AGA Mineração decides to resume underground operations inside the geographic limits of each one of these three "inactive" mining concessions. In 2016 the Mineral Resource of Luzia da Motta was written-off due to environmental restrictions with the creation of a preservation area, called Serra do Gandarela National Park.				
Mining method	Raposos mine operated with a cut-and-fill method.				
Operational infrastructure	Raposos mine has significant amount of underground development, a shaft and a cableway to take the ore to Queiroz Plant. Morro da Glória has some underground drifts developed.				
Mineral processing	Raposos mine circuit was a standard direct 1,000tpd gold-leaching circuit suitable for non-refractory material.				
Risks	The project has been on care and in maintenance for a number of years.				

### **COMPETENT PERSONS**

AGA Mineração – Nova Lima Sul							
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification		
Mineral Resource	Rodrigo Martins	MAusIMM	311 050	12 years	BSc (Geology) MSc (Geology)		

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

AGA Mineração - Nova Lima Sul

#### **GEOLOGY**

#### **DEPOSIT TYPE**

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 age. The stratigraphic sequence, repeated by folds, has ultramafics at the base, overlain by komatiitic basalts and andesites with layers of BIF. Pelites and meta-volcaniclastic occur at the top of the sequence. The BIF is oxide facies (magnetite and quartz), with carbonatisation in the mineralised areas.

In the Morro da Glória area the rocks consist of komatiitic ultramafics, graphitic phylite, felsic meta-volcaniclastics associated with meta-pelites and several layers of BIF.

The macro structures 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.

#### **MINERALISATION STYLE**

The Nova Lima Sul targets are situated in the south-western portion of the Iron Quadrangle in the state of Minas Gerais, in 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 tholeitic-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 BIF and lapa seca (albitised hydrothermal rocks).

#### **MINERALISATION CHARACTERISTICS**

Mapped deposit dimensions vary in thickness from around 0.5m to 20m and can be more than 5,000m in length (down plunge). The plunge is defined by the stretching lineation and it is parallel to the fold axis of the first two regional deformation events. The mineralisation is primarily located in the BIF and surrounded by concentric hydrothermal alteration zones consisting of sericitisation, carbonatisation and chloritisation.

#### **EXPLORATION**

In 2016 no exploration was completed in the Nova Lima Sul region. Nova Lima Sul exploration targets comprise the Raposos underground mine, the Mina Grande, Morro da Glória, Bicalho, Faria, Bela Fama mines, as well as the old prospects (Luzia da Mota, Limoeiro) and several old surface workings (Saboeiro Rasgão, Urubu and Luzia's Mina Grande).

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

AGA Mineração – Nova Lima Sul		Type of drilling					
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	30 x 30	✓	_	_	_	✓	-
Indicated	60 x 60	1	-	_	_	✓	-
Inferred	100 x 100	1	-	_	✓	_	-
Grade/ore control	3 x 3	_	-	_	_	1	=



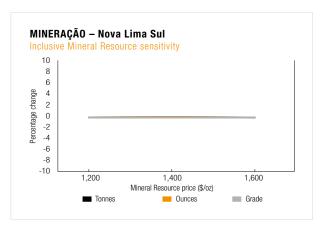
#### **INCLUSIVE MINERAL RESOURCE**

AGA Mineração – Nova Lima Sul		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	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
AGA Mineração – Nova Lima Sul	Total	4.10	6.53	26.80	0.86

#### **ESTIMATION**

Morro da Glória has been estimated using ordinary kriging and the Raposos mine in the Nova Lima Sul project was estimated using UC.

The Nova Lima Sul project currently does not have any declared Ore Reserve and the exclusive and inclusive Mineral Resource numbers are therefore identical.



Nova Lima Sul is not sensitive to changes in gold price in the range \$1,200/oz to \$1,600/oz.

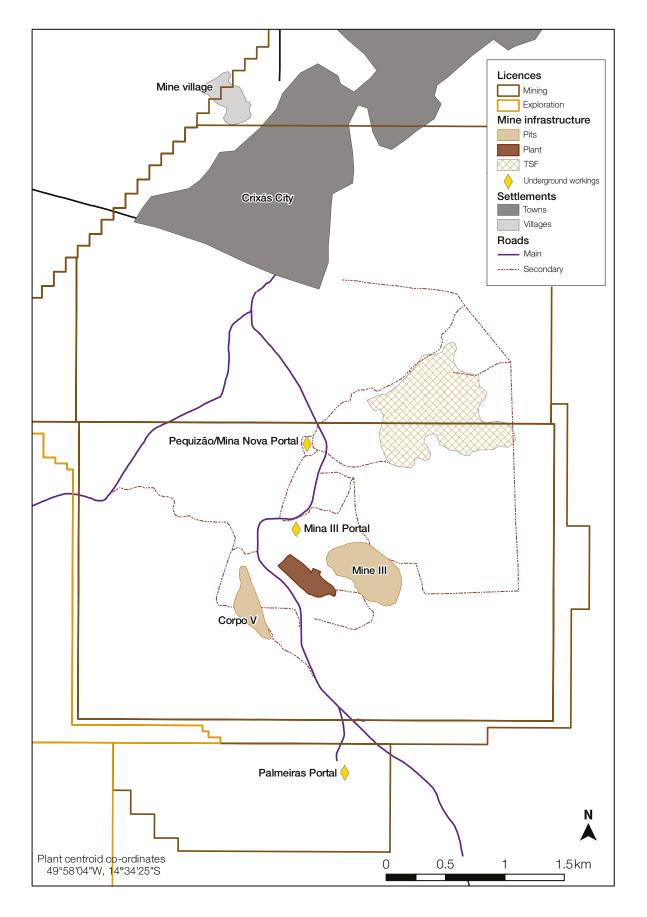


# AMERICAS continued Serra Grande

# INTRODUCTION

Property description	Mineração Serra Grande (MSG or Serra Grande) is 100% owned by AngloGold Ashanti and is located in the north-western area of the Goiás State, central Brazil. It operates three underground and two open pit mines.
Location	Serra Grande is located 5km southern of the town of Crixás, 420km from the Brazilian capital, Brasilia and about 350km from the state capital of Goiás, Goiânia. Employing 1,120 persons in this largely rural area means that the mine represents the principal economic activity in the region.
History	Exploration works begun in 1973 with a phase of detailed mapping and DD continued until 1976. The mining operation started up in 1986 in Mina III and the metallurgical plant start up was in 1989.
	MSG production peaked at 210koz/year supported by high grades. In 2009, the metallurgical plant was expanded to 1.3Mtpy to compensate for a declining grade-profile. In 2012, AngloGold Ashanti acquired the 50% stake that belonged to the Kinross Group.
Legal aspects and tenure	Serra Grande has interest or agreements over 61,500ha in the Crixás Greenstone belt, through a series of DNPM mining leases and exploration permits. The mining concessions include:
	<ul> <li>002.286/1935, covering an area of 4,206.88ha</li> </ul>
	<ul> <li>960.658/1987, covering an area of 1,946.89ha</li> </ul>
	• 860.746/2005, covering an area of 88.28ha
	<ul> <li>862.103/1994, covering an area of 125.41ha</li> </ul>
	<ul> <li>804.366/1975, covering an area of 196.05ha</li> </ul>
	Brazilian mining concessions remain valid up to the depletion of the Ore Reserve and Mineral Resource. A new Brazilian mining code is currently under discussion, however, it is not anticipated to change the company's rights, which are already established.
Mining method	Serra Grande operation comprises three underground mines, namely Mina III (including Orebody IV, V and Ingá), Mina Nova (including Pequizão Orebody) and Mina Palmeiras. The open pits are the outcrop of Mina III Inferior and Structure IV zones. Three mining methods are being used underground: sub-level stoping (bottom-up and top-down), cut and fill, and room and pillar.
Operational infrastructure	MSG power supplies comes from government's local state concessionaire. The metallurgical plant has the capacity of 1.3Mtpa, combining Merrill Crowe's and gravimetric circuits. It operates a single tailings dam, which will be expanded in 2017 to support the LoM production, with government environmental licensing already available. The water used on metallurgical process comes from underground mines. The state road GO-337 passes alongside operation providing logistical facility to its supply chain.
Mineral processing	The ore is blended to feed the crushing circuit with 3,600tpd. There are two mills in operation, and 20 leaching tanks with capacity of 4,800m <sup>3</sup> divided on pre-liming and cyanidation stages. About 58% of free gold is captured in the parallel gravity circuit. The rest of the gold is recovered by the Merrill Crowe process to form the bullion that is sent to Nova Lima refining process.





Serra Grande

#### **COMPETENT PERSONS**

Serra Grande							
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification		
Mineral Resource and Ore Reserve	Diogo Afonso Costa	MAusIMM	311 574	14 years	BSc (Geology)		

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

The gold deposit is orogenic mesothermal, associated with the development of shear zones. The host rocks belong to the Upper Archaean Crixás Group. Gold mineralisation is associated with meta-sediments and meta-volcanics rocks from the Ribeirão das Antas and Rio Vermelho formations respectively. The Crixás Greenstone Belt is surrounded by granitic gneiss terrains from the Anta and Caiamar complexes and meta-sedimentary rocks from the Santa Terezinha Group, which is part of the Goiás magmatic arc.

#### **MINERALISATION STYLE**

The mine complex is located in the Crixás Greenstone Belt sequence, in the central portion of Brazil, and the main host rocks are the meta-sedimentary sequences with association with meta-volcanic meta-basic rocks. The mineralisation at MSG is associated with quartz veins and massive to disseminated sulphides in meta-sedimentary, meta-volcaniclastic and meta-basalt rocks, with differing degrees of hydrothermal alteration developed over orogenical stacked thrust layers (duplexes).

Two main deformation events are responsible by mineralisation style. The first event is the principal thrust event (east over west, called D1) and develops an irregular thrust ramp geometry. This event stacked and inverted the stratigraphic sequence. The second event (D2) was the Santa Terezinha sequence (Magmatic Arc) thrusting over Crixás Greenstone Belt, folding the rocks (F2) and generating the structures that control the gold mineralisation, generally parallel to the fold axis.

#### **MINERALISATION CHARACTERISTICS**

Geometry of the mineralised deposits is typically complex, pinch and swell, folded and boudinage shapes, dipping from 10° to 25° and with greatest continuity along north-west-plunging structures (azimuth 290°).

The mineralisation have been split into four main domains called structures – the thrust ramps themselves (named Structure II, III, IV and Palmeiras), and occurs as stacked lenses, generally concentrated in the same high deformation positions (with folds and disruptions) in the structures.

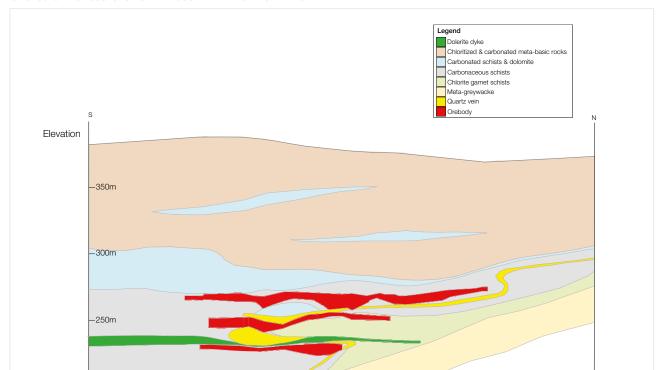
In Structure II the mineralisation is arsenopyrite associated with quartz as veinlets in carbonaceous meta-pelite.

In Structure III, the mineralisation is located in quartz veins that are hosted in carbonaceous schists, representing the highest gold grades (>8g/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, commonly named superior zones.

In Structure IV, the mineralisation comprise 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 north-west and the dips vary between 6° and 35°.

The Palmeiras structure is associated with hydrothermal alteration of meta-basalts, with sericite, chlorite, carbonate and massive sulphides (pyrrhotite).





#### **GEOLOGICAL CROSS-SECTION THROUGH MINA NOVA SERRA GRANDE**

#### **EXPLORATION**

-200m

The MSG exploration programme has added 1.8Moz of new Inferred Mineral Resource to its portfolio over the last five years with an average grade of 6.34g/t. The underlying strategy has been to add new high-grade Mineral Resource, such as Ingá, Mine II quartz vein below the level 700m and Crixás North, as well as to extend the LoM of current orebodies such as Pequizão, Palmeiras, Orebody IV and Mina Nova.

As part of the overall strategy 69,521m of DD for Mineral Resource addition purposes was completed in 2016, over the principal exploration targets of Orebody IV down Plunge, Mangaba, Structure II and Pequizão North. An additional 17,500m of Mineral Resource conversion drilling was drilled in Mina Nova, Mina III, Open pits and Ingá.

New regional targets are being generated through geochemistry, geophysics and geological mapping. The main prospects are the south and north vectors of the greenstone belt and the north Goiás Magmatic Arch. In 2016 the principal drilling was focused on upgrading the Palmeiras South Mineral Resource classification to Indicated Mineral Resource, new Mineral Resource addition in Ingá and Pequizão (Inferred Mineral Resource) and to identify new open pit targets such as Corpo V South, Dona Tereza so as to, extend the life of open pits to beyond 2021.

Deep drilling below the Pequizão mine has identified a new target named Mangaba which has the potential to increase the MSG Mineral Resource, additional drilling is planned for 2017. This discovery confirms the depth exploration potential of the Crixás Greenstone Belt.

50m

Serra Grande

#### **PROJECTS**

During 2016, the exploration campaign consolidated the geological potential of Ingá orebody. The main decline to the Ingá orebody developed 950m of the planned 1,300m and the start of production is scheduled for the first quarter of 2017.

In recent years the plant throughput of MSG has increased with the result that the filtering circuit has became an operational bottleneck. To fix this operational restriction, MSG has intitiated the Activated Carbon Project which is looking at replacing the filtering circuit with a CIL. Its overall objectives are to increase the production rate from 1,300ktpa to 1,350ktpa in the metallurgical plant by the debottlenecking.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Serra Grande			T	ype of drilling			
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured	10 x 10,	1	✓	✓	✓	✓	_
	20 x 10						
Indicated	20 x 50,	✓	✓	✓	✓	_	_
	25 x 25,						
	40 x 20,						
	40 x 40						
Inferred	50 x 100,	✓	_	_	-	-	=
	80 x 80,						
	100 x 50						
Grade/ore control	2 x 2,	✓	-	✓	✓	_	-
	10 x 10						

Serra Grande		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Mina Nova	Measured	3.10	3.47	10.75	0.35
	Indicated	1.06	3.20	3.39	0.11
	Inferred	2.04	3.55	7.27	0.23
	Total	6.20	3.45	21.40	0.69
Mina III	Measured	2.08	4.81	10.02	0.32
	Indicated	1.60	5.11	8.17	0.26
	Inferred	2.19	4.74	10.39	0.33
	Total	5.87	4.87	28.57	0.92
Palmeiras	Measured	0.21	7.18	1.49	0.05
	Indicated	0.30	5.73	1.70	0.05
	Inferred	0.97	4.71	4.58	0.15
	Total	1.48	5.26	7.77	0.25
Palmeiras Sul	Measured	_	_	_	_
	Indicated	0.06	6.62	0.42	0.01
	Inferred	0.12	6.78	0.78	0.03
	Total	0.18	6.72	1.20	0.04
Pequizão	Measured	1.28	4.20	5.37	0.17
	Indicated	1.18	3.95	4.66	0.15
	Inferred	3.87	3.74	14.48	0.47
	Total	6.33	3.87	24.51	0.79
Cajueiro	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	1.22	2.89	3.52	0.11
	Total	1.22	2.89	3.52	0.11

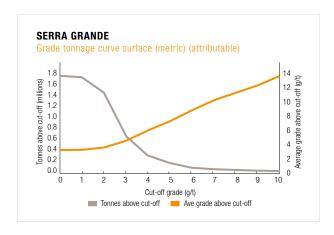


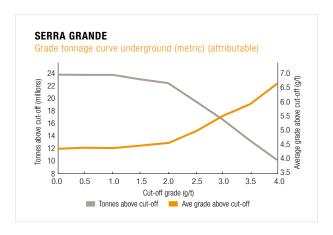
#### **INCLUSIVE MINERAL RESOURCE** (continued)

Serra Grande		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Ingá	Measured	0.01	29.60	0.19	0.01
	Indicated	0.56	7.70	4.33	0.14
	Inferred	1.95	6.87	13.42	0.43
	Total	2.52	7.11	17.93	0.58
Open pit	Measured	1.01	3.31	3.36	0.11
	Indicated	0.67	3.16	2.11	0.07
	Inferred	0.05	2.88	0.14	0.00
	Total	1.73	3.24	5.61	0.18
Total stockpiles	Measured	0.06	2.00	0.12	0.00
	Indicated	_	_	_	_
	Inferred	_	_	-	_
	Total	0.06	2.00	0.12	0.00
Serra Grande	Total	25.59	4.32	110.63	3.56

#### **ESTIMATION**

The grades estimation is performed by ordinary kriging using diamond, RC and channel samples from MSG database. All search distance are based on variographic studies for each orebody/structure. Classification is done through a combination of Conditional Simulation and sample spacing studies.





#### **EXCLUSIVE MINERAL RESOURCE**

Serra Grande		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	4.19	4.27	17.89	0.58
	Indicated	2.25	5.68	12.77	0.41
	Inferred	12.41	4.40	54.56	1.75
	Total	18.85	4.52	85.21	2.74

The exclusive Mineral Resource can be divided into three categories:

- Inferred Mineral Resource within the operating mines every year, this is partially upgraded through infill drilling based on the production plan
- that portion of the Mineral Resource that is not currently economically feasible
- that portion of the Mineral Resource that requires economic studies

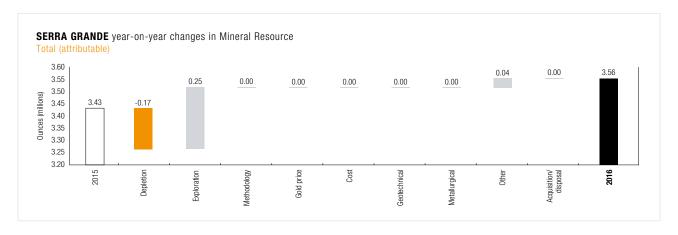
The exception to this is the Cajueiro deposit, located 10km from the Serra Grande site.

Serra Grande

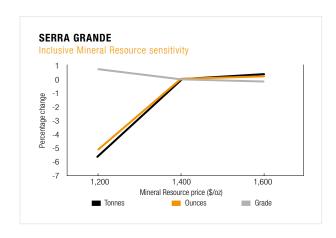
#### **MINERAL RESOURCE BELOW INFRASTRUCTURE**

Serra Grande		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category		g/t	tonnes	Moz
	Measured	0.01	29.60	0.19	0.01
	Indicated	0.46	6.97	3.21	0.10
	Inferred	12.36	4.40	54.41	1.75
	Total	12.83	4.51	57.80	1.86

The total Inferred Mineral Resource is considered below infrastructure, in addition some Indicated and Measured Mineral Resource from certain of the orebodies, such as Ingá, are also considered below infrastructure.



Changes mainly due to exploration additions from Ingá and Minas III and model changes.



The Mineral Resource at Serra Grande is relatively insensitive to changes in gold price. The change in Mineral Resource ounces between the US\$1,200/oz and US\$1,400/oz is within 5% of the 2016 Mineral Resource.





Serra Grande

### ORE RESERVE

#### **ORE RESERVE**

Serra Grande		Tonnes	Grade	Contained g	old
as at 31 December 2016	Category	million	g/t		Moz
Mina Nova	Proved	0.31	1.88	0.59	0.02
	Probable	0.77	2.16	1.67	0.05
	Total	1.09	2.08	2.26	0.07
Mina III	Proved	0.47	2.40	1.13	0.04
	Probable	0.65	3.07	2.00	0.06
	Total	1.12	2.79	3.13	0.10
Palmeiras	Proved	0.05	2.31	0.10	0.00
	Probable	0.14	2.33	0.31	0.01
	Total	0.18	2.32	0.42	0.01
Pequizão	Proved	0.53	2.28	1.20	0.04
	Probable	0.69	2.63	1.81	0.06
	Total	1.22	2.48	3.02	0.10
Ingá	Proved	_	_	_	_
	Probable	0.25	4.36	1.09	0.04
	Total	0.25	4.36	1.09	0.04
Open Pit	Proved	0.99	2.93	2.90	0.09
	Probable	0.70	2.75	1.93	0.06
	Total	1.69	2.85	4.82	0.16
Total stockpiles	Proved	0.06	2.00	0.12	0.00
	Probable	_	-	_	_
	Total	0.06	2.00	0.12	0.00
Serra Grande	Total	5.61	2.65	14.86	0.48

#### **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.

#### **ORE RESERVE MODIFYING FACTORS**

OKE KESEKVE MUDIFYING FACIORS								
Serra Grande	Gold	Cut-off	Stoping width	Dilution	Dilution	MRF	MCF	MetRF
Serra Grande	price	grade	width	Dilution	Dilution		IVIGE	Weinr
as at 31 December 2016	BRL/oz	g/t Au	cm	%	g/t	on tonnes)	%	%
Mina Nova	4,041	2.45	180.0	16.7	0.03	85.3	95.0	88.9
Mina III	4,041	2.45	180.0	16.7	0.03	85.3	95.0	91.8
Palmeiras	4,041	2.45	180.0	16.7	0.03	85.3	95.0	90.1
Pequizao	4,041	2.45	180.0	16.7	0.03	85.3	95.0	90.7
Ingá	4,041	2.45	180.0	16.7	0.03	85.3	95.0	94.7
Open pit	4,041	2.45	180.0	9.0	0.03	85.3	95.0	91.9
Total stockpiles	4,041	_	_	_	_	_	_	88.5

Mining recovery and dilution are determined per mining method but are expressed as the average for this table. Plant recovery depends upon a fixed tailing grade of 0.23g/t



The main modifying factors can be divided in economic and operational ones.

Economic modifying factors are the gold price, exchange rate (BRL/US\$) and the cost matrix of the operation that is based on the previous year's production performance. These are then used to define the cut-off grades that are listed in the economic evaluation of each mineable block.

Operational factors are based in historical data and usually defined by the last year performance. Among the most important ones, can be mentioned the minimum mining width, operational dilution, mining recovery, mine call factor and metallurgical recovery. Operational factors are used to design Ore Reserve solids or applied directly in the solid evaluation to estimate the Ore Reserve of each stope.

Mining recovery and operational dilution used in the determining of the Ore Reserve are mining method specific.

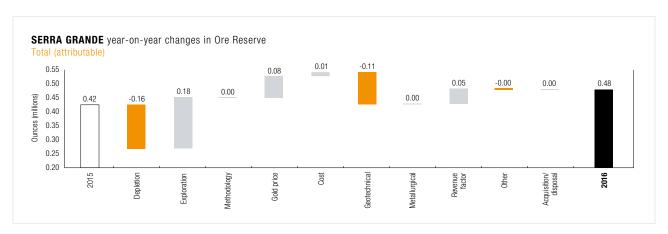
#### **INFERRED MINERAL RESOURCE IN BUSINESS PLAN**

No Inferred Mineral Resource was included in the Ore Reserve, 29% of the LoM plan is Inferred Mineral Resource that Serra Grande considers possible to apply the modifying parameters with consistency and reliability.

#### **ORE RESERVE BELOW INFRASTRUCTURE**

Serra Grande		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category		g/t	tonnes	Moz
	Proved	0.31	2.49	0.77	0.02
	Probable	0.76	3.25	2.47	0.08
	Total	1.07	3.03	3.24	0.10

Most of the ounces below infrastructure are categorised as Probable Ore Reserve from the bottom of sub-level stoping panels that have at least the top ore drift opened and sampled.



Ore Reserve variation due to exploration changes mainly at Mina III, Pequizão and Ingá, higher local gold prices and lower costs (exchange rate) which were offset by revised dilution and recoveries at Mina III.

# Colombia

#### COUNTRY OVERVIEW

Systematic regional greenfields exploration has been undertaken by AngloGold Ashanti and its JV partners (B2Gold, Glencore International and Mineros S.A.) in Colombia since 2004. AngloGold Ashanti consolidated its tenement position from roughly 100,000km² in 2009 to a core area of 2,131km² at the end of 2015.

At the Gramalote JV (AngloGold Ashanti, 51% and B2Gold, 49%), AngloGold Ashanti is currently responsible for the management of the project.

At the wholly-owned La Colosa project, infrastructure drilling continued after area adjustment permitting for new platforms was successfully completed. PFS development has focused 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.

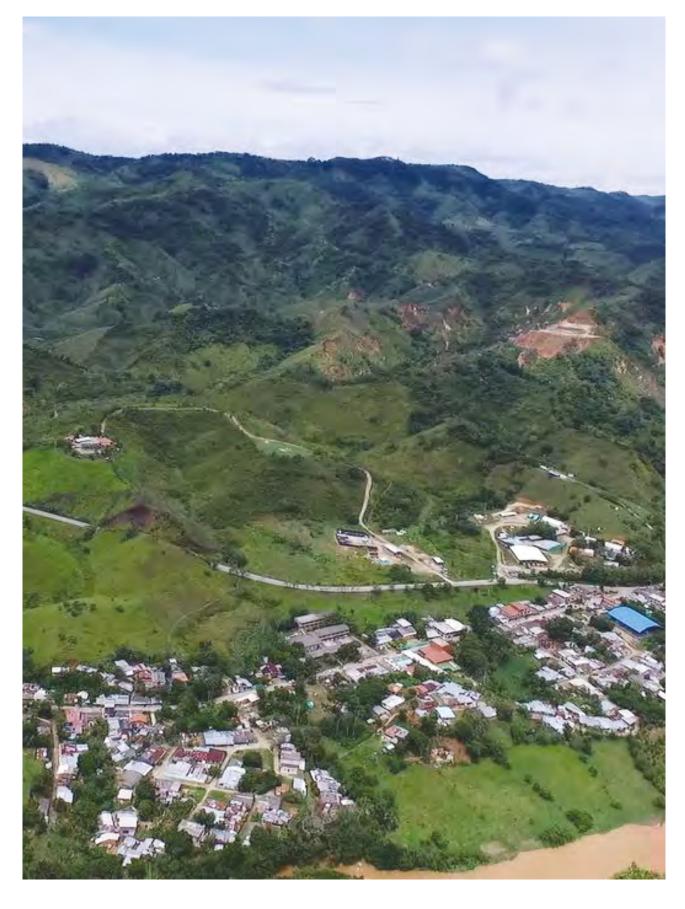
Nuevo Chaquiro is a significant new copper-gold porphyry-style mineralised system that is located within the Quebradona Project, which is a JV between AngloGold Ashanti 92.72% and B2Gold 7.28%. B2Gold is not participating in the exploration expenditure and its interest in the project is being diluted. The Quebradona Project is situated in the Middle Cáuca region of Colombia, in the Department of Antioquia, 60km south-west of Medellin. Nuevo Chaquiro, is one of five known porphyry centres on the property and has been the focus of exploration activities since the beginning of 2012.



#### **INCLUSIVE MINERAL RESOURCE**

Colombia		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
	Measured	17	0.79	13	0
	Indicated	999	0.80	796	26
	Inferred	859	0.42	359	12
	Total	1,875	0.62	1,168	38

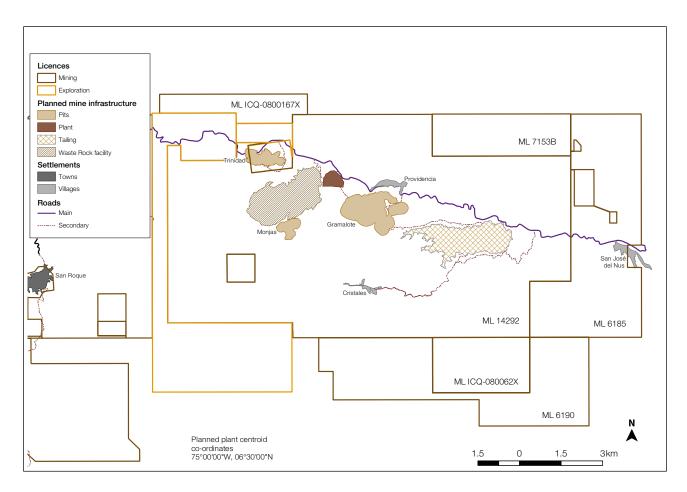




# AMERICAS continued Gramalote

# INTRODUCTION

Property description	Gramalote is a JV between AngloGold Ashanti (51%) and B2 Gold (49%). The project Mineral Resource comprises ounces from three orebodies, namely Gramalote Central, Monjas and Trinidad.
Location	The Gramalote property is located on the eastern flank of the Cordillera Central near the towns of Providencia and San Jose del Nus in the municipality of San Roque, north-west of Antioquia Department. It is approximately 230km north-west of Bogotá and 124km north-east of Medellin.
History	The region encompassing Gramalote has a long history of artisanal gold. Gramalote itself has had small scale artisanal mining for several decades prior to exploration work and mineral discovery by AngloGold Ashanti. Drilling commenced in 2006. In 2010, AngloGold Ashanti became the operator with a 51% share. Sufficient work has been completed to enable a PFS to be generated in late 2013. Based upon continued growth of the Mineral Resource, significant processing opportunities generated by the project team, and ongoing capital and operating cost optimisations, an update of the original PFS is currently underway.
Legal aspects and tenure	The Gramalote project area is covered by a total of 16 contract concessions of 33,028.45ha, one exploration licence of 2,292.81ha and two applications of 10,002.98ha.  7153B, 745, 83ha, expires 2037-01-17  6192B, 18.92ha, expires 2039-01-28  6386B, 2,418.28ha, expires 2039-02-11  6386, 1,250.36ha, expires 2039-02-11  6194, 5,588.49ha, expires 2039-02-16  7519, 54.59ha, expires 2039-02-18  14292, 9,412.91ha, expires 2043-04-02  6195, 5,914.86ha, expires 2040-05-17  6189, 1,971.93ha, expires 2041-05-26  7589, 51.75ha, expires 2039-02-16  ICQ-080062X, 690.35ha, expires 2041-05-09  ICQ-0800167X, 437.82ha, expires 2041-05-09  7676, 504.98ha, expires 2039-07-15  6185, 2,168.42ha, expires 2039-01-26  6190, 1,785.00ha, expires 2039-01-27  4894, 2,292.81ha, exploration licence  LJC-08012, 137.44ha, application  OHQ-16081, 9,865.54ha, application
Mining method	Gramalote is planned to be a relatively large scale open pit mining operation with an estimated LOM of 13 years (plus one year of pre-stripping)
Operational infrastructure	Currently the project has a field infrastructure that supports PFS studies with roads, accommodations, office, infrastructure for logging and sampling the drill cores and a core shed facility.
Mineral processing	The project is under development but the following process plan is being considered:
	<ul> <li>A planned plant throughput of 11Mtpa (fresh ore) and 4Mtpa (oxide) giving a production of around 350koz per annum</li> </ul>
	<ul> <li>Gold recovery process: Semi-autogenous milling circuit/flotation/leaching of concentrate including upgrade by sorting feed to the sulphide plant in year three and a separate circuit for oxide treatment</li> <li>Conventional tailings deposition with sand dam</li> </ul>
	OSTITOTIONAL CHILINGS GOPOGROFF WILLT GATE



#### **COMPETENT PERSONS**

Gramalote					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Claudio Devaux	MAusIMM	315 689	29 years	BSc Hons (Geology)

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

Gramalote is a pluton-related, mesothermal gold prospect related genetically to the host intrusion. The alteration and mineralisation is structurally controlled, restricted to small haloes along veins, sheeted veins and stockworks arrays. The sulphides content is less than 5%. Some evidence indicates that the host rock is directly related to fluids evolved from the cooling pluton, including pegmatite, aplite and K-feldspar alteration.

Gramalote

#### **MINERALISATION STYLE**

The Gramalote property is located in the northern portion of Colombia's Central Cordillera. The terrain is completely underlain by medium to coarse-grained biotite +\- hornblende tonalite and granodiorite of the Cretaceous Antioquia Batholith.

Subsequent drilling within an extensive mineral tenement block of some 35,000ha (exclusively retained under licence by the JV) identified three distinct mineral deposits (Gramalote Central, Trinidad, and Monjas West) of common mineralisation and alteration and with vertical to sub-vertical mineral zones extending from tens of metres to over 200m, with variable lengths up to 1km, and extending several hundred metres to depth.

#### **MINERALISATION CHARACTERISTICS**

Gramalote is considered to be an intrusive-hosted structurally controlled stockwork gold and silver deposit.

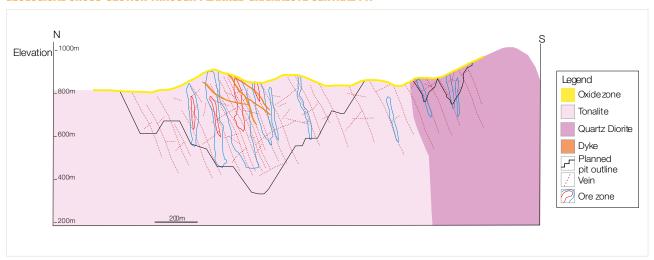
Mineralisation is controlled by north-east/south-west trending shear zones and north-northwest to south-southeast trending shear extensional zones affecting the tonalites and granodiorites of the Antioquia Batholith.

Gold mineralisation is associated with three overprinting texture destructive alteration assemblages including potassic, quartz-sericite and sericite carbonate. Within these alteration zones, anomalous gold mineralisation is associated with three specific types of stockwork quartz veining. These include quartz veinlets with fine-grained pyrite, quartz-carbonate veinlets and quartz veinlets with granular pyrite.

The saprolite (oxide) and "saprock" (transition) portions of the deposit represent a small percentage of the mineralisation. Saprolite thickness is variable from 5–30m, with an average thickness of 15m.

Petrographic work indicates the gold occurs as five to 20 micron sized particles associated with fractures and inclusions within pyrite and cavities associated with sulphosalts (aikinite PbCuBiS<sub>3</sub>, matildite AgBiS<sub>2</sub>) and tellurides (hessite (Ag<sub>2</sub>Te). The silver to gold ratio is approximately 1:1.

#### **GEOLOGICAL CROSS-SECTION THROUGH PLANNED GRAMALOTE CENTRAL PIT**





#### **EXPLORATION**

Exploration in 2016 was primarily focused on limited drilling work aimed to test the regional upside potential and drilling of the saprolite to assess its potential as a Mineral Resource. As at 31 October 2016 a total of 145,000m of exploration drilling plus a 240m underground tunnel through the orebody have been completed since the start of the project.

#### **PROJECTS**

A PFS update is currently underway and the final report study will be completed and delivered in September 2017. Main activities during 2017 include the initiation of the FS Mineral Resource drilling programme to minimise delays in the completion of next stage, the potential reporting of a maiden Ore Reserve as well as advance in the implementation of the coexistence and resettlement programme.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Gramalote			Type of drilling				
Category	Spacing m (-x-)	Diamond RC	ı	Blasthole	Channel	Other	Comments
Measured	25 x 25	1	_	_	_	_	
Indicated	50 x 50	1	-	-	-	_	
Inferred	100 x 100	1	-	-	-	_	
Grade/ore control	12 x 12	_	1	_	_	_	Test grade control pattern completed to confirm the UC parameters

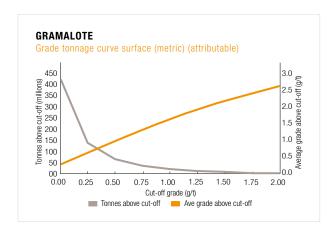
#### **INCLUSIVE MINERAL RESOURCE**

Gramalote		Tonnes	Grade	Contained g	jold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Gramalote Central	Measured	16.64	0.79	13.14	0.42
	Indicated	69.61	0.49	34.09	1.10
	Inferred	72.38	0.39	28.49	0.92
	Total	158.63	0.48	75.72	2.43
Trinidad	Measured	_	_	_	_
	Indicated	_	_	_	_
	Inferred	57.33	0.39	22.57	0.73
	Total	57.33	0.39	22.57	0.73
Monjas West	Measured	_	_	_	_
	Indicated	3.49	0.36	1.26	0.04
	Inferred	19.18	0.44	8.53	0.27
	Total	22.67	0.43	9.79	0.31
Gramalote	Total	238.64	0.45	108.08	3.47

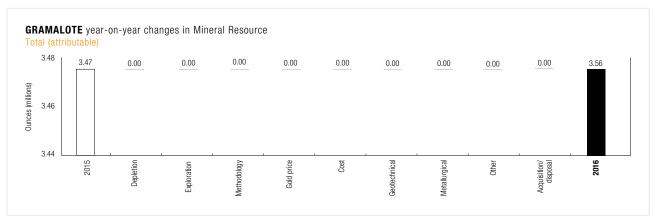
#### **ESTIMATION**

At Gramalote, results from about 145,000m of drilling (87,900m at Gramalote Central and 11,250m at the Trinidad area and 17,850m at Monjas West area) were used to support the estimation of the Mineral Resource. Mineral Resource modelling was performed using a geological model based on alteration, vein abundance and gold grade. Assay gold grades composited to 2m down-hole intervals and outliers are capped based on the distribution observations using probability plots by each estimation domains. LUC was used to estimate block grades and quantify the effect of selective mining.

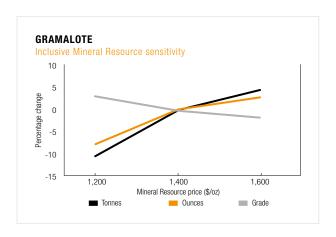
Gramalote







No changes took place to the Mineral Resource during the year.



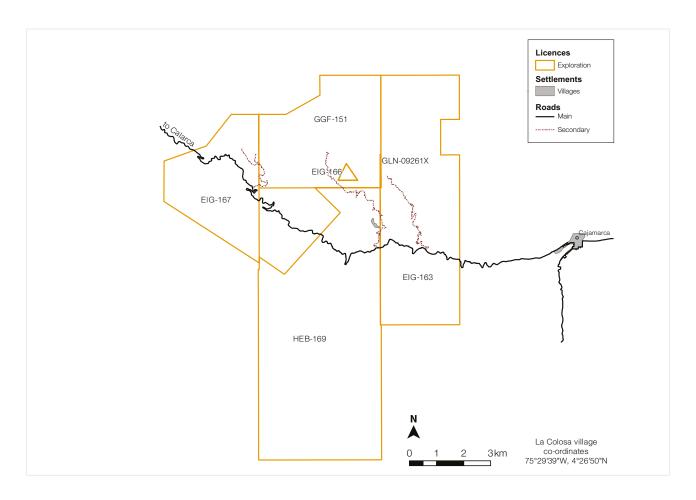
As a low grade deposit Gramalote is sensitive to changes in gold price.



## INTRODUCTION

Property description  Location	The exploration project is wholly owned by AngloGold Ashanti.
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.
History	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. Economic studies continue.
Legal aspects and	The La Colosa comprises of a number of exploration permits namely:
tenure	• EIG-163 comprising 2,581.83ha finishing the ninth year of exploration (third extension of exploration)
	EIG-166 comprising 21.96ha in the third year of construction
	• EIG-167 comprising 1,237.62ha in the second year of exploitation
	• GLN-09261X comprising 3.63ha running the ninth year of construction (third extension of exploration)
	HEB-169 comprising 3,861.45ha in the second year of exploitation
	• GGF-151 comprising 1,553.85ha starting the ninth year of exploration (third extension of exploration)
	The ANM (National Mining Agency) has approved the concept of mineral tenement integration and the proposed mineral exploration work plan. Final approval and contract registration of the integrated mining rights is outstanding.
	MADS (Environmental Ministry) has published the coordinates of the Chili-Barragan Páramo (alpine tundra ecosystem) in the east of the project an area where mining is not permitted. Around 84ha overlap with the integrated mineral tenement but do not affect the project as such. A recent ruling by the government delineating the Los Nevados Páramo (across the remainder of the deposit) to 3,200m is currently being reviewed by AngloGold Ashanti.
	Exploration has been restricted in the Instituto Nacional de Vías (INVIAS) area of influence for the La Linea tunnel.
Mining method	The project is still under development, but the concept is a large open pit.
Operational infrastructure	Currently the project has a field infrastructure that supports access to the Mineral Resource with roads, accommodation, office and surface infrastructure for pre-logging and organisation of the drilling core, complementary to that there is a core shed facility in the city of Ibague, where geological and geometallurgical logging are performed.
Mineral processing	The project is currently at an early stage and the flotation of the sulphide ore is being considered.
Risks	The La Colosa project is at an early stage and a number of possible technical options have been identified, all of which require significant capital. Efforts to reduce capital thorough optimisation are ongoing.
	The political risks associated with the mining industry in Colombia specifically in the Tolima department need to be considered.
	The recent ruling from the government delineating the Los Nevados Páramo to 3,200m is currently being contested. If unsuccessful, this will have a significant impact on the Mineral Resource being reported and on the project as a whole.

La Colosa



#### **COMPETENT PERSONS**

La Colosa								
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification			
Mineral Resource	Rudolf Jahoda	MAusIMM	990 544	25 years	MSc (Mining Geology)			
					PhD (Geology)			

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

#### **GEOLOGY**

#### **DEPOSIT TYPE**

Preliminary studies on the mineralogy, fluid inclusion assemblages and geochemistry indicate that a younger hydrothermal event overprints the previous porphyry-style mineralisation event. These younger veinlets consist of quartz (colloform-crustiform texture) together with adularia and gold with narrow alteration halos of illite, sericite and carbonates. A distinct temperature-salinity environment marks this high grade ore zone (>2g/t gold average), which is spatially and genetically controlled by a N-trending corridor of tension gashes, crossing the magmatic complex and extending towards the metamorphic rocks in the northern areas.



#### **MINERALISATION STYLE**

The La Colosa project is centered on a late Miocene (8.1Ma) multiphase diorite porphyry gold complex intruded into reduced Paleozoic meta-sedimentary rocks. Although the porphyry system is generally copper-poor, a 0.1 – 0.2%Cu anomaly associated with Mo>150ppm 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 gold-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-north-east, the contacts are mostly structurally bound. Intermineral and late dacitic dykes extend both north and south into the foliated schistose hornfels.

Previous extension drilling has better defined the porphyry contacts and high-grade mineralisation along structural corridors. Additional upside for mineralisation occurs to the north-west of the porphyry – (sub) epithermal targets and at depth.

San Antonio is a separate much smaller porphyry centre 1.2km south of La Colosa and characterised by hydrothermal and intrusion breccias associated with intermineral diorites and a late dacite stock.

#### **MINERALISATION CHARACTERISTICS**

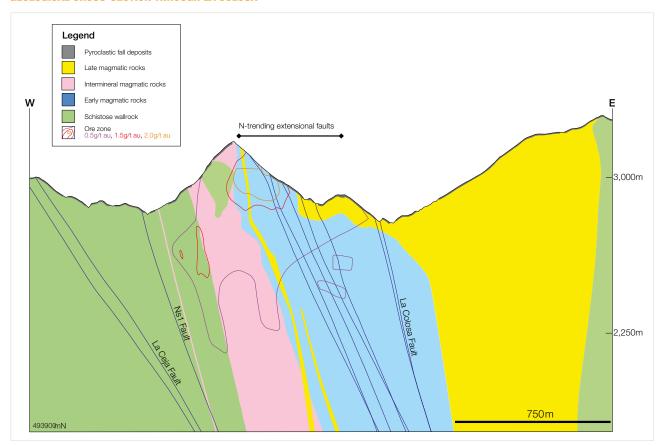
Three types of porphyry-style hydrothermal alteration are associated with magmatic activity:

- potassic alteration (mainly secondary biotite), which occurs as pervasive replacement of ferromagnesian minerals and matrix in the early and intermineral phase rocks
- sodic-calcic alteration (albite, actinolite and epidote), which is confined to cm-scale patches in the early and intermineral stage rocks
- propylitic alteration (chlorite, epidote, albite and carbonates) within the late magmatic stage. Multiphase silicification occurs within the schistose metamorphic rocks

Six major types of veinlets have been identified at the La Colosa project area. The veinlets occur in the magmatic rocks as well as in the metamorphic rocks. The veinlet sequence is (from oldest to youngest): EB-type, A-type, M-type, S-type, D-type, and CC-type.



#### **GEOLOGICAL CROSS-SECTION THROUGH LA COLOSA**



#### **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.

The current exploration strategy is to define an Indicated Mineral Resource, centered on the conceptual pit shell and extend the known high-grade mineralisation. The average drill spacing of  $100m \times 100m$  has been reviewed for Mineral Resource classification. Conversion to Indicated Mineral Resource has been allowed for sectors with a drill spacing of  $75m \times 75m$ .

A total of 138,969m (397 holes) have been drilled to date.

#### **PROJECTS**

A Conceptual study was presented in October 2015 considering a mine and whole ore leach processing plant of a reduced size of 23Mtpa and all facilities located "on mountain". Project economics were favorable leading to the initiation of a PFS study on this reduced size option with the work emphasis on confirmation of the suitability of the proposed tailings and waste rock storage area and optimisation of the processing circuit.

Geometallurgical studies related to comminution modelling focused on obtaining hardness parameters are advancing. The metallurgical data has been correlated with multi-element assay and spectral mineralogical data to obtain proxies for metallurgical parameters. The comminution parameters have been kriged and a preliminary throughput model has been obtained.



#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

La Colosa			Ty	pe of drilling	]		
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other	Comments
Measured		-	_	_	_	_	_
Indicated	75 x 75	✓	_	_	_	-	_
Inferred	100 x 100	✓	_	_	_	-	_
Grade/ore control		_	_	_	_	_	_

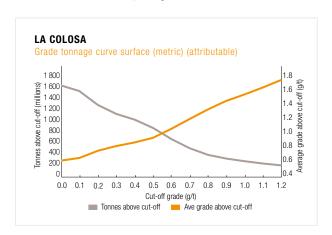
#### **INCLUSIVE MINERAL RESOURCE**

La Colosa		Tonnes	Grade	Contair	ned gold
as at 31 December 2016	Category	million	g/t		Moz
Open pit	Measured	_	_	_	_
	Indicated	821.67	0.85	695.68	22.37
	Inferred	242.51	0.78	189.65	6.10
La Colosa	Total	1,064.18	0.83	885.33	28.46

#### **ESTIMATION**

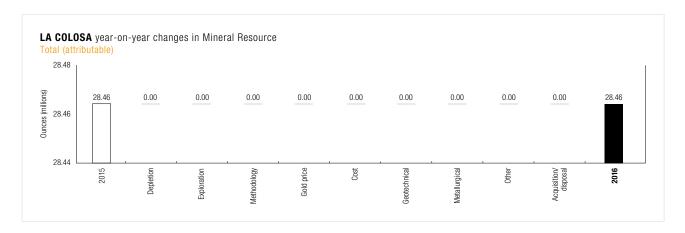
At La Colosa, some 138,969m of drilling supported the estimation of an Indicated Mineral Resource. Gold grades were estimated using ordinary kriging. Kriging was performed into a block size of 50m x 50m x 10m using lithological domains (wireframes) in a grade-based mineralisation envelope and also for the waste surrounding the mineralisation. All available geological drill holes, surface sampling and mapping information was validated for use in the modelling process.

The La Colosa Mineral Resource is reported at a cut-off grade of 0.35g/t. The mineralisation has been classified on the basis of kriging variance related to drill spacing.

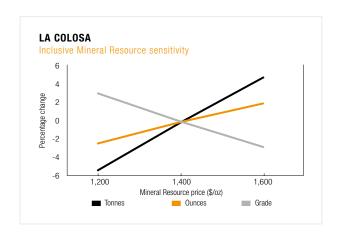




La Colosa



Only sterilisation drilling has been carried out in 2016. There is no change therefore to the overall Mineral Resource.



La Colosa is a high volume, low grade mineral occurrence. The Mineral Resource is insensitive to gold price.





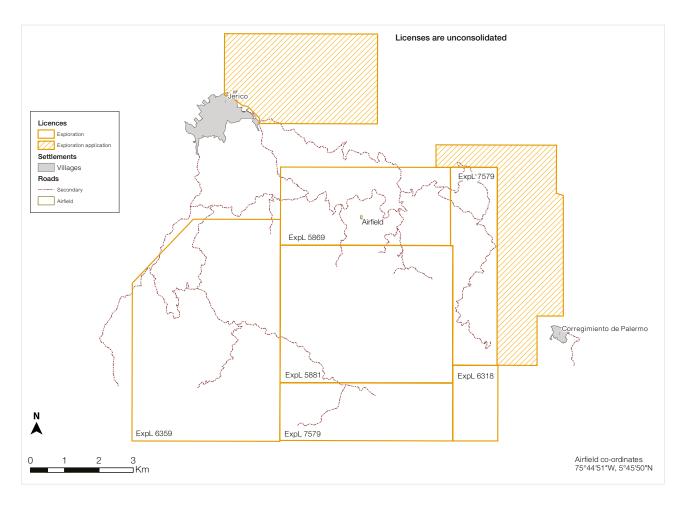
# AMERICAS continued Quebradona

# INTRODUCTION

Property description	Quebradona is an exploration project having completed a Conceptual study and starting PFS. It is a JV between AngloGold Ashanti (92.72%) and B2Gold (7.28%). Five main targets have been identified, namely Nuevo Chaquiro, Aurora, Tenedor, Isabela and La Sola. Nuevo Chaquiro is the most advanced of the targets.
	Nuevo Chaquiro, a significant copper-gold porphyry-style mineralised system, is one of five known porphyry centres on the property and has been the focus of exploration activities since the beginning of 2011.
Location	The Quebradona project is situated in the Middle Cáuca region of Colombia, in the Department of Antioquia, 60km south-west of Medellin.
History	Exploration was carried out from 2004 by AngloGold Ashanti and then from 2006 to 2009 by B2Gold. In 2010 AngloGold Ashanti took management control and focused its exploration effort on Nuevo Chaquiro, a significant copper-gold porphyry-style mineralised system. One of five known porphyry centres on the property and this has been the focus of exploration activities since the beginning of 2011. In 2014 a maiden Mineral Resource was published for Nuevo Chaquiro and a Conceptual study was initiated. Updates of the Mineral Resource model were completed in 2015 and 2016 and did not show significant changes in metal content.
Legal aspects and tenure	On December 2016 the integration of the five tenements (7,579; 6,359; 5,869; 5,881 and 6,318) was successfully registered in the National Mining Register resulting in a unique mining title comprising 7,593ha.  • 5,881 issued on the 9 December 2016 for 7,593ha
Mining method	No mining activities. From the Conceptual study completed, mining will be by sub-level caving with ore access being by both an upper and a lower access tunnel. The mining rate will be 5Mtpa ore.
Operational infrastructure	The Conceptual study indicates that the overall project layout and configuration will have nearly all activity in the lower areas of the project. Included here will be the primary mine access tunnel (which will serve as ore conveyance as well), processing plant, tailings dam and associated facilities. The upper area includes the orebody and will maintain only auxiliary access, ventilation, and minor support structure for the mine.
Mineral processing	Metallurgical test are in progress. From the Conceptual study, plant operations will utilise standard copper/gold flotation and recovery via filtration of a concentrate. Plant throughput will be 5Mtpa of ore generating approximately 204Ktpa of concentrate. Concentrate will be transported by a combination of truck and rail to a seaport where concentrate will be bulk loaded for transportation to a smelter facility. Concentrate quality will be good and present no unusual commercial challenges for sales.
Risks	No siginificant risk identified. Confidence in the Mineral Resource increased during the year with the new infill drilling resulting in 37% (Au Ounces) of the total Mineral Resource being upgraded to an Indicated Mineral Resource. The PFS under consideration has approximately 78% of the Mineral Resource classified as an Indicated Mineral Resource. Variability in copper grade is low and high continuity was confirmed after the 2015 drilling. Security risk is considered low and Nuevo Chaquiro has a moderate seismic risk.







#### **COMPETENT PERSONS**

Quebradona					
Category	Competent Person	Professional organisation	Membership number	Relevant experience	Qualification
Mineral Resource	Pablo Luis Noriega	MAusIMM	315 688	17 years	BSc Hons (Geology)

The Competent Person consents to the inclusion of Exploration Results, Mineral Resource and Ore Reserve information in this report, in the form and context in which it appears.

### **GEOLOGY**

#### **DEPOSIT TYPE**

Main target Nuevo Chaquiro in Quebradona Project is a typical porphyry copper deposit with large tonnes and low grade with gold, molybdenum and silver by products.

The structural setting facilitated the intrusive bodies rise through of volcaniclastic sequence of Combia formation. The intrusives did not reach surface and remain as a blind deposit despite erosion acting for a significant period.

Quebradona

#### **MINERALISATION STYLE**

The Nuevo Chaquiro deposit consists of Miocene-aged diorite and main proportion of quartz diorite dykes and thin vertical stocks intruding a thick section of andesitic tuffs and volcaniclastics rocks of the Miocene-aged (6-10 My) Combia formation which fills a large pull-apart basin within the prospective middle Cauca belt of central Colombia. Depth to mineralisation from the surface is around 150–400m from NE to SW. Typical copper porphyry alteration zonation is evident with a high temperature, K-silicate central zone (biotite, magnetite, chalcopyrite, and molybdenite) which trends into an overlying sericitic alteration zone (muscovite, chlorite, quartz, pyrite,+-tourmaline) surrounded by more distal propylitic alteration (chlorite, epidote, illite, carbonate). There is also an inner core of calcic-potassic alteration featuring biotite, actinolite, epidote, and anhydrite with lesser copper, gold and molybdenum values.

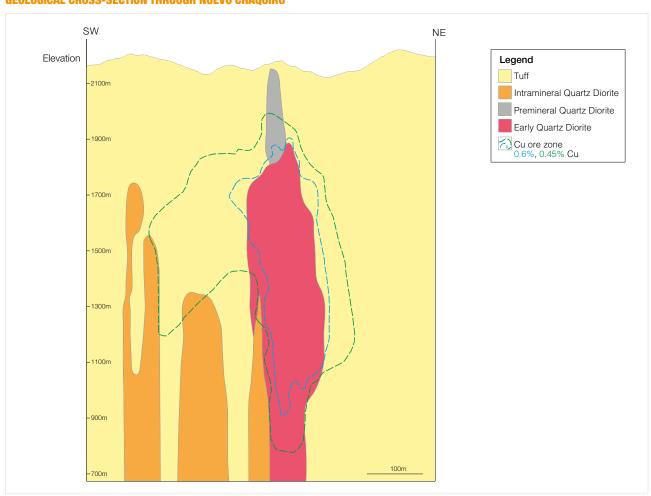
#### **MINERALISATION CHARACTERISTICS**

The intrusive complex can be categorised as premineral, early, intramineral and late, according to cross-cutting relationships, locality relations, temporality and Cu/Au values. The early dyke is located in the eastern part of the deposit and is the main supplier of heat and hydrothermal fluids that caused the mineralisation event, in the central area abundant intra-mineral diorite and quartz diorites are found, of which a classic ore shell of lower-grade mineralisation (>0.3% copper) appears draped over the intrusions. Higher grade copper-gold mineralisation (>1.4% Cu) is associated with a well-developed quartz vein stock-work in the cupola zone of early quartz diorite, persisting over a vertical interval of 500m. The majority of the intrusive rocks don't outcrop.

The mineralised zone is characterised by fine stock works, disseminations and veinlets of quartz, magnetite, pyrite, chalcopyrite and molybdenite.

Traces of bornite and cubanite have been locally observed, but in amounts not exceeding 0.1% volume. Other sulfides include pyrite and amounts of pyrrhotite in specific intervals. Gold and silver correlate well with copper and, by analogy to other deposits, are believed to occur within the chalcopyrite, although this has not yet been established by detailed metallurgical examination.

#### **GEOLOGICAL CROSS-SECTION THROUGH NUEVO CHAQUIRO**





#### **EXPLORATION**

During 2016 the project was focused on completing the Conceptual study.

Hydrogeological and geotechnical data was reviewed and compiled for the Conceptual study and limited metallurgical, geotechnical and hydrogeological drilling started in late 2016. Structural update was completed with focus on the infrastructure location sites. Some of the areas with granted access were geologically mapped.

#### **PROJECTS**

The Conceptual study phase was completed in September 30th 2016 and is currently in a bridge period to enter PFS in January 2017.

#### MINERAL RESOURCE

#### DETAILS OF AVERAGE DRILLHOLE SPACING AND TYPE IN RELATION TO MINERAL RESOURCE CLASSIFICATION

Quebradona			Ty	/pe of drilling			
Category	Spacing m (-x-)	Diamond	RC	Blasthole	Channel	Other Comments	
Measured	30 x 30	-	-	_	_		
Indicated	60 x 60	✓	-	_	_		
Inferred	120 x 120	✓	-	_	_		
Grade/ore control		-	_	_	_		

Drill hole spacing over the project is variable, being influenced by environmental and social considerations. Where possible multiple drill holes are conducted from the same drill pad to minimise impact on the environment. Drilling at Quebradona varies from  $50 \times 50$ m grid in the central part and  $100 \times 100$  to  $120 \times 120$  in the adjacent low grade Inferred Mineral Resource areas. Due to having some multihole platforms, the drilling spacing in the first 300m is tighter than in the deeper portions.

#### **INCLUSIVE MINERAL RESOURCE**

Quebradona		Tonnes	Grade	Contain	ed gold
as at 31 December 2016	Category	million	g/t	tonnes	Moz
Nuevo Chaquiro	Measured	_	_	_	_
	Indicated	104.37	0.62	65.09	2.09
	Inferred	467.64	0.23	109.47	3.52
Quebradona	Total	572.01	0.31	174.57	5.61

#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: COPPER (Cu)**

Quebradona		Tonnes	Grade	Contained	copper (Cu)
as at 31 December 2016	Category		%Cu	tonnes million	pounds million
	Measured	_	_	-	_
	Indicated	104	1.08	1.13	2,487
	Inferred	468	0.53	2.47	5,446
Quebradona	Total	572	0.63	3.60	7,933

Quebradona is likely to be a Cu mine with Au as a by-product, this will be confirmed during the PFS.

#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: SILVER (Ag)**

	( 3)				
Quebradona		Tonnes	Grade	Contained	silver (Ag)
as at 31 December 2016	Category		g/t		Moz
	Measured	_	_	_	_
	Indicated	104	6.38	666	21
	Inferred	468	3.80	1,775	57
Quebradona	Total	572	4.27	2,442	78

Quebradona

#### **INCLUSIVE MINERAL RESOURCE BY-PRODUCT: MOLYBDENUM (Mo)**

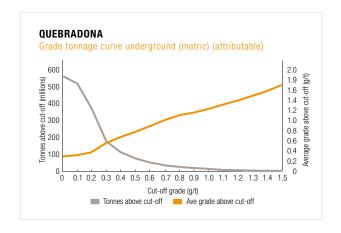
Quebradona	Total	572	128	73	162
	Inferred	468	126	59	130
	Indicated	104	137	14	31
	Measured	_	_	-	_
as at 31 December 2016	Category	million	ppm	kilotonnes	pounds million
Quebradona		Tonnes	Grade	Contained mo	lybdenum (Mo)

#### **ESTIMATION**

Copper, gold, silver, molybdenum, arsenic and sulphur grades were estimated using ordinary kriging into a 40 x 40 x 20m block size model. Grades were estimated within grade-based 3D wireframe boundaries for copper and gold grades, with separate domains for molybdenum and sulphur.

Drill hole data was composited to 6m down-hole lengths prior to estimation and extreme values were capped. Estimation was into homogeneous geological domains using ordinary kriging. Classification was done using conditional simulation.

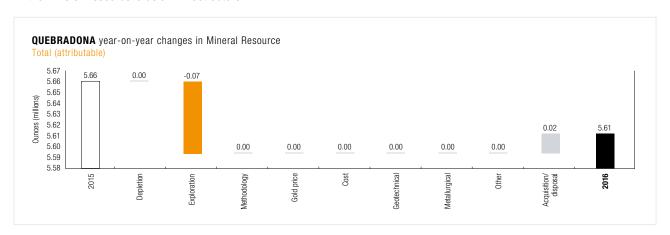
The Mineral Resource was tested for and found to have reasonable and realistic prospects for eventual economic extraction. It represents a realistic inventory of mineralisation within a conceptual underground mine design, based on two lifts using a combination of block caving and panel caving. The development levels at 1,000mRL and 1,400mRL, were assumed to be potentially available to mine at some point in the future. Therefore all of the Inferred Mineral Resource above the 1,000mRL within the mine design is included in the estimate and since non-selective methods are used, no cut-off can be applied. Additional potentially mineralised material is included in the mine design, but is not included as part of the reported Mineral Resource due to lower confidence in the grade estimate as a result of limited drill hole data in those portions of the deposit.



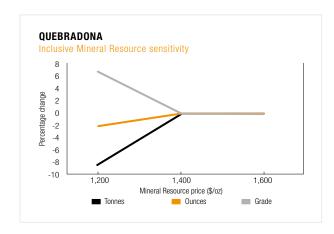




All the Mineral Resource is below infrastructure.



In 2016 the Mineral Resource model was updated with the addition of five drill holes, resulting in slightly lower grades in copper and gold. Despite the decrease in copper and molybdenum prices there were no significant changes in the Mineral Resource, it is explained by a positive balance due to increased recoveries in copper, gold and silver. The attributable percentage increased from 92.42% to 92.72%.



No changes at higher price (\$1,600/oz) as the existing mining designs were used to constrain the Mineral Resource.

At lower price (\$1,200/oz) a step of 0.1g/t Au from the grade ton curve was used to proportionately represent the variations in price.

### SECTION 6

# ADMINISTRATION INFORMATION



## **DFFINITIONS**

#### MINERAL RESOURCE

The SAMREC Code, 2016 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, 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 subdivided, and must be so reported, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated or Measured categories."

All reports of Mineral Resource 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 and/or chip 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 UC or LUC.

In order to comply with the economic requirement of the definition of Mineral Resource, all AngloGold Ashanti Mineral Resource 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:

- That there is a reasonable expectation of eventual economic extraction
- The Mineral Resource is quoted in situ and has not been corrected for dilution, mining losses or recovery; and
- 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.

Final Mineral Resource classification also considers relative confidence in sampling and drilling QAQC as well as other variables that may impact on confidence in tonnage and grade.

# DFFINITIONS 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. While it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade to Indicated Mineral Resources with continued exploration, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur.

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:

- · All Inferred Mineral Resource, including that within the Ore Reserve design or stope shape
- Mineral Resource that sits above the Mineral Resource cut-off but below the Ore Reserve cut-off and which resides within the defined Ore Reserve volume
- Mineral Resource that lies between the LoM pit shell/mine design and the Mineral Resource pit shell / mine design. This material will become economic if the gold price increases
- Mineral Resource where the technical studies to engineer an Ore Reserve have not yet been completed

All grade tonnage graphs represent in-situ grade and tonnes within the Mineral Resource. Caution should be exercised when interpreting the grade tonnage graphs presented. The ability to selectively mine the deposits may be precluded by the deposit geometry, mining method and the need for practical development of the orebody.

#### ORE RESERVE

The SAMREC Code, 2016 edition, definition of an Ore Reserve is as follows:

"A Mineral 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 Mineral 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."

Although the term Ore Reserve is used throughout this document, it is recognised that the term Mineral Reserve is used in the SAMREC code. For the purposes of reporting under the SAMREC Code, these terms are considered to be synonymous.

Ore Reserve is sub-divided in order of increasing confidence into Probable Ore Reserve and Proved Ore Reserve.

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 PFS (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 FS and ultimately to implement the project.

## GLOSSARY OF TERMS

Banded Iron formation (BIF): 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, copper, molybdenum 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 (COG): The minimum grade at which a unit of ore will be mined to achieve the desired economic outcome.

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 (FS): 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 PFS (SAMREC 2016).

Flotation: Concentration of gold and gold-hosting minerals into a small mass by various techniques (e.g. collectors, frothers, agitation, airflow) 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 ore contained within a unit weight of mineralised material generally expressed in grams per metric tonne (g/t), or ounces per short ton of ore (oz/t) for gold-bearing material.

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 and is sufficient to assume geological and grade or quality continuity between points of observation (SAMREC 2016).

# GLOSSARY OF TERMS continued

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 or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration (SAMREC 2016).

**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 and is sufficient to confirm geological and grade or quality continuity between points of observation. 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 Mineral Reserve or to a Probable Mineral Reserve (SAMREC 2016).

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.

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 Resource to Ore Reserve. 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.

Ore 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 are generally accepted and regarded as synonymous.

Ounce (oz): 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.

Páramo: Apline tundra ecosystem.

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.

Pre-feasibility study (PFS): 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 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 Resource may be converted to a Mineral Reserve at the time of reporting. A PFS is at a lower confidence level than a FS (SAMREC 2016).

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 Mineral Reserve is lower than that applying to a Proved Mineral Reserve (SAMREC 2016).

Proved Ore Reserve: The economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the modifying factors. (SAMREC 2016).

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 and Tanzania), Australiasia (Australia) and the Americas (Argentina, Brazil and Colombia).

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 Mineral Resource model. For example between the Mineral 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.

Selective mining unit (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 (TSF): Dam facilities designed to store discarded tailings.

Tonne (t): 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.

# ABBREVIATIONS

Degrees LIB Long inclined borehole Minutes **LUC** Local uniform conditioning \$ United States dollars Metre or million, depending on the context M or m  $m^2$ 3D Three-dimensional space Square metre 2D Two-dimensional space  $m^3$ Cubic metre AC Aircore drilling Meta-chert **MCH ADU** Ammonium diuranate or yellow cake **MetRF** Metallurgical Recovery Factor Silver Million pounds Ag Mlb **AGA** AngloGold Ashanti Córrego do Sítio Мо Molybdenum Mineração Mineração operations Moz Million ounces AngloGold Ashanti (Ghana) Limited **AGAG MRPTO** Mineral and Petroleum Resources **ARS** Argentine peso Titles Office **ASX** Australian Securities Exchange mRL Metres relative level Gold **MSG** Au Mineração Serra Grande **AUD** Australian dollars Mt Million tonnes (metric) Avg./Ave. Mtpa Average Million tonnes per annum **BIOX** Bacterial oxidation **MWS** Mine Waste Solutions **BMD** Below mine datum **Nufcor** Nuclear Fuels Corporation of South Africa **BRL** Brazilian real (Pty) Ltd **PFZ** Pretorius Fault Zone capex Capital expenditure **POX** Pressure oxidation CCD Counter current decantation **QKNA** Quantitative kriging neighbourhood analysis CdS Córrego do Sítio R3 Mineral Resource and Ore Reserve Reporting Centre of Environmental Studies **CEA** System **CLR** Carbon Leader Reef R or ZAR South African rand cm Centimetres Randgold Resources Limited Randgold cm.g/t Centimetre grams per tonne Reverse circulation drilling RC CR Crystalkop Reef **ROM** Run-of-mine Cu Copper Sulphur DD Diamond drilling SAG Société Ashanti Goldfields de Guinea **DNPM** The Brazilian National Department for **SAMREC** Mineral Production The South African Code for the Reporting of Exploration Results, Mineral Resource and DRC Democratic Republic of the Congo **SFZ** Sadiola Fracture Zone Grams g **SOKIMO** Société Minièrede Kilo-Moto GC Grade control SSP Sadiola Sulphide Project Geita Gold mine **GGM** Tropicana Joint Venture **TJV** g/t Grams per tonne tpa Tonnes per annum ha Hectare Tonnes per day tpd **JORC** Australasian Code for Reporting Exploration tph Tonnes per hour Results, Mineral Resource and Ore Reserve **JSE** Johannesburg Stock Exchange Limited tpm Tonnes per month  $U_3O_8$ Uranium oxide J۷ Joint venture UC Uniform conditioning **KCD** Karagba, Chauffeur and Durba **VCR** Ventersdorp Contact Reef kg Kilograms **VR** Vaal Reef Thousand ounces koz kt Thousand tonnes μm Micron metre **WUDLs** Western Ultra-deep Levels Kilograms per tonne kg/t X-ray Fluorescence **XRF** 

km

ktpa

Kilometres

Kilo tonnes per annum

# ADMINISTRATIVE INFORMATION FOR PROFESSIONAL ORGANISATIONS

AusIMM The Australasian Institute of Mining and Metallurgy

PO Box 660, Carlton South, Vic 3053, Australia

Telephone: +61 (3) 9658 6100 Facsimile: +61 (3) 9662 3662

www.ausimm.com.au

PLATO/SAGC South African Council for Professional and Technical Surveyors/The South African Geomatics Council

P O Box 83018, South Hills, 2136, Gauteng, South Africa

Telephone: +27 (11) 626 1040/1080 Facsimile: +27 (11) 626 2007

www.sagc.org.za

SACNASP South African Council for Natural Scientific Professions

Private Bag X540, Silverton, 0127, Gauteng, South Africa

Telephone: +27 (12) 841 1075 Facsimile: +27 (12) 841 1057

www.sacnasp.org.za

SAIMM The Southern African Institute of Mining and Metallurgy

P.O. Box 61127, Marshalltown, 2107, Gauteng, South Africa

Telephone: +27 (11) 834-1273/7 Facsimile: +27 (11) 838-5923/8156

www.saimm.co.za

SME The Society for Mining, Metallurgy & Exploration Inc.

12999 E. Adam Aircraft Circle, Englewood, CO 80112

Telephone Toll Free: 1-800-763-3132 Main number: +1 303-948-4200 Facsimile: +1 303-973-3845

www.smenet.org

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