

## NI 43-101 TECHNICAL REPORT

on the

## KONKERA GOLD PROJECT

for

## AMPELLA MINING LIMITED





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26<sup>th</sup> March 2014



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Konkera Gold Project

### AMPELLA MINING LIMITED

Author and Qualifiec Person:	Don Maclean	Principal Consultant - Ravensgate	MSc (Hons) Geol, MAIG, R.P. Geo (Mineral Exploration and Mining), MSEG
Contributor Author and Qualified Person:	Dean Smith	Database Manager - Ampella Mining	MSc Geol, MAIG
Contributor Author:	Adrian Woolford	Supervising Geologist - Ampella Mining	BSc Economic Geology (Hons) MAusIMM.
Reviewer:	Stephen Hyland	Principal Consultant - Ravensgate	BSc Geology, FAusIMM, CIMM, GAA, MAICD
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Copies:	Centamin plc Ampella Mining Limited Ravensgate	<ul> <li>(3)</li> <li>(2)</li> <li>(1)</li> </ul>	
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Don Maclean For and on behalf of: **RAVENSGATE** 

**Ravensgate** Perth



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### 1. EXECUTIVE SUMMARY

### 1.1 Property Description and Ownership

Centamin plc (Centamin), through its wholly owned subsidiary, Centamin West Africa Holdings Limited (CWA), has recently acquired control of Ampella Mining Limited (the ASX listed company), by way of a successful off market recommended takeover offer. Ampella's key asset is the Konkera Gold Project which is located on the Tiopolo Permit within the Noumbiel Province, Burkina Faso. This report describes the Konkera Gold Project and the most recently published resource which was reported in February 2013 by Ampella and was prepared using JORC (2004) guidelines.

The Tiopolo permit is located approximately 290km southwest of the capital Ouagadougou between longitudes -3.12974°W and -3.03228°W and latitudes 9.95294°N and 9.78482°N. Access to the project from Ouagadougou is by sealed highway to Gaoua and then by all weather gravel roads to the permit area.

It is understood by Ravensgate that the permit is held by Ampella Mining Gold Sarl and has an area of 174.4km<sup>2</sup>. The Tiopolo Permit was first granted the 19 October 2005 and has been renewed twice with the current permit expiry date being the 19 October 2014. The Savadogo family has a 1.5% Net Smelter Royalty over the Tiopolo, Danhal, Mabera, Gbingbina, Kapere Batie, Niorka & Bottara Permits for which Ampella has the rights to buy back 0.75% of the Net Smelter Royalty for US\$1,000,000.

### 1.2 Exploration History

Konkera was discovered in 2008 after following up anomalous rock chip and gold geochemistry anomalism. Since the deposits discovery Ampella have completed an exploration program which has included extensive auger drilling which was followed up with RC and diamond drilling. By early 2013 Ampella had completed 1,001 Reverse Circulation (RC) drill holes and 452 diamond drill holes for a total of 204,000m of drilling.

### 1.3 Geology and Mineralisation

The Konkera gold deposit lies at the south western margin of the Boromo Greenstone belt in south western Burkina Faso. The belt consists of steeply dipping volcanic and volcano sedimentary units with ages ranging from 2,400Ma to 2,100Ma (Hout et al, 1987). These are intruded by Eburnean age granitoids (ca 2,000 Ma). Hout et al noted that the stratigraphic sequence is dominated by mafic and ultramafic rocks in the basal parts with felsics and andesitic pyroclastics along with immature clastic sediments being more common in the upper parts of the succession.

Konkera is considered to be a shear zone hosted style disseminated sulfide gold deposit. Similar deposits are found in the late Proterozoic Birimian terranes of West Africa. These hydrothermal deposits are mostly late orogenic deposits and are associated with major shear zones. Gold mineralisation is typically associated with disseminated sulfide with minor amounts of carbonate, tourmaline, quartz veins and native gold.

The structure of the belt in the Konkera area is dominated by the Batie West shear zone, a major crustal scale shear zone that traverses the western margin of the greenstone belt. The shear zone and associated zone of deformation extends for up to 3km in width and can be traced over 110km in length. At the southern end of Konkera the stratigraphic sequences are folded into a series of upright tight folds that plunge gently towards the north. Fold hinges are typically faulted and sheared. Volcaniclastic units within the stratigraphic sequence often have well developed bedding parallel foliation. Metamorphic grade is interpreted to be greenschist facies.

Gold mineralisation at Konkera is interpreted to lie in multiple steeply to moderately west dipping and north striking shear zones within the sequence of deformed/folded metasediments and metavolcanics. These have been intruded by suites of felsic to



intermediate porphyries, which are often weakly mineralised suggesting that they were intruded before or during the mineralisation event.

Gold mineralisation is interpreted to be largely related to fluid mixing and is typically associated with zones of albite-sericite alteration that contain disseminated pyrite  $\pm$  arsenopyrite. Pyrite is typically less than a few percent, whilst arsenopyrite is an accessory component, which locally may be up to 1-2%.

### 1.4 Metallurgy

Ampella have completed a metallurgical program at Konkera as part of their PFS study program that was on going at the time of this report. Composite diamond core metallurgical samples from the three main prospects of Konkera Main/East, Konkera North and the Kouglaga area were tested at ALS-Ammtec in Perth and HRL-Testing Laboratories in Brisbane.

The testwork indicates that the Konkera Main, East, North and Kougala oxide and transitional mineralisation and the Kouglaga fresh mineralisation is amenable to treatment using conventional gravity and CIL leaching with a modest grind size of  $P_{80}$  of  $106\mu$ m. Indicative recoveries range from (88% to 98%) for these deposits and mineralisation type. They also have recorded gravity recoverable components of greater than 30%.

Testwork suggests that the Konkera Main, East and North sulphide mineralisation would require treatment involving sulphide float, regrind of the concentrates to 8/10 micron and then cyanidisation. Recoveries from these deposits and mineralisation types using this processing route vary from 71% to 91%.

### 1.5 Mineral Resource Estimate

In February 2013 Ampella reported an Inferred and Indicated Resource for the Konkera Projects prepared in accordance with the guidelines of the JORC Code (2004). This independent estimate was completed by Ravensgate Mining Industry Consultants. This was an update on previous estimates completed in January 2010, March 2011 and November 2012.

In accordance with NI 43-101 section 7.1 (2) the Qualified Person (QP), Mr Don Maclean of Ravensgate has reviewed the classification criteria for JORC (2004) and National Instrument (NI) 43-101 Resources and is of the opinion that in this instance there are no material differences and that the Konkera February 2013 Resource Estimate meets the criteria to be classified as a NI 43-101 Inferred and Indicated Resource.

A summary of the February 2013 resource estimate is as follows using a cut-off of 0.5g/t Au (Table 1):

- Indicated Resource of 34.2 million tonnes at 1.8g/t gold for 1.92 million ounces gold
- Inferred Resource of 25.0 million tonnes at 1.7g/t gold for 1.33 million ounces gold (using an 0.5g/t gold cut-off).

The Global Resource above has been further divided into two parts for reporting clarity. For resources above the 100mRL (Table 2) (i.e. shallow mineralisation from surface to 250 metres below surface) a reporting cut-off of 0.5g/t Au is appropriate as these resources have potential to developed using open pit mining methods. The Resource above the 100mRL using a 0.5g/t Au cut-off is:

- Indicated Resource of 34.2 Mt at 1.8g/t Au (1.92 Moz Au)
- Inferred Resource of 12.5 Mt at 1.4g/t Au (0.58 Moz Au)

Resources below the 100mRL (Table 3) (i.e. deep mineralisation from 250 to 450 metres below surface) have potential to be developed using underground mining methods and thus a reporting cut-off of 2.0g/t Au is more appropriate for reporting. The Resource below the 100mRL using a 2.0g/t Au cut-off is:

• Inferred Resource of 4.6 Mt at 3.3g/t Au (0.49 Moz Au)

A view of the resource by relative grade distribution spatially is shown in Figure 1.



Table 1       Konkera Prospect - Mineral Resource Estimate (Gold)									
		I	INDICATED RESOURCE INFERRED RESOUR						
	Au Cut-off	Tonnes*	Grade (g/t Au)*	Contained Gold (ounces)*	Tonnes	Grade (g/t Au)*	Contained Gold (ounces)*		
	0.5*	34,200,000	1.7	1,919,000	12,100,000	1.4	552,000		
(0-250m)	1	26,300,000	2.0	1,717,000	7,500,000	1.8	441,000		
(,	2	9,200,000	3.2	932,000	2,000,000	3.0	189,000		
	0.5				12,900,000	1.9	783,000		
Underground Potential (below 250m)	1				9,200,000	2.3	696,000		
(501011 20011)	2.0**				4,600,000	3.3	487,000		
	0.5	34,200,000	1.7	1,919,000	25,000,000	1.7	1,335,000		
Global	1	26,300,000	2.0	1,717,000	16,800,000	2.1	1,137,000		
	2	9,200,000	3.2	932,000	6,600,000	3.2	676,000		

<sup>+</sup> Denotes preferred grade for reporting potential open-pit resources

\*\* Denotes preferred grade for reporting potential underground resources



Table 2 Ko	Table 2       Konkera February 2013 Resource Estimate - Summary by Prospect Area and Resource Category - Potential Open Cut resources										
		IND		CE				INFERRED	RESOURCE		
Prospect	Au Cut-off	Vol (m <sup>3</sup> )	Tonnes	Au g/t	oz Au		Vol (m <sup>3</sup> )	Tonnes	Au g/t	oz Au	
Konkera North	0.5*	6,300,000	17,500,000	1.8	1,029,000		1,400,000	4,100,000	1.3	170,000	
(Surface to	1.0	4,600,000	12,800,000	2.2	912,000		800,000	2,300,000	1.8	128,000	
100mRL)	2.0	1,800,000	5,000,000	3.5	560,000		200,000	500,000	3.2	47,000	
Konkera Main	0.5*	3,300,000	9,100,000	1.6	471,000		1,200,000	3,400,000	1.6	169,000	
	1.0	2,600,000	7,200,000	1.8	423,000		900,000	2,500,000	1.8	148,000	
	2.0	700,000	2,100,000	2.7	186,000		200,000	700,000	2.9	64,000	
Konkera East	0.5*	2,100,000	5,700,000	1.7	312,000		300,000	900,000	1.7	46,000	
	1.0	1,700,000	4,800,000	1.9	288,000		200,000	600,000	2.0	40,000	
	2.0	500,000	1,500,000	2.7	134,000		100,000	300,000	2.6	24,000	
Kouglaga	0.5*	700,000	1,700,000	1.8	100,000		200,000	400,000	2.7	36,000	
	1.0	600,000	1,300,000	2.1	90,000		200,000	400,000	2.8	35,000	
	2.0	200,000	500,000	3.2	51,000		100,000	200,000	4.6	24,000	
The Gap	0.5*	100,000	200,000	1.2	6,000		1,300,000	3,400,000	1.2	131,000	
	1.0	0	100,000	1.3	5,000		700,000	1,700,000	1.6	90,000	
	2.0	0	0	2.2	0		100,000	400,000	2.6	30,000	
TOTAL*	0.5	12,500,000	34,200,000	1.7	1,919,000		4,500,000	12,100,000	1.4	552,000	
	1.0	9,500,000	26,300,000	2.0	1,717,000		2,800,000	7,500,000	1.8	441,000	
	2.0	3,300,000	9,200,000	3.2	932,000		800,000	2,000,000	3.0	189,000	

\*Denotes preferred cut-off for reporting open-cut pit resources - 0.5g/t Au



Table 3       Konkera February 2013 Resource Estimate - Summary by Prospect Area and Resource Category - Potential Underground resources.										
	INDICATED RESOURCE INFERRED RESOURCE									
Prospect	Au Cut-off	Vol (m <sup>3</sup> )	Tonnes	Au g/t	oz Au	Vol (m <sup>3</sup> )	Tonnes	Au g/t	oz Au	
Konkera North	0.5					4,500,000	12,900,000	1.9	783,000	
(below 100mrl)	1.0					3,200,000	9,200,000	2.3	696,000	
	2.0*					1,600,000	4,600,000	3.3	487,000	
TOTAL	0.5					4,500,000	12,900,000	1.9	783,000	
	1.0					3,200,000	9,200,000	2.3	696,000	
	2.0*					1,600,000	4,600,000	3.3	487,000	

\*Denotes preferred cut-off grade for reporting underground resources - 2.0g/t Au



Figure 1 Oblique view of Konkera Deposits Looking NE showing drilling, and February 2013 Block Model. Pale blue 0.3 to 0.5g/t Au, green 0.5 to 1.0g/t Au, yellow 1.0 to 3.0g/t Au, red 3.0 to 5.0g/t Au, pink > 5.0g/t Au





### 1.6 Project Status

The Konkera Project does not fall into the NI 43-101 classification of an Advanced Project as although resource estimates have been completed at the property, the potential economic viability supported by a preliminary economic assessment (PEA), a pre-feasibility study (PFS) or a feasibility study (FS) has not been publicly released. As such there is no requirement to complete sections 15 to 23 of this technical report.

Ravensgate notes that Ampella have been undertaking PFS level study work at the project since early 2012 and have completed a substantial amount of work on this study. This work has included such work as metallurgy, mine planning, infrastructure design and permitting. Ampella have indicated that their PFS target strategy is based upon a 3.0 Mtpa CIL, flotation and regrind plant, a mine life of greater than 9 years averaging 150,000 oz Au pa, with an initial 3 to 4 years of free milling material. This would allow deferral of construction of the flotation and regrind circuit until year's two to three of the project which would reduce upfront capital expenditure costs and improve project economics. In order to achieve this Ampella have indicated that an additional 300,000 to 400,000 oz Au of free milling material is needed on top of the current resource base discussed in this report. Ravensgate understands that Ampella's exploration program over the past eighteen months has largely been focussed on exploring for free milling Au satellite deposits to Konkera that will help achieve their PFS target strategy.

Ravensgate also notes that Ampella have completed an Environmental Impact Assessment Study (EIA) and a Relocation Plan Study, which have gone through public consultation which were submitted to the Burkina Government who approved the EIA on 15<sup>th</sup> January 2014. Ampella have indicated that all required environmental permits are now in place prior to the submission of a PFS study report to the Government which will support the Mining License application.

### 1.7 Interpretations and Conclusions

The Konkera Project hosts a substantial gold deposit that has the potential for development and warrants further exploration and economic assessment. Important conclusions and recommendations include:

- Exploration auger, aircore, RC and Diamond drilling on the Konkera property has been entirely carried out by Ampella since 2008. Ampella have utilised industry best practice drilling, sampling, data collection and assaying practices.
- The Konkera February 2013 Resource Estimate complies with the JORC (Dec 2004) code guidelines and has been compiled and reported according to the ASX Appendix 5A Listing Rules. It is the Qualified Person's opinion that this estimate also meets NI 43-101 requirements as has been described in this report.
- The Konkera Resource Estimate data spacing, quality of data, and current confidence in the geological understanding of the deposit is sufficient to imply or infer continuity of mineralisation and grade.
- Additional infill drilling is needed to improve confidence in the Inferred Resource to a level needed for detailed economic assessment (i.e. to define Indicated Resource). Infill drilling may also be warranted to estimate the Measured Resource which would further mitigate the resource risks of the project.
- The Qualified Person understands that presently no major environmental, permitting, legal, taxation, socio-economic, marketing or political factors have been identified which would materially affect the resource estimate.
- The main risk factors at this stage are fluctuating commodity prices and technical risks such as data spacing, geological interpretation and grade/geological continuity. These technical factors are reflected in JORC (2004)/NI 43-101 Inferred and Indicated Resource classifications of the Konkera Resource Estimate.



- Metallurgical test work returned to date indicates that gold is amenable to recovery by conventional metallurgical processing techniques.
- The Konkera Resource Estimate is largely open at depth, and further drilling is warranted to test strike and depth extensions.

### 1.8 Proposed Budget

Further work on the project is warranted and Ravensgate recommends a work program with the aim of completing a positive PFS study for the project. This program would build on work Ampella have done to date. It is envisaged that this program would consist of two parts:

- (1) Satellite Deposit Exploration and Evaluation
- (2) PFS Study completion



Table 4       Konkera Project: Proposed Budget				
(1) Satellite Deposit Evaluation				
EXPENDITURE ITEMS	12 MONTH BUDGET	US\$		
Exploration Overheads	Taxes & Fees	47,000		
	Community	10,000		
	Premises and Utilities	300,000		
	General Office Expenses	25,000		
	Information services and Communications	56,000		
	Professional Fees	83,000		
	Travel	210,000		
	Other	0		
	Salaries and Benefits	1,390,000		
Exploration Costs	Remote Sensing and Geophysics	0		
	Sampling Consumables	125,000		
	Geochemistry	67,500		
	Trenching & Pitting	0		
	Diamond Drilling	185,000		
	RC Drilling	1,890,000		
	RAB & Aircore	309,000		
	Auger	216,200		
	Metallurgy and Mining Studies	90,000		
	Professional Fees	30,000		
	Other	0		
	Transport	55,500		
	Camp	591,600		
Capital expenditure		130,000		
TOTAL BUDGET		5,810,800		
(2) PFS Study Completion				
EXPENDITURE ITEMS	9 MONTH BUDGET	US\$		
	Study Management	130,000		
	Resources	100,000		
	Mining	150,000		
	Metallurgy	350,000		
	Plant design	150,000		
	Infrastructure	120,000		
	Environmental	100,000		
	Water	100.000		
	Geotechnical	100,000		
	Social	100,000		
TOTAL BUDGET		1,400,000		



### 2. INTRODUCTION

### 2.1 Introduction and Terms of Reference

Centamin, through its wholly owned subsidiary, CWA, has recently acquired control of Ampella, by way of a successful off market recommended takeover offer. Ampella's key asset is the Konkera Gold Project which is located on the Tiopolo Permit within the Poni province, Burkina Faso.

Centamin engaged Ravensgate to assist in preparing this National Instrument 43-101 report documenting Ampella's Konkera gold project and the most recently publicly reported resource estimate for the project which was reported in February 2013. This resource estimate was completed by Ravensgate and was reported using JORC (2004) guidelines.

This technical report has been compiled in accordance with the JORC Code (2004) and the National Instrument 43-101, Companion Policy 43-101CP, Form 43-101F1 and CIM Definitions Standards (Nov 2010). The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code-December 2004) is prepared by the Joint Ore Reserves Committee (JORC) which is comprised of representative members from the Australasian Institute of Mining and Metallurgy (AusIMM), the Australian Institute of Geoscientists (AIG), the Minerals Council of Australia (MCA), the Australian Securities Exchange (ASX), and the Securities Institute of Australia (SIA).

It is mandatory for all companies actively working on exploration, mining and mineral processing projects within the minerals sector listed on the ASX (Australian Securities Exchange) to report all exploration results, mineral resources and ore reserves using the JORC Code (2004) as a reporting guideline. The JORC Code provides minimum standards for public reporting, so as to ensure that investors and their advisors have the necessary information they reasonably require to form reliable opinions on the results and estimates being reported. Reporting according to the JORC guidelines does not automatically satisfy the requirements of National Instrument 43-101 reporting, but is a very sound basis for doing so.

This report provides details of the work activities of Ampella in general and also outlines the results of the resource estimation for Konkera based on the following scope of work:

- Review of exploration data collection methodologies and statistical analysis of quality control data;
- Review of interpretation and three-dimensional models of the deposit geology and constraints for resource estimation;
- Review of parameters, outputs and categorisation of the Konkera February 2013 Resource Estimate on the basis of the Australian Institute of Mining and Metallurgy (AusIMM) Joint Ore Reserve Committee (JORC) Code and Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Guidelines for resource classification (covered by NI43-101).

### 2.2 Sources of Information

The principal source of information used in this report is geological and assay information obtained by Ampella during their drilling programs at Konkera from the deposits discovery in 2008 until early 2013. The authors have had access to other specific reporting information with respect to property description, exploration, geology and mineralisation which are comprised of technical reports and associated data compiled by Ampella and their partners or consultants. Publically available information usually as ASX releases and various government reports have also been used. The authors have also undertaken detailed discussions with Ampella's technical and corporate management personnel and understand that all technical data available for the project has been provided for review.

A listing of the principal sources of information is included in the references attached to this report. All reasonable enquiries have been made to confirm the authenticity and completeness of the technical data upon which this report is based. A final draft of this



report was also provided to Ampella along with a request to identify any material errors or omissions prior to final submission. The majority of technical data includes but is not limited to:

- Digital data files containing all drilling and sampling;
- Drilling, drill-core and quality assurance and quality control (QA/QC) protocols;
- All technical reports that are relevant to the geological and mineralisation interpretation used for resource estimation at the Konkera Project.

### 2.3 Effective Date

The most recently released resource information on the Konkera Project was released by Ampella to the ASX on 28<sup>th</sup> of February 2013 which is documented in this report. This date is therefore taken to be the effective date of this report. Ravensgate understands that Ampella have completed a small amount of infill drilling at the project subsequent to the release of the February 2013 resource and prior to the date that this NI 43-101 report was written (26<sup>th</sup> of March 2014). However it has been indicated by Ampella this drilling and other work hasn't resulted in a significant material change in the resource estimate documented in this report.

### 2.4 Qualifications

# Author and Independent Qualified Person: Don Maclean, Principal Consultant, Ravensgate - MSc Hons (Geology), MAIG, R.P. Geo (Mineral Exploration and Mining), MSEG

Don Maclean is a geologist with more than 19 years' experience in the minerals industry. Don has worked in a number of different geological environments in Australasia, Africa, Central and Southeast Asia and Europe. He has a broad skill base, having worked in regional and near mine exploration, resource development and estimation, open pit and underground geology as well as in senior global management roles.

Don holds the relevant qualifications and experience as well as professional associations required by the ASX, JORC and VALMIN Codes in Australia to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. He is a Qualified Person under the rules and requirements of the Canadian Reporting Instrument NI43-101.

# Contributor Author and Qualified Person: Dean Smith, Geologist, Ampella Mining - MSc (Geology), MAIG.

Dean Smith is a geologist with more than 19 years' experience in the minerals industry. Dean specialises in the management and analysis of natural resources information management systems and QAQC analysis, and has worked on projects in Australia, Africa, North and South America.

Dean holds the relevant qualifications and experience as well as professional associations required by the ASX, JORC and VALMIN Codes in Australia to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. He is a Qualified Person under the rules and requirements of the Canadian Reporting Instrument NI43-101.



Contributing Author: Adrian Woolford, Supervising Geologist, Ampella Mining Limited - BSc Hons (Economic Geology), MAusIMM.

Adrian Woolford is a geologist with more than 13 years' experience in the minerals industry, predominantly focused on gold. Adrian has worked in a number of different geological environments in Australasia and Africa. He has a broad skill base, having worked in regional and near mine exploration, resource development, and underground production.

Adrian holds the relevant qualifications and experience as well as professional associations required by the ASX and JORC Codes in Australia to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results.

### 2.5 Field Inspection

The Independent Qualified Person (Don Maclean of Ravensgate) has completed several site visits to the project area to review technical aspects of the project and assist in resource modelling and estimation work. Visits to the site were completed in February 2010, July 2012 and November 2012. These visits included reviews of:

- Data collection (drilling procedures, sample collection, sampling procedures, geological logging);
- Data Management (data management systems, data validation, Assay and geological data quality control, data storage);
- Deposit Geology (geological models).

These site visits included examining drill core and RC chips from the project, visiting the various prospect areas, observing drilling and sampling activities and visiting the core storage area and RC bag farms.



### 2.6 Abbreviations

A summary of the abbreviations used in the report is provided as Table 5.

Table 5Konkera Project: Typical Abbreviations				
Abbreviation	Description	Abbreviation	Description	
AC	Aircore Drilling			
Au	Gold			
Cu	Copper	mN	metres North	
°C	degrees Celsius	mRL	metres Relative Level	
CV	Coefficient of Variation	mg	milligram	
DDH	Diamond Drill Hole	mm	millimetre	
DTM	digital terrain model	Ni	Nickel	
G	Gram	ОК	ordinary kriging	
g/t	grams per tonne	oz	ounce (Troy)	
JORC	Joint Ore Reserves Committee (The	Pb	Lead	
	AusIMM)			
Kg	Kilogram	%	percentage	
Km	Kilometre	QAQC	quality assurance quality control	
m	Metre	RC	Reverse Circulation	
Μ	Millions	2D	two dimensional	
m²	square metre	3D	three dimensional	
mE	metres East	t/m³	tonnes per cubic metre	



### 3. RELIANCE ON OTHER EXPERTS

While information provided by Ampella relating to mineral rights, surface rights and permitting has been reviewed, no opinion is offered in these areas. The Qualified Person is not an expert in land, legal, permitting, and related matters and therefore has relied upon, and is satisfied, there is a reasonable basis for this reliance on the information provided by the Ampella's management regarding mineral rights, surface rights and permitting in section 4 of this Technical Report. Section 4 was prepared by Mr Tony Rudd, Exploration Manager of Ampella. The Qualified person has viewed a copy of the Tiopolo licence title which shows Ampella Gold Mining Sarl as the title holder.

Sections 5, 6, 9 and 10 were also prepared by Mr Tony Rudd of Ampella under the supervision of the primary Author and QP of this report Mr Don Maclean. Sections 7 and 8 were prepared by Mr Adrian Wolford, Supervising Geologist, Ampella Mining also under the supervision of Mr Don Maclean.

Section 13 has relied upon the report by Ampella titled "Ampella Releases Positive Conventional Metallurgical Testwork Results for Konkera" which was released to the Australian Securities Exchange on the 30<sup>th</sup> of January 2012.

Section 24 has relied upon the report by Ampella titled "September 2013 Quarter Update Presentation, Ampella Mining Limited" which was released to the Australian Securities Exchange in October 2013 and also "December 2013 Quarterly Report, Ampella Mining Limited" which was released to the ASX Market on 29 January 2014

The authors of this Technical Report, state that they are qualified persons for the respective areas as identified in the Certificate of Qualified Person attached to this report.



### 4. PROPERTY DESCRIPTION AND LOCATION

### 4.1 Description

Ampella's Konkera Resource is located on the Tiopolo Permit located in the Noumbiel province, Burkina Faso. The permit is located approximately 290km southwest of the capital Ouagadougou between longitudes -3.12974°W and -3.03228°W and latitudes 9.95294°N and 9.78482°N. Access to the project from Ouagadougou is by sealed highway to Gaoua and then by all-weather gravel roads to the permit area.

### 4.2 Royalty Taxation and Other Charges

The Burkina Faso Government has a sliding scale royalty scheme based on the gold price (3% if gold price <1,300, 4% if gold price is between 1,300 - 1,500, and 5% if the gold price is >1,500). The Sawadogo family has a 1.5% Net Smelter Royalty over the Tiopolo, Danhal, Mabera, Gbingbina, Kapere Batie, Niorka & Bottara Permits for which Ampella has the rights to buy back 0.75% Net Smelter Royalty for US\$1,000,000.

The project is not subject to any environmental liabilities. The Research Permit gives Ampella the permission to explore. No other permits are necessary. Compensation is paid to local landowners for clearing crops. Compensation is paid to The Forestry Department if clearing is done in forest areas, but no permit is required before hand.

The holder of an Exploration permit is required to submit a work program to the Mines Administration each year and expend a minimum of 270,000 FCFA per square kilometre (approximately CAD600 per km<sup>2</sup>). In addition, surface area taxes are payable annually which range from 2,500 FCFA to 7,500 FCFA per square kilometre depending on the year of permit tenure (CAD5.50 to CAD16.50 per km<sup>2</sup>).

### 4.3 Ownership

The permit is understood to be held by Ampella Mining Gold Sarl and has an area of 174.4km<sup>2</sup>. The permit is a research permit which allows Ampella to explore for gold on the permit. The permit is valid for three years on granting. The permit can be renewed twice for three year periods. On being granted a Mining Permit, Ampella is required to form a Burkina Faso based mining company for the purpose of exploitation. The Burkina Faso Government has a free carried 10% ownership in the project from this stage. So effectively at the Mining Permit stage Ampella would have a 90% stake in the project.

### 4.4 Location

The coordinate system utilised for the project is the Universal Transverse Mercator (UTM) projection using the Clarke1880 spheroid, zone 30 north. A local grid is used within the project area which is aligned with general strike of mineralisation and stratigraphy. The translation from UTM to Konkera Local Grid is a  $+50^{\circ}$  rotation about a common point with the following coordinates, UTM 495420mE and 1087780mN and Local 5000E and 20000N.

### 4.5 Permit Status

The Tiopolo Permit was first granted on the 19 October 2005 and has been renewed twice with the current permit expiry date being the 19 October 2014.

The Burkina Faso Ministry of Mines, Quarries and Energy grants an Exploration Permit for a three year term which can then legitimately be renewed for two further three years terms providing all permit conditions are met. The Exploration Permit gives the titleholder the exclusive right to explore for the above/below ground substance nominated and to also apply for an Exploitation Permit should a deposit of economic significance be identified.

An Exploitation Permit is valid for 25 years and the state obtains a 10% free carrying interest in the project and a free on board royalty of 4% for base metals and 3% for precious metals.



Should areas that have demonstrated economic viability be identified these will need to be included within future mining licence applications. There is a history of foreign exploration companies successfully transitioning from explorer to miner in Burkina Faso and Ravensgate's opinion is that there is no obvious reason why this would not be the case for Ampella.

There are isolated occurrences of surface disturbance resulting from artisanal mining by locals. Presently no significant risks to project tenure or factors that would affect the ability to carry out planned work programs have been identified at this time.

Ampella have completed an Environmental Impact Assessment Study and a Relocation Plan Study, which have gone through public consultation and have been submitted and were approved by the Burkina Government on 15<sup>th</sup> January 2014 (Ampella, 2014). Ampella have indicated that all required environmental permits are now in place prior to submitting a PFS study report to the Government to support a Mining License application (Ampella, 2014).

Figure 2 Konkera Project - Location Map and Major Gold Deposits





# 5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

### 5.1 Background Country Information

The country of Burkina Faso is a land-locked country located in West Africa and covering an area of over 274,000km<sup>2</sup>. The country has borders with six separate countries: Benin, Côte D'Ivoire, Ghana, Mali, Niger and Togo. The climate is tropical in nature, with the terrain comprising predominantly flat or undulating plains. The population is estimated at 16.8 million in 2011 (CIA 2011).

Burkina Faso (formerly known as Upper Volta) was a French protectorate until 1960, when it became an independent republic. After several coups during the 1970s and 1980s, a new Constitution was approved by a national referendum in June 1991. This Constitution proclaimed the 4<sup>th</sup> Republic of Burkina Faso and made it a democratic, unitarian and secular state. The legal system is based on the French civil law system and customary law.

The election of a President is by popular vote for a five-year term. The Prime Minister is appointed by the President with the consent of the National Assembly. The current President is Blaise Compaoré and the Prime Minister Tertius Zongo.

Burkina Faso was ranked 161<sup>st</sup> on the Human Development Index in 2010 with a fragile economy due to a large external current account deficit, heavy dependence on external assistance and few export commodities. About 90% of the population is engaged in (mainly subsistence) agriculture (peanuts, shea nuts, sesame, sorghum, millet, corn, rice, and livestock). 40% of the GDP is derived from agriculture (crops 25%, livestock 12% and fishing 3%). Cotton is the main export crop and accounts for an average of 50% of the net export income. The currency is the Communauté Financière Africaine Franc (CFA) under the authority of the Central Bank of the West African States (BCEAO).

### 5.2 Accessibility

The Batie West Project lies 290km south-southwest from the capital Ouagadougou and can be accessed by sealed highway to Gaoua. From Gaoua all weather gravel roads provide access to the permit areas. Access within the project is excellent via all-weather formed gravel and sand roads and village tracks. Access during the rainy season, from July to September can be restricted, as parts of the permit can be waterlogged and flooded by temporary drainage.

### 5.3 Climate

Burkina Faso has two distinct seasons, a rainy season and dry season. During the dry season a hot dry wind from the Sahara Desert blows called the Harmattan. The rainy season is from May/June to September. The project is located in the Sudan-Guinea climatic zone which receives more than 900mm rain per annum and has cooler average temperatures. The project is operational all year round.

### 5.4 Local Resources

The regional infrastructure in Burkina Faso is poor, with a limited power distribution network and poor road and rail networks. During the dry season water is commonly sourced from manually operated bores.

The project is located in a relatively sparsely inhabited area of Burkina Faso. As such, infrastructure and local resources are poor and limited to communities close the major roads. Project execution would require building a Greenfields project with attendant infrastructure. Power for any future mining operation would have to be generated on site.

Rudimentary supplies to support exploration activities are available in the town of Batie (population ~7,000), approximately 15km from the property. An exploration camp has also been completed near Batie and approximately 10 kilometres to the Konkera Project.



All casual labour and a significant number of contracted employees have been sourced from the neighbouring communities, including the Batie and Boussoukoula townships.

The exploration camp houses a maximum of 75 people on a one person per room basis, more if rooms are multi-occupier. There is an assortment of shared ablutions and en-suite rooms. The camp also hosts the Batie West exploration office, sample preparation laboratory, light vehicle workshop and core processing facility. Water is sourced from one of four water bores surrounding the camp. Camp electricity is provided by one of two diesel generators. The camp is manned 24 hours a day by security personnel.

### 5.5 Physiography

The project area exhibits a slightly undulating topography with peneplanation evident. Local laterite-capped low hills are flanked by the broad flat plains. The low plains are cut by seasonal streams and rivers. The Konkera deposits lie on gentle hills slightly elevated over the surrounding low plains. This most likely reflects their more weathering resistant nature due to pervasive silicification related to gold mineralisation.

The vegetation in the area is dominated by open woodland and wooded grassland, with minor areas of dense vegetation particularly along seasonal water courses.

The dominant crops in the area are cashew nuts, maze, millet and sorghum, with lesser amounts of rice, yams, peanuts, mangos and cassava cultivated.

Other agriculture in the area includes cattle farming and minor pig and poultry farming.

Agriculture on the Konkera resource area is restricted to cashew nut and maze cultivation, with minor cattle herding.



### 6. HISTORY

Historically, the Batie West tenement package has been subjected to reconnaissance exploration only prior to Ampella beginning work in July 2008. During the 1970s UNDP funded surface geochemical sampling was completed over a part of Burkina Faso's mapped greenstone that included the Gaoua to Batie region. Grid spacing at Batie was 500 x 250m and samples were analysed for Cu, Zn, and Ni +/- Pb only. However no assaying for gold was completed.

In 2007 a prospector working for a local gold buyer discovered colour in his pan which lead to a modern day artisanal gold mining rush (Kitto et al 2011). From 2007 to late 2009 approximately 5000 artisanal miners were active in the Konkera area. The artisanal miners typically hand dig small shallow shafts that do not extend far beyond the water table. Gold production was reported by the miners to be in the order of 2kg per day however no official records were maintained.

In early 2008 Newmont Mining undertook a three month option over the licenses with a local vendor that were to include the Konkera Deposit and conducted a stream sediment sampling program over three of the original tenements that included Tiopolo. Samples were analysed for gold by BLEG and multi-element by ICP-MS. However, Newmont experienced delays in receiving assays results for its BLEG sampling (which was later to return several anomalous results which coincided with the major prospects at Konkera). Ampella had a neighbouring permit and in mid 2008 visited the Konkera area and observed substantial alteration at the artisinal workings, which was noted to coincide with a major crustal shear which could be seen from the regional geophysics (Kitto et al, 2011). Ampella were very encouraged by this and began to actively pursue a deal with the local vendor. Newmont's option lapsed and Ampella was able to secure an agreement with the local vendor for the licenses and began exploration immediately (Kitto, et al, 2011).

In the latter part of 2008 Ampella completed broad spaced (800 x 200m) soil sampling, flew a high resolution magnetic and radiometric survey over the tenement package and commenced a 200 x 50m spaced auger drilling program across the Batie West shear zone. The first RC drill program, 21 drill holes for 2,956m over Konkera, Konkera North and Kouglaga was completed in September 2008. This program returned a number of significant assay results with the two best intercepts coming from the Konkera North prospect, returning 26m at 5.55g/t Au from surface (KNRC012) and 28 metres at 3.27g/t Au from 6m (KNRC013) (Kitto et al, 2011).

The maiden JORC (2004) resource estimate was completed for the project in January 2010 when an Inferred Resource of 18.6Mt at 2.0g/t Au for 1.19Moz Au (using a 1.0g/t Au cut-off) was estimated. Updated estimates were completed in February 2011 and November 2011.



### 7. GEOLOGICAL SETTING AND MINERALISATION

### 7.1 Regional Geology

The gold deposits of West Africa largely lie within the Proterozoic domain of the Man Shield, the southern most subdivision of the West African (or Guinean) Craton. The Man Shield successions overlie the Archaean Liberian Craton (Figure 3). The major gold producing areas are associated with the Lower Proterozoic systems of the Birimian (2.17-2.18 billion years) which comprises metavolcanic (arc) and metasedimentary (basin) rocks, unconformably overlain by the slightly younger rocks of the Tarkwaian epiclastic system.

The Birimian System of West Africa can be broadly subdivided into the Lower Birimian phyllites, tuffs and greywackes; and the Upper Birimian basaltic to andesitic lavas and volcanoclastics. These have been deformed and regionally metamorphosed with metamorphism ranging from lower greenschist to lower amphibolite facies grade.

The Birimian System has been intruded by two distinctive granitoid types; (1) basin-type muscovite and/or biotite-rich granitoids (and gneisses) that are distinctly foliated and deformed (indicating they predate tectonism) and (2) belt-type (arc related) hornblende-rich granitoids that are not deformed and are generally interpreted to be syn or post-tectonic in origin.

The younger Proterozoic Tarkwaian sediments consist of a thick series of arenaceous and to a lesser extent argillaceous sediments, believed to be derived from erosion of the Birimian basement.

Following the Birimian belt-basin development at around 2.1 billion years was the Eburnean tectono-thermal event. This single-stage progressive SE-NW compressional and regional metamorphic episode resulted in the development of pervasive north-northeast and northeast foliation and shear development. The event was accompanied by tight isoclinal folding particularly within the argillaceous rocks. Within the arc-related Birimian volcanics and Tarkwaian Series rocks are multiple episodes of strike-slip and over-thrust faulting from the northwest.

Gold mineralisation in West Africa is typically spatially associated with north to northeast trending belts of Upper Birimian metavolcanic rocks, ranging from 15km to 40km in width. The major gold deposits typically lie at or close to the margins of the belts in close proximity to the strongly deformed contacts between the Upper and Lower Birimian sequences.

Within the Birimian rocks gold mineralisation typically occurs in three principal settings. The most significant setting is gold mineralisation related to major structures at the Upper and Lower Birimian contact. These deposits comprise numerous styles of mineralisation, including quartz reefs hosted within carbonaceous phyllites, greywackes and mafic volcanic rocks associated with major semi-conformable shear structures and subsidiary oblique faults. Lower grade mineralisation may also be present as disseminations or associated with sheeted quartz veining within tuffs, greywackes and basic dykes situated in close proximity to major structures.

The second style of gold mineralisation is associated with sheeted quartz vein swarms and stockwork zones within granitoids. These deposits are typically lower grade than reef style mineralisation and appear to be confined to the smaller belt-type or Dixcove Suite granitoids and their regional equivalents.

The third type is Banket deposits which are hosted by quartz pebble conglomerates towards the base of the Tarkwaian Series. Gold is thought to be of detrital origin, derived from erosion of the Birimian Series upon which the Banket Group lie (refer Figure 3).





Figure 3 West African Regional Geology and major gold deposits (after Maclean et al 2013)

### 7.2 Property Geology - Konkera Deposit

### 7.2.1 Lithofacies and Lithofacies Associations

The principle lithofacies hosting the Konkera deposits (Figure 4) can be grouped into six distinct lithofacies associations which are described in the following sections. These associations have genetic significance with respect to their formative processes, depositional environment and timing relative to gold mineralisation.

The volcanic associations (volcaniclastics, basalts and andesitic breccia) and overlying metasediments are considered to have been deposited as a continuous sequence. The volcanics and metasediments are cross-cut by post deformation, intermediate to felsic intrusives (monzonites and feldspar porphyry's). The monzonites contain weak mineralisation and are spatially associated with the mineralisation. All lithofacies associations are cross cut by two younger undeformed dolerite dykes, through the central portion of Konkera Main and East. The Konkera deposits are variably hosted within the volcaniclastic, basalt, andesitic breccia and metasediment associations.





## Figure 4 Geological plan view of the Konkera deposits (Konkera Local Mine grid)



### 7.2.1.1 Metasediment Association Interbedded Shale and Sandstone

The metasediment association is dominated by interbedded shale and sandstone. The shale is dark grey to black, occasionally graphitic and rhythmically laminated to thinly bedded. Individual shale horizons range in thickness from centimetres to several metres, but are typically not much thicker than 10cm. The sandstone is massive, medium grained with a variable crystal component, but dominated by quartz grains that are typically angular and broken. Feldspar and rare mafic crystals and lithics also occur. The shale-sandstone contacts are generally sharp. Rare occurrences of accretionary lapilli are observed at the northern end of Konkera Main.

### Pyroxene Crystal Rich Volcanic Sandstone

This volcanic sandstone occurs as discreet narrow (less than 2m wide) horizons within the broader sequence of interbedded sandstone and shale with horizons commonly consistently spaced 10-20m apart. It characteristically displays abundant blocky clinopyroxene crystals 0.5-2mm in diameter. The primary clinopyroxene crystals have predominantly been replaced by actinolite. Rare prismatic hornblende crystals also occur up to 2mm and blocky plagioclase crystals 0.4-0.6mm long. The groundmass is commonly moderately-strongly foliated and predominantly composed of a mosaic of recrystallised actinolite and albite that wraps around the phenocrysts (Mason, 2012). This unit is interpreted to represent episodic volcanic eruptions from a distal source within a general period of quiescence.

### Volcano-Sedimentary Breccia

Breccia horizons are rare within the metasediment association but there is one significant breccia horizon that can be traced through most of Konkera North. Its contact lies approximately 150m above the top of shear at the southern end of Konkera North, gradationally becoming closer, so it is 50m above the top of shear at the northern end of Konkera North. The breccia are poorly sorted, polymictic, generally matrix supported and clasts are elongated and aligned to foliation. Clasts comprise a variety of sandstones, siltstones and shales with rare volcanic derived clasts. The matrix is composed of medium to coarse grained sandstone with a high lithic component and sparse ferromagnesian crystals. Contacts are generally sharp with surrounding shales and sandstones. Occasional well developed normal grading is displayed.

### 7.2.1.2 Volcaniclastic Association

### Shale

Multiple dark grey to black intervals of narrow shale horizons with varying proportions of graphite occur throughout Konkera, and are typically associated with siltstones. These are usually laminated to thinly bedded. Throughout Konkera Main, East and Konkera North there are between five and six separately recognised shale horizons with individual horizons typically less than 2m wide. These horizons are thought to represent background subaqueous sedimentation in periods of quiescence between volcanic eruptions.

### Volcanic Sandstone and Siltstone

Volcanic sandstone and siltstone is the dominant component of the volcaniclastic association and exhibits a wide range of characteristics. Bedding ranges from medium to thick planar to diffuse and massive, but is usually massive. Quartz is the principle crystal component and is typically angular and broken.

### Volcanic Breccia

Volcanic breccia is typically interbedded with volcanic sandstone but isolated units can be in excess of 30m thick. It is typically massive, poorly sorted, clast to matrix supported and lacks bedding and occasionally exhibits possible normal grading. Clast sizes vary from pebble (4-64mm) to cobble (64-256mm) and occasional clasts to over 1m are interpreted. Lithic clast types include volcanic sandstones and siltstones, dacites, mafic crystal bearing clasts and rare siliceous chert like clasts. There are occasional andesitic breccias within the volcanic



association that are indistinguishable from the andesitic breccias within the andesitic breccia lithofacies association. Due to the strong deformation and alteration it is often difficult to consistently differentiate breccias from sandstone lithofacies, so they have not been successfully modelled in 3D.

### 7.2.1.3 Basalt Association

### Basalt

The basalts occur as up to six main horizons (typically four) throughout the Konkera resource area, ranging in thickness from 1-2m to a maximum of 170m at the southern end of Konkera Main. They are typically massive, dark green-grey, fine grained and often strongly magnetic with disseminated magnetite varying in diameter from 0.5-2mm. Epidote is occasionally present as patchy alteration and in veinlets. The lack of chilled margins and conformable nature of the basalt in 3D models, indicate they were probably emplaced as extrusive flows. The contacts of the basalt with enclosing sediments are often obscured where adjacent sediments are strongly deformed and altered. When magnetite and epidote is not present, the basalts can be difficult to differentiate between fine grained volcaniclastics. Although difficult to identify conclusively, rare amygdales and pillow like structures have been observed, generally within the lower basalts.

Preliminary multi-element analysis work from the basalts in Konkera Main indicates that each of the basalt flows have distinctive geochemical signatures, which may be the result of eruption from a fractionating magma chamber. Further geochemical analysis and study is warranted to refine geological models.

### Basalt Breccia

An interpreted basalt breccia horizon occurs above the andesitic breccia contact from the southern end of Konkera East to 19400mN, but it is generally difficult to differentiate from deformed basalts and volcaniclastics. It contains distinctive dark green fine grained clasts generally 5-10cm in diameter and the matrix is usually strongly carbonate-quartz altered, making the outlines of clasts difficult to recognize. It is commonly closely associated with a narrow unit of discontinuous basalt.

### 7.2.1.4 Andesitic Breccia Association

### Andesitic Breccia

Andesitic breccia occurs as a massive, poorly sorted, matrix supported, quartz-sericite package in the footwall to the resource area, except for Kouglaga which is hosted within the andesitic breccia. It characteristically exhibits a light green to yellowish colour due to a high paragonite content. Clast size varies from pebble (4-64mm to cobble (64-256mm) and clasts are characteristically porphyritic displaying prominent ferromagnesian crystals replaced by chlorite to approximately 2mm in diameter. Plagioclase crystals are also present but less common and are 1-2mm in diameter. The proportion of hornblende crystal bearing clasts is highly variable. Clasts are often elongated due to deformation and can give the breccia a 'bedded' appearance. Due to strong deformation and alteration in this lithology, it is difficult to determine grading and locations of contacts between breccias and sandstones. The andesitic breccia usually forms a clear, sharp, probably conformable contact with the overlying volcaniclastic/basalt associations. Due to the high paragonite content, spectral analysis using Ampella's Terraspec analytical instrument can generally be used to determine the approximate position of this lithofacies.

### Volcanic Sandstones

Narrow sandstone intervals occur throughout the andesitic breccia lithofacies and are generally interpreted as being fining tops to the breccia flows. There are also thicker faulted volcanic sandstone horizons at Kouglaga. They are 20-150m wide but generally closer to 60m and due to limited DD drilling and strong alteration are difficult to differentiate from the breccia horizons.



### Shales and Siltstones

Shale and siltstone horizons have been intersected within the andesitic association package in 2 RC holes at Konkera East and throughout the eastern side of Kouglaga. The shale and siltstone horizons are approximately 20m thick but can be up to 90m thick on a couple of sections at Kouglaga. At Konkera East, the siltstone is medium grey-green in colour and contains a high proportion of silica giving it a 'cherty' appearance.

### 7.2.1.5 Intermediate - Felsic Intrusive Association

### Monzonite

The monzonite intrusives occur throughout the Konkera deposits with the exception of Kouglaga. They occur as multiple (generally 5), narrow (<2.5m wide) stacked sheet like intrusions that generally occur over a width of less than 150m but are up to 300m apart to the west of Kouglaga. They generally trend north south but swing to trend north north-west to the west of Kouglaga. They have variable dip but generally dip between  $50^{\circ}$  to the west to sub-vertical.

The monzonites are typically red-pink in colour and display feldspar crystals to 2mm with minor quartz crystals to 1mm set in a fine grained albite rich recrystallised groundmass. Rarer chlorite occurs as dense pseudomorphous replacements of possible prismatic hornblende crystals from 0.5mm to 3mm long (Mason, 2010). They characteristically contain disseminated pyrite, trace gold (<0.5g/t Au) and narrow mineralised alteration haloes into the surrounding host rock. The intrusions are undeformed and commonly display chilled margins. Rare monzonite intrusions have been observed to cross cut the feldspar porphyry, indicating that they intruded later or contemporaneously. The monzonite and feldspar porphyries have distinctive immobile element geochemical signatures and can readily be distinguished on a Zr vs Ti scatter plot.

### Feldspar Porphyry

The feldspar porphyries have only been intersected in the Konkera East area. They strike north south and dip approximately 65° to the west. They cross cut from the volcaniclastics and basalts into the andesitic breccia's, at a low angle to stratigraphy. They occur as multiple (up to 9, but generally 6) stacked sheet like intrusions that pinch and swell generally less than 5m wide. They generally converge at depth, especially towards the north where the intrusions can occur over a width of less than 30m. The intrusions occur stacked over a maximum width of 120m, but generally cover a width of closer to 60-70m.

The feldspar porphyry's are white-pink to yellow in colour and display prominent feldspar crystals to 4mm and occasional quartz crystals to 1mm, set in a fine feldspar-quartz groundmass. The crystal composition varies from being almost aphyric to displaying varying proportions of feldspar and quartz, but is generally feldspar dominant. Occasionally, the feldspar porphyries are very weakly deformed.

### 7.2.1.6 Mafic Intrusive Association

### Dolerite

Dolerite occurs as two narrow (approximately 0.5-2.5m wide) dark grey, strongly magnetic, fine grained intrusions and usually displays clinopyroxene crystals to 1mm in diameter giving it a porphyritic texture. They trend at 280° and dip sub-vertical to steep to the south. They are relatively fresh and undeformed. They characteristically display chilled margins that are often glassy and cross cut all other lithologies.

### 7.2.2 Stratigraphic Architecture

Broadly, the organisation of lithofacies associations form an upward facing sequence from a coarse basal andesitic breccia to volcanics dominated by sandstone to the metasediments that are dominated by interbedded sandstone and shale. Gold mineralisation is hosted within all of the major lithological associations apart from the felsic intrusions and dolerite dykes, although the monzonites do appear to be weakly mineralised.


At Konkera Main and East, mineralisation is hosted within basalts and volcaniclastics (Figure 5 and Figure 6), at Konkera North in metasediments and volcaniclastics (Figure 7), at The Gap in volcaniclastics (Figure 8) and in andesitic breccias and sandstones at Kouglaga (Figure 9).

The metasediment package has been drilled to a maximum thickness of over 370m at Konkera North and its upper contact has not been intersected. The volcaniclastic and basalt sequence has been drilled to a maximum thickness of over 370m at Konkera Main but narrows to approximately 70m in places at Konkera North. The andesitic breccia sequence has been drilled to over 400m thick at Kouglaga but its lower contact has not been delineated.

The presence of shale and only very minor volcanics within the metasediments indicates a more quiescent phase of sedimentation likely to be associated with a waning in the influx of volcanic detritus to the depositional basin. The presence of narrow units of volcaniclastics within the metasediments indicates some pulses of volcaniclastic influx still occurred and that the metasediment facies doesn't represent a true black shale deposited from suspension settling (Sharpe, 2010). Normal grading within breccia units in the metasediment association at Konkera North has been observed, indicating the stratigraphic sequence is right way up. This is supported by John Crossing's mapping that indicates younging to the east, based on one reliable observation (Crossing, 2012). The volcanic vent where the basalts were sourced from has not been identified but the thicker sequences at the southern end of Konkera Main indicate it may be close to the southern end of the resource area.

Reconstruction of the original volcanic architecture is difficult due to the intense shearing and alteration and the complex nature of the original volcanic architecture. Threedimensional modelling of individual units within the metasediments, volcaniclastics and andesitic breccia's associations has generally not been attempted, apart from for the narrow discontinuous shale horizons.

The various lithofacies could be modelled with varying degrees of confidence. The clearest lithological contact is between the andesitic breccia and volcaniclastics and/or basalt from Konkera East through to the northern end of Konkera North. The basalt lithofacies is the dominant lithology modelled and has proven very useful in reconstructing the volcanic architecture, although is often very difficult to differentiate between some of the finer volcaniclastics. Within the lower most basalt through Konkera North, distinct coarse volcanic sandstone occurs that acts as a good marker horizon. Within the volcaniclastics, narrow discontinuous shale horizons occur that also act as marker horizon although with limited confidence. The contact between the metasediments and the underlying volcaniclastics and basalts from the northern end of Konkera Main to the northern end of Konkera North is generally very difficult to identify due to intense shearing and alteration, however it is interpreted to be a relatively sharp lithological contact and its position has been able to be reasonably delineated by identification of metasediments above it and basalt below it. Within the metasediments the narrow pyroxene crystal rich volcanic sandstone and breccia units are able to be correlated where they have been identified in diamond drill core, but have not been modelled in 3D.





Figure 5 Stratigraphic section for Konkera East at 18900mN (local grid) looking north showing main lithology type associations (drill hole traces removed)





Figure 6 Stratigraphic section for Konkera Main at 19635mN (local grid) looking north showing main lithology type associations (drill hole traces removed)





Figure 7 Stratigraphic section for Konkera North at 21200mN (local grid) looking north showing main lithology type associations (drill hole traces removed)





Figure 8 Stratigraphic section for The Gap at 22850mN (local grid) looking north showing main lithology type associations (drill hole traces removed)





Figure 9 Stratigraphic section for Kouglaga at 23420mN (local grid) looking north showing main lithology type associations (drill hole traces removed)

# 7.2.3 Weathering

The weathering profile is relatively shallow from Konkera Main and East to the southern end of Kouglaga, with a base of complete oxidation (BOCO) averaging 12m and depth to top of fresh rock (TOFR) 35m down drill hole (corresponding with approximately 10m and 30m below surface respectively). At Kouglaga, the weathering profile is significantly deeper with an average depth to BOCO at 55m and TOFR around 72m.

The weathering profile is significantly more undulating than the generally flat topography. TOFR and BOCO occasionally remain sub-parallel to one another but generally the BOCO surface is flatter. There is a general tendency for the BOCO and TOFR to be deeper and more variable through the mineralised shear zone. The weathering profile also generally deepens to the east in the andesitic breccias away, from the mineralised shear zone.

In the weathered zone, rocks have been altered to a Fe-oxide, kaolinite, montmorillonite, saprolitic assemblage. The saprolite profile has an upper and lower portion, typically denoted by a colour change from red-orange to brown-green reflecting a change in oxidation states.

## 7.2.4 Mineral Deposit

#### 7.2.4.1 Introduction

The deposit style at Konkera is considered to be a shear zone hosted orogenic disseminated sulfide gold deposit. The Konkera deposit comprises five main prospects, which includes Konkera East, Konkera Main, Konkera North, The Gap and Kouglaga (Figure 10). Together these zones define a mineralised system over 5km in length, which form part of the Batie West Shear Zone that can be traced over a strike length of over 110km.

The deposits all lie along the same continuous mineralised horizon except for Kouglaga, which is approximately 300m further to the east. The deposits are covered by a thin 1-2m thick



layer (maximum 10m at Kouglaga) of transported weakly ferruginised laterite with rare outcrops of quartz veins or silicified host rock. There appears to be no significant supergene upgrade or depletion of the mineralisation in the weathered profile. The deposits have been drill tested from 150m to a maximum vertical depth of 500m at Konkera North, and are all open down dip, although the tenor of grade under Kouglaga appears to drop significantly at the base of drilling.

## 7.2.4.2 Geometry

The Konkera mineralised zones are grossly stratiform with the host sequences and mineralised envelopes generally dip to the west and trend north-south apart from at the northern end of Konkera Main where the mineralisation is interpreted to cross-cut a folded host sequence. The five major prospects host mineralised corridors ranging in length from 350m to 2km and vary in thickness from several metres to 330m. They are made up of multiple stacked lenses that can be up to 30m wide but are generally less than 10m wide (most are several metres wide).

Mineralisation generally exhibits good continuity along strike and down dip but is cross cut by a series of narrow unmineralised felsic intrusives from Konkera Main/East to The Gap and two dolerite dykes at Konkera Main and East. At Kouglaga the mineralisation is offset by a series of steeply dipping reverse faults, and it appears to be less continuous.

The Konkera East deposit has a strike length of 700m, is up to 110m wide and is broadly lenticular in shape. It is made up of six major lenses. The two most continuous lenses comprise a lower quartz vein rich higher grade lense, dipping at  $50^{\circ}$  to the west, and a lower grade upper lense dipping at  $65^{\circ}$  to the west. The lower lense lies directly above the andesitic breccia contact which could be an important control on this mineralisation lense. The lenses converge immediately up dip of a thick basalt unit and the grade subsequently drops dramatically.

The Konkera Main deposit lies directly to the west of Konkera East but starts approximately 150m offset further to the north of the southern extent of Konkera East. It has a strike length of approximately 1.1km and is up to 250m wide and has a lenticular shaped southern extent in plan. It is made up of approximately eleven lenses which decrease in number at the northern and southern extents of the deposit. The lenses dip from up to 85° on the western side of the deposit where they are subparallel to the felsic intrusives and appear to be structurally controlled, to 50° in other places where there appears to be at least some sort of rheological control caused by the different physical properties of the basalts and volcaniclastics.

The Konkera North deposit lies directly along strike from Konkera East, but starts at the northern end of Konkera Main and has a strike length of 2km and is up to 85m wide. It comprises three main lenses and the mineralisation is generally much more consistent than at Konkera Main or East. The lenses dip 40° to the west to sub-vertical, but generally dip closer to 70° west. At approximately 21240mN to 21530mN the lenses (and lithology) flatten out in cross section to form a flexure or jog, typical of transfer faults within shear zones. This flexure plunges to the south at approximately 25°. A reverse movement on the shear would cause dilation through the flexure causing an area favourable for gold deposition indicating the flexure is a very important control on mineralisation (Figure 11).

The consistent nature of the Konkera North mineralisation is thought to be due to the shear being focussed along the contact between the metasediments and volcaniclastics/basalt sequences.

The Gap deposit lies directly north of Konkera North and is very similar in mineralisation characteristics, but the mineralised system is not as well developed. It has a strike length of approximately 1.7km and is up to 10m wide but typically less than 5m wide and consists predominantly of a single lense. The deposit trends north-south but swings to strike northeast at 22900mN and at the same point bifurcates into a second splay.



The Kouglaga deposit has a strike length of approximately 350m and is up to 330m wide. It is made up of approximately ten lenses but due to the complex structure, it is difficult to determine how many additional lenses are caused by fault offsets. The deposit is irregularly shaped with its western extent trending northwest and its eastern side trending roughly north south. The individual lenses dip irregularly 35° to the west and generally strike irregularly north-south but more to the northwest at the deposits northwestern side. The deposit is cross cut by a series of six interpreted sub-vertical to westerly dipping faults with an interpreted reverse offset movement. The mineralisation typically changes in character across these faults but due to limited diamond drill core data it is difficult to identify lithology, and precisely locate the faults. The Kouglaga deposit is located to the east of a large flexure in the main mineralised shear adjacent The Gap, and the Kouglaga deposits shape indicates it may represent a splay from this flexure.

Figure 10 Isometric view looking from the southwest at mineralised wireframes for Konkera Main and East to Kouglaga





Figure 11 Long section of Konkera North contoured from the centre of drill hole intersections shown as dots. The higher grade portion of the mineralisation plunges to the south at approximately the same angle as a flexure in the shear zone (and lithology). The location of the centre points of the flexture in the middle of modelled mineralisation between sections 21240mN and 21530mN is shown in the diagram as a black arrow





## 7.2.5 Mineralisation

Gold mineralisation is typically associated with disseminated sulfide zones with variable albite, sericite, carbonate (ankerite, siderite, dolomite)  $\pm$  silica  $\pm$  pyrite  $\pm$  arsenopyrite alteration. Intensity of deformation is variable, but is generally strongly foliated apart from in zones of intense albite-silica alteration which can be more massive.

Higher gold grade is usually accompanied by an increase in quartz veins and sulphide content, including both pyrite and arsenopyrite. The proportion of disseminated sulphide is generally minor, with pyrite mineralisation common throughout generally up to 2%. Arsenopyrite is rarer, occurring as an accessory mineral and more irregularly distributed. Within mineralised zones, many veins and veinlets have an orientation parallel to foliation and have been filled by microgranular assemblages of quartz and carbonate (dolomite, calcite) with or without minor amounts of sulphides (pyrite, arsenopyrite, chalcopyrite and pyrrhotite) sericite, albite, chlorite and tourmaline (Mason, 2010). Free gold visible to the naked eye is very rare, and has only been noted in a few holes at Konkera Main and East, and Konkera North within quartz veins. A Mineral Liberation Analyser (MLA) study of 20 samples concluded that 70wt% of visible free gold is in the size range 5-30 microns.

Pyrite is intimately associated with gold and a study of 20 samples with a Mineral Liberation Analyser (MLA) showed 82wt% of visible gold grains are confined to pyrite or pyrite contacts. In drill core and RC chips the pyrite appears as very fine grained disseminations and is either distributed throughout the rock mass, or occurs as cubic euhedra up to 2mm in diameter. Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICPMS) shows pyrite grains exhibit four different phases of growth and are concentrically zoned and the second phase represents the main gold event. Textures suggest the first phase is pre-deformation and the 2<sup>nd</sup> phase is pre to possibly very early in the deformation history and phases 3 and 4 are post deformation (Large et al., 2011). Drill core observations also suggest there is more than one phase of pyrite present in the mineralised system as pyrite cubes can be observed to be overprinting foliation but also cross cut and broken up along foliation planes.

Arsenopyrite occurs as fine crystal aggregates but also as large porphyoblastic crystals 2-4mm in diameter that sometimes exhibit pressure shadows. The presence of arsenopyrite is nearly always associated with strong gold mineralisation. In some occurrences, arsenopyrite completely dominates over pyrite indicating varied Fe-As-S contents in the hydrothermal fluids (Doug Mason). The MLA study showed 7Wt% of the visible gold is associated with arsenopyrite.

Quartz veins associated with gold mineralisation are minor in volume and generally narrow from mm's to cm's, translucent-grey in colour and difficult to correlate between drill holes apart from at Konkera East where a thicker (several m's) higher grade quartz vein lies just above the andesitic breccia contact. Veins are usually aligned with foliation and also commonly deformed including being boudinaged and folded. Veins are also sometimes planar, cross cutting foliation with sharp wall rock margins indicating multi stage vein development. Quartz veins also sometimes occur as narrow mm-scale erratic fracture fill network through the host rock resembling a fine stock work.

Throughout most of Konkera there are also later quartz veins that cross cut foliation and generally seem to be less mineralised. These veins are usually milky white in colour and contain coarse carbonate and rarely pyrite and/or arsenopyrite. When these veins contain a higher sulphide content or when arsenopyrite occurs as disseminated vein selvages, they can contain some significant gold mineralisation. A visual inspection of the main horizontal veins set in figure 12 shows these veins are generally white and composed of quartz-carbonate and cross cut the main shear event. They are also considerably lower grade than the steeper veins.



Figure 12 Stereograph plot of pole vectors for all vein measurements from Konkera North in UTM grid taken from within the modelled mineralisation wireframes showing a later stage horizontal vein set



Significant gold mineralisation is recognised in all lithofacies except for the felsic porphyries and dolerite intrusions. The distribution of gold mineralisation is controlled by a number of different lithological factors in addition to the main structural controls. Gold mineralisation generally seems to be higher grade in metasediments and volcaniclastics as opposed to basalt. This is interpreted to be due to the volcaniclastics being more porous and ductile than the basalts allowing greater fluid-rock interaction and subsequent gold deposition. Additionally, the competency contrast between the basalts and volcaniclastics focuses shearing within the volcaniclastics adjacent basalt contacts.

At Konkera North, the mineralisation appears to be focused along a major lithological contact between metasediments and volcaniclastics and basalts. This contact has probably acted as a plane of weakness and allowed the shear to concentrate along this horizon increasing mineralising fluid flow. Additionally, at Konkera North, narrow shale horizons commonly occur at the base of the main alteration and mineralisation which may have helped control mineralisation by localising shearing within certain domains.

At Konkera East, although there is strong mineralisation directly above the andesitic breccia, the andesitic breccia is generally not mineralised. It is not known if the gold mineralisation is preferentially being deposited in the more mafic rocks above the andesitic breccia because of the more Fe rich composition, or because the gold is being deposited along a favourable structure that is related to the andesitic breccia - volcaniclastic contact but which doesn't cross into the andesitic breccia.

Gold mineralisation may also be enhanced in the hinge of folds for example at the northern end of Konkera Main where there is strong gold mineralisation within volcaniclastics around the limb of an interpreted pre-shear event anticline.

A set of 34 sulphur isotopes indicate a history of reduced fluids overprinting an oxidised fluid system. This is interpreted to be associated with the waning of the mineralising oxidised porphyry fluid and the change to a predominance of a reduced regional system as the pyrite is forming. Grades are highest where the oxidised signal is the strongest. Pb isotopes suggest a date from 2000 to 2200 Ma for the main mineralising event (Large et al., 2011).



# 7.2.5.1 Hydrothermal Alteration

Two main styles of alteration have been identified including a prograde metamorphic assemblage of chlorite  $\pm$  carbonate (calcite) ( $\pm$  epidote,  $\pm$  magnetite,  $\pm$  leucoxene) and a hydrothermal mineral assemblage of sericite, carbonate (ankerite, siderite, dolomite), albite  $\pm$  silica, pyrite ( $\pm$  arsenopyrite). Overprinting relations between the dominant foliation and constituent minerals places important temporal constraints on the metamorphic and hydrothermal alteration assemblages and history. The hydrothermal mineral event is spatially and temporally related to gold mineralisation and is ascribed to an alteration event that clearly postdates the metamorphic thermal maximum and can be interpreted as being later than the retrograde metamorphic event.

The pro-grade metamorphic alteration assemblage is most strongly developed in basalts not affected by the main shear event and associated hydrothermal alteration, and can be classified as a lower greenschist assemblage. It generally forms a moderate pervasive alteration. It is not as well developed in metasediments and volcaniclastics but appears to be present in all lithologies except for the dolerite dykes which postdate this alteration event. In thin section, prograde metamorphic mineral assemblages (zoisite + albite + calcite + chlorite + leucoxene) of the lower greenschist facies have been recorded in only one sample of basalt. Local intense chlorification around dolerite dykes is interpreted as being a later alteration event postdating both the pro-grade metamorphic and hydrothermal alteration assemblages

The hydrothermal alteration assemblage is thought to have been formed during ductile deformation and synchronous invasion by a  $CO_2$ -S-B-Au bearing hydrothermal fluid, overprinting the lower greenschist prograde mineral assemblage. Thin section petrography has also identified ilmenite, rutile and tourmaline as part of the main hydrothermal alteration mineral assemblage. More oxidized alteration conditions in the monzonite porphyry's produces a more anhydrite + hematite rich assemblage than surrounding rocks.

The hydrothermal alteration forms a patchy to intensely pervasive alteration style. In general, the alteration is best developed around monzonite intrusions, intensely sheared areas, quartz veins and in metasediments and volcaniclastics. The alteration usually forms an intense replacement of the original lithology so that few host rock textures remain. In some volcanic breccias the clasts are preferentially altered with phyllosilicate minerals enhancing the clastic texture.

In areas of stronger albite alteration, the rock takes on a light pink hue with a poorly developed spaced foliation. Zones of strong-intense albite-silica alteration are generally minor and narrow at Konkera Main and East but at Konkera North these zones are wider and more characteristic of the most highly altered and higher grade intervals. The general distribution of the hydrothermal alteration is more irregular at Konkera Main and East and more consistent through Konkera North where it generally forms wide continuous zones throughout the shear zone. At Kouglaga, changes in alteration intensity related to mineralisation are more difficult to identify and mineralisation is typically associated with more vein rich intervals.

Spectral mapping of data from Konkera North using Ampella's Terra Spec and interpreted using the 'Spectral Geologist Software' has been modelled into 3D shapes using Leapfrog software by Scott Halley. The modelled proximal alteration envelope (carbonate, sericite-carbonate, sericite-chlorite but excluding sericite with wavelengths <2194nm) is closely related to gold mineralisation and tightly envelopes it (Figure 13). Additionally, the composition of sericite shows a gradational change from phengite in the hangingwall, to more muscovitic compositions in the mineralised zone to more paragonitic compositions in the footwall which is interpreted to be related to the hydrothermal fluid. The more paragonitic compositions of sericite are not associated with gold. Modelling of spectra from Konkera Main and East and Kouglaga does not show the same clear relationships to gold mineralisation as at Konkera North where fluid focussing and subsequent more intense alteration is developed.



Figure 13 Cross section through 21360mN showing the spectral mapping proximal alteration envelope in blue stipple modelled using Leapfrog over lithology and modelled mineralisation outlines. Drill hole traces have been removed





# 7.2.6 Structure

The Konkera deposits are predominately hosted along a single structural corridor that lies within a major mineralised shear zone, apart from Kouglaga which lies a further 300m to the east off a possible splay from a flexure in the main mineralised shear zone. The shear zone is more complex at Konkera Main and East with multiple narrower shears that seem to dissipate at its northern extent, before Konkera North commences. Very few late structures offsetting mineralisation have been observed and the shear zone is continuous throughout. A strong foliation defined by mineral alignment of sericite is present. Several major flexures in the shear zone are thought to have occurred pre-mineralisation and an earlier phase of folding is recognised that pre-dates the shear zone at the northern end of Konkera Main.

## 7.2.6.1 Shear Zone

The hangingwall contact of the shear zone at Konkera North and The Gap is relatively sharply defined by a change from a trace-weak foliation intensity with associated weak-moderate alteration to moderate-strong foliation and strong alteration, over less than several metres. Within the shear zone itself, the intensity of shearing is generally consistently strong through Konkera North. At Konkera Main and East the hangingwall to the shear zone is more difficult to define, and within the shear zone, the intensity of shearing is much more variable. At Konkera Main, the hangingwall of the shear zone is defined by the presence of narrow mineralised shears that cross cut relatively massive and undeformed basalt. These shears can be less than a metre wide and have a spacing of up to 50m between adjacent shears. Defining a footwall contact to the mineralised part of the shear is difficult but generally shearing and alteration intensity decreases coinciding with an increase in chlorite content. Through Konkera Main, East and North the shearing continues into the unmineralised footwall andesitic breccia, which commonly displays increased foliation intensity and minor discontinuous quartz veining. The eastern extent of the shear zone has not been defined by drilling.

There are two major flexures in the shear zone at Konkera North, one between 20100mN and 20400mN and one between 21200mN and 21600mN. These flexures correspond to a flexure in both the lithology and mineralisation and are interpreted to have occurred premineralisation. The monzonite intrusions also appear to follow the flexure at the southern end of Konkera North that also corresponds with an increased number of stacked intrusions at the same location. Additionally, the basalt appears to narrow in the centre of the northern flexure indicating it may have been sheared in a high strain environment rather than being folded in a later less intense event. Similarly a major flexure in the shear zone to the west of Kouglaga corresponds to the bifurcation of the mineralisation as the shear zone flexes to the east indicating that the flexure played some control on mineralisation.

## 7.2.6.2 Mineralised Structures

The monzonite intrusions are thought to have at least partially intruded along the main structures that introduced the gold mineralisation. Although the monzonites cross cut stratigraphy and mineralisation, they are generally spatially associated with the mineralisation and as noted above, can be observed to follow some of the flexures in the shear zone.

Definitive offset across felsic intrusions within the main shear is difficult to establish as they generally intrude at a low angle to lithological contacts. These structures are interpreted to be a series of stacked faults with limited movement west over east as observed in kinematic indicators. An apparent reverse sense of movement can be observed across some feldspar porphyry intrusions at Konkera East, where they cross cut the andesitic breccia contact. Possible reverse movement is also present at Konkera North across monzonite intrusions where they cross cut the metasediment - volcaniclastics/basalt contact. Additionally, rare repetition of the andesitic breccia contact at Konkera East suggests a possible reverse sense of movement.



## 7.2.6.3 Foliation

Within the shear zone, development of foliation between different lithologies is variable. Foliation is often moderately to strongly developed in volcaniclastic units where it generally forms subparallel to bedding. In some cases where high angle faults cut across stratigraphy, local higher angle foliations are developed associated with discordant shearing and textures that may include host rock brecciation and zones of strong quartz-carbonate veining. Commonly, some volcaniclastic units show a stronger development of foliation than others which supports differential strain partitioning and development of fabrics in less competent units (Sharpe, 2010). Within some breccia units some clasts have altered to a more phyllosilicate mineralogy and have developed a stronger foliation than the surrounding host rock. Foliation development in basalts is generally weak but in strongly sheared intervals the basalt becomes strongly banded with bands defined by alternating alteration-rich assemblages of chlorite and carbonate.

Stereograph plots of foliations from within modelled mineralisation shapes from Konkera Main, East and North show a consistent northwest trend of foliation of approximately 225° UTM grid. At Konkera Main and East the dip averages approximately 71° to the southwest and at Konkera North 83° to the southwest (Figure 14). Measured foliation data from within each deposit shows no distinct clusters of data but rather indicates all fabrics have been strongly aligned to the shear.

Figure 14 Stereograph plot of pole vectors for foliation measurements in UTM grid from Konkera North taken from within the modelled mineralisation wireframes



## 7.2.6.4 Early Folding

Folding that predates the main shear event is evident at the northern end of Konkera Main. A relatively tight anticline and syncline is interpreted that appears to be cross cut by the shear zone. The anticline is probably helping to control mineralisation around the fold hinge. The fold axis plunges  $25^{\circ}$  degrees to the north north-east (local grid) and the fold axial surface dips  $70^{\circ}$  to the east. Although the stratigraphy appears to be folded through Konkera North, it generally parallels mineralisation and is thought to be associated with the main shear event.



## 7.2.6.5 Faults

Small faults are observed in drill core but most are minor and have not been able to be traced between sections. A range of structural fabrics are developed within these structures including increased foliation, occasional narrow intervals of fault gouge, quartz-carbonate veins and brecciation. The influence, timing and role of these smaller structures on mineralisation is unclear at this stage.

Generally, there appears to be very few significant late faults that offset mineralisation apart from at Kouglaga, where a series of six north south trending steep to reverse faults are interpreted to cross cut mineralisation. These structures have not been able to be measured directly in drill core, but are interpreted on lithology and mineralisation offsets. Fault gouge and strongly broken and fractured rock is common at Kouglaga indicating the area is in a strongly faulted zone.

At Konkera Main there is a significant late fault that passes through the 19840mN section and is characterised by strong deformation including fault gouge and quartz-carbonate veining over 4m. It has been intersected in only two holes on this section and is interpreted to be trending steeply east west (between sections). Based on the change in position of the fold hinge across this structure, it could have a dextral displacement of tens of metres and north block down of a similar magnitude.

Although there is some strong late deformation adjacent dolerite dykes, and overprinting chloritic alteration at Konkera Main and East, no clear significant offset of the mineralisation or felsic intrusions has been noted. The dolerite dykes could be following an earlier structure that predates mineralisation, but the significance of this possible structure is not understood but it could potentially be a very important mineralisation control.



# 8. DEPOSIT TYPES

Most Birimian hosted gold deposits occur at the transition zone between volcanic belts and sedimentary basins that are often associated with regionally extensive shear zones. Two major styles of gold mineralisation occur in the Birimian, including structurally controlled quartz vein style deposits and chemical sediment hosted deposits where gold is associated with selvages to quartz veins. There are many variations of these two main styles of mineralisation. In Burkina Faso, the main deposit types with examples include:

- Structurally controlled, lode gold deposits characterised by a major shear zone with gold occurring in the crystal structure of sulphides, which are dominated by pyrite and arsenopyrite (Konkera, Mana);
- Structurally controlled, lode or stock work mineralisation related to major shear zones with native gold and polymetallic sulphide (Essakane);
- Shear Zone Hosted Vein (Inata and Poura);
- Porphyry copper-gold (Goua Porphyry Copper Gold).

The Konkera mineralisation has typical lode gold deposit characteristics as it is hosted within a major shear zone and contains refractory gold. It has very similar characteristics to the Mana deposit that lies within the Hounde Greenstone Belt which is west of and adjacent the Boromo Greenstone Belt.

The project also contains wide zones of low grade disseminated mineralisation hosted by shears within granodiorites at Wadaradoo which is approximately 35km to the north of the Konkera resource.

Apart from numerous quartz vein shear deposits that occur along strike from Konkera within the main regional shear zone, there is also vein and alteration hosted mineralisation that was recently discovered at Napelepera. This mineralisation style is significant as it lies outside of the main greenstone belt, approximately 9km to the south west of Konkera.

Due to the large number of possible styles of gold mineralisation within the Boromo Greenstone Belt and adjacent to it, and the widespread occurrence of gold mineralisation within the Ampella tenements, all first pass type sampling is planned so that it could potentially discover most styles of gold mineralisation. Additionally, XRF analysis is used on all first pass sampling to potentially identify economic concentrations of other minerals and so that pathfinder elements for gold can also be examined. The recent discovery of mineralisation outside the main greenstone belt at Napelepera, means exploration now also has to focus on areas that were previously considered lower priority and uneconomic.

The sample spacing for second pass exploration including AC may be altered slightly depending on the perceived style of gold mineralisation in the area. For example, the sample spacing might be made tighter if it is thought narrow shear vein hosted gold is the target as opposed to disseminated porphyry gold style mineralisation.

At the mineralisation drill out stage, models of lithology, structure, alteration and their relationship to mineralisation are often used to help plan drill holes. For example, holes may be planned to target dilational zones where the stratigraphy or shear zone appears to be flattening out or at favourable lithological contacts within shear zones. Holes may also be planned to target narrow porphyry intrusions if it is considered these are associated with mineralised structures. Generally though, once possible economic mineralisation is discovered, drilling is still largely carried out systematically following the highest grade along strike and down dip.



# 9. EXPLORATION

## 9.1.1 Exploration Methods

Ampella's exploration strategy involves targeting areas of interest through both desktop reviews of all available data sets and a field assessment of prospective areas. Following such an assessment of Konkera and agreement being reached with the existing landholder in July 2008, ground-based studies consisting of regional mapping (geology & regolith) and rock chip sampling along with a broad spaced soil sampling program commenced immediately. As a result of the mapping the best method for primary geochemistry sampling (soil or auger) was determined. The Batie West shear zone and specifically the Konkera region on the Tiopolo permit was prioritised and sampling commenced immediately north of Kouglaga and traversed south of Konkera Main East to the permit boundary. Primary gold geochemistry results were followed up with infill lines and then by reverse-circulation or diamond drilling, if warranted.

Limited funding in mid-2008 and the onset of the Global Financial Crisis (GFC) saw Ampella complete a small maiden reverse circulation drill program consisting of 21 drill holes over a number of targets across a strike length of 5km at a very preliminary stage in the Konkera exploration program but did provide the initial success required to raise further funds.

## 9.1.2 Geophysics

In August 2008 New Resolution Geophysics (NRG) conducted a high resolution helicopter borne magnetics and radiometrics survey for Ampella covering the six original Batie West permits. The survey had an average sensor height of 30m and a line spacing of 100m in an East-West orientation for a total of 11,520 line kilometres flown. The survey was conducted as a series of three blocks with data provided for each block.

In March 2010 following agreements being reached with local vendors for several additional permits UTS Aeroquest conducted a high resolution fixed wing borne geophysical survey of these permits. The survey parameters were identical to those of the previous survey and the total line kilometres flown were 11,662.

In May 2010 Southern Geoscience Consultants merged and reprocessed the two surveys.

A Hi Resolution Induced Polarisation (HIRIP) survey was conducted by Terratec Geoscience over the Konkera Deposit during February and March 2011. The survey consisted of 24 lines with line spacing varying between 100 and 200m apart, covering a strike length of 4.9km. Electrodes were situated every 20m along lines which varied from 1900m to 2100m in length for a total of 48 line kilometres.





Figure 15 Batie West Project Aeromagnetic plan

# 9.1.3 Grab/Rock Chip Sampling

Rock chip and grab sampling were conducted during the geological mapping of the resource area by geologists of Ampella Mining SARL. Approximately 60% of the grab samples were collected from quartz vein outcrops.



# 9.1.4 Soil Sampling

The resource area was originally covered by an 800m x 200m regional soil sampling program and subsequently infilled to 200m x 50m over the main shear zone. Only a small portion of the resource area is covered by soil sampling as the transported regolith makes auger sampling a more effective sampling technique. Sample points were planned in Mapinfo and located in the field using a handheld GPS. Square pits approximately 30-50cm deep were dug by hand and samples were then collected from the upper saprolite or the 'B' horizon. Approximately 2.0 - 2.5kg of soil was collected for each sample. Due care was taken to avoid sampling any transported top soil or highly ferruginous material. Samples were dried and sieved to -180 micron on site and approximately 50 to 60g of the sieved sample submitted to Sampling and sieving was carried out under the supervision of trained the laboratory. Ampella staff. Quality control samples were inserted using the following regimen, a standard at every 25th sample, a blank at every 32nd sample and a duplicate at every 20th sample. The regional samples were analysed by Aqua Regia with an ICP-MS finish for a suite of 36 elements at Acme Laboratory in Vancouver. Subsequent infill samples were sent to BIGS Global Burkina SARL laboratory for Aqua Regia digest Au analysis with AAS finish.

## 9.1.5 Trenching

Ampella has excavated only one 50m long trench on the Batie West Project. The trench (KGTR001) was manually excavated at the Kouglaga Prospect to a depth of 1m - 2m to expose saprolite. Sampling intervals were measured as slope-step chain measurements and locations marked with wooden pegs starting at the western end of the trench. A total of 25 Channel samples of 5cm wide by 2m long were collected 10cm above the base of the northern trench wall from west to east as well as a number of selective grab samples. Quality control samples including a blank, standard and a field duplicate were inserted into the sample sequence.

## 9.1.6 Auger Sampling

All auger sampling was completed with a Toyota Landcruiser mounted power auger rig using a 3.5 inch drill bit. Auger work over the Tiopolo permit including the immediate resource area was contracted to Coffey International. Subsequent programs have been completed predominantly by Sahara Geoservices and to a lesser extent by an Ampella owned auger rig. Preliminary grids were spaced at 50m x 200m and later infilled to 50m x 100m over the main shear zone. The samples were recovered through a 2m spiral rod and a 2-3kg sample from the last metre drilled placed into a labelled plastic bag. Samples were collected from saprolite and holes that did not reach saprolite were abandoned and not sampled. The average depth of each auger hole was 3m. A sample of the last metre drilled from each hole was stored in a chip tray for future reference. Lithological logging was completed using Ampella standard regolith and rock codes.

Quality control samples including standards, blanks and field duplicates were added as per the regimen outlined for soil sampling. The samples covering the resource area were sieved to -180 micron on site and approximately 50g to 60g of the sieved sample sent to BIGS Global Burkina SARL laboratory for Au analysis by Aqua Regia digest with an AAS finish. Approximately four lines of auger samples were analysed for Au using the BLEG method.

Ampella have completed 6619 auger holes for 24,458m in the Tiopolo permit and more than 52,003 holes over the entire Batie West Project. Within the resource area, auger Au values range from detection to 21ppm with a mean of 0.022ppm. XRF analysis indicates the mineralisation is defined by a multi-element geochemical halo. In addition to Au, the most significant path finder elements are As and W and possibly Sb. Peak Au, As and W values correspond well to the position of underlying mineralisation (Figure 16).





Figure 16 Konkera Project auger drilling plan, collars coloured and sized by bottom of hole Au . (local grid)



# 10. DRILLING

## 10.1 Introduction

The drilling database used in the Konkera Resource estimate contains 1001 Reverse Circulation (RC) drill holes and 452 diamond drill holes for a total of 204,000m of drilling (Table 6). All of this drilling was completed by Ampella and includes drilling completed up until December 2012. The majority of the diamond drill holes contain RC precollars. The assay database was closed off on 31 January 2013. There are no known historical drill holes within the resource area.

Drilling has been completed in several campaigns all of which have been supervised by Ampella employees. West African Drilling Services (WADS) completed two programs in August 2008 and April/May 2009, drilling 48 RC holes of which 35 were diamond tailed (total 8,259m). WADS used a KL 900 and a UDR 200 drill rig to complete their drill programs. The third program was completed by Geodrill from August to November 2009 and included 136 RC holes of which two were diamond tailed (total 14,369m). Since early March 2010, Geodrill have completed an additional 452 RC holes and 107 diamond tails for a total of 64,370m. Geodrill have used two KL 900 multi-purpose drill rigs and one UDR 200 diamond drill rig to complete their drill programs with auxiliary compressors.

Table 6 Konkera Project Drilling Statistics									
Prospect	Drilling Type	No. Holes	Aircore Metres	Reverse Circulation Metres	Diamond Metres				
	AC	403	6909.5						
Kouglaga	RC	432		43,468.0					
	RC/DD	28		3,818.9	1,876.3				
	DD	12			1,310.4				
	RC	173		16,213.0					
Konkera East	RC/DD	58		6,137.4	6,171.0				
	DD	4			655.3				
	RC	137		13,238.0					
Konkera Main	RC/DD	160		16,238.0	19,846.9				
	DD	6			1,475.2				
	RC	443		36,425.5					
Konkera North	RC/DD	168		20,925.9	23,561.3				
	DD	20			4,883.7				

## 10.2 Konkera Prospect - Summary of Drilling Results

Since Konkera's discovery in 2008 Ampella have completed an extensive RC and diamond drilling program that has resulted in the discovery and delineation of the the major prospects within the Konkera Project. These major prospects are Konkera Main, Konkera East, Konkera North, The Gap and Kouglaga.

Significant assay results from these programs are shown in Table 7. Figure 17 shows a plan of all drilling completed at the project at the date of this report. Representative cross sections through the various prospects are shown in Figure 18 to Figure 22.



Prospect	HoleID	Drilling Type	UTM East	UTM North	East Local	North Local	RL	From (m)	To (m)	Width (m)	Au ppm
	KGDD001	DD	493,215	1,090,544	5,700	23,466	387.6	20.0	35.4	15.4	8.6
	KGRC027	RC	493,208	1,090,354	5,550	23,349	390.1	60.0	69.0	9.0	12.7
	KGRC028	RC	493,240	1,090,393	5,600	23,349	390.0	7.0	20.0	13.0	14.1
	KGRC079	RC	493,271	1,090,552	5,742	23,428	386.3	11.0	27.0	16.0	5.8
	KGRC150	RC	493,340	1,090,342	5,625	23,240	387.8	111.0	120.0	9.0	6.5
	KGRC157	RC	493,238	1,090,339	5,558	23,316	389.5	29.0	45.0	16.0	6.5
	KGRC177	RC	493,135	1,090,448	5,575	23,465	390.5	71.0	78.0	7.0	10.0
	KGRC219	RC	493,322	1,090,604	5,815	23,423	380.5	75.0	79.0	4.0	18.1
	KGRC236	RC	493,065	1,090,434	5,520	23,510	390.0	28.0	32.0	4.0	12.6
	KGRC244	RC	493,233	1,090,485	5,666	23,415	389.9	39.0	48.0	9.0	12.8
	KGRC264	RC	493,216	1,090,543	5,700	23,464	387.7	20.0	43.0	23.0	6.7
	KGRC352	RC	493,084	1,090,419	5,520	23,486	390.8	86.0	97.0	11.0	7.6
Kouglaga	KGRC387	RC	493,188	1,090,360	5,542	23,368	390.3	58.0	89.0	31.0	3.1
Kouglaga	KGRC393	RC	493,241	1,090,366	5,581	23,332	389.6	31.0	54.0	23.0	2.6
	KGRC398	RC	493,264	1,090,340	5,575	23,297	388.9	8.0	24.0	16.0	4.3
	KGRC478	RC	493,104	1,090,442	5,550	23,485	390.4	86.0	92.0	6.0	8.4
	KGRC487	RC	493,123	1,090,394	5,526	23,440	390.8	35.0	46.0	11.0	12.0
	KGRC497	RC	493,256	1,090,444	5,650	23,370	389.5	72.0	79.0	7.0	12.2
	KGRC499	RC	493,199	1,090,361	5,549	23,360	390.1	56.0	86.0	30.0	5.8
	KGRC500	RC	493,216	1,090,366	5,564	23,351	389.9	80.0	88.0	8.0	14.9
	KGRC502	RC	493,226	1,090,352	5,560	23,334	389.8	43.0	57.0	14.0	3.9
	KGRC507	RC	493,249	1,090,355	5,578	23,318	389.2	22.0	41.0	19.0	4.2
	KGRC510	RC	493,255	1,090,331	5,562	23,298	389.4	2.0	22.0	20.0	6.3
	KGRC568	RC	492,964	1,090,352	5,391	23,535	387.5	15.0	31.0	16.0	5.9
	KGRD107	RC/DD	493,157	1,090,400	5,552	23,418	390.9	98.0	102.0	4.0	13.1
	KNRD050	RC/DD	493,290	1,090,538	5,744	23,405	386.6	10.0	34.0	24.0	5.5
	KEDD001	DD	496,374	1,087,181	5,155	18,884	348.9	4.0	19.0	15.0	5.4
	KERC002	RC	496,324	1,087,152	5,099	18,904	345.6	135.0	138.0	3.0	19.5
	KERC003	RC	496,348	1,087,183	5,139	18,905	346.9	106.0	123.0	17.0	17.2
Konkera		DC	407 272	4 007 400	E 4E4	40.00/	249.7	4.0	25.0	21.0	4.0
East	KERCU4U	KC	496,373	1,087,182	5,154	10,000	340.7	103.0	116.0	13.0	4.2
	KERC046	RC	496,363	1,087,201	5,163	18,905	348.0	7.0	21.0	14.0	5.2
	KERC058	RC	496,324	1,087,225	5,156	18,951	347.4	8.0	20.0	12.0	5.7
	KERD006	RC/DD	496,349	1,087,050	5,038	18,819	344.9	117.0	150.0	33.0	1.6



Prospect	HoleID	Drilling Type	UTM East	UTM North	East Local	North Local	RL	From (m)	To (m)	Width (m)	Au ppm
								155.0	173.0	18.0	3.7
	KERD023	RC/DD	496,273	1,087,095	5,023	18,906	343.0	196.0	200.0	4.0	13.8
	KERD033	RC/DD	496,372	1,087,148	5,128	18,864	348.5	114.0	118.0	4.0	25.1
			406 370	1 097 023	5 027	18 770	347 1	99.0	136.0	37.0	2.6
	KERD003	RC/DD	490,379	1,007,023	5,057	10,779	347.1	188.0	192.0	4.0	14.5
	KERD067W1	DD	496,160	1,087,141	4,986	19,023	341.9	164.0	187.0	23.0	2.3
	KNRC217	RC	496,419	1,087,077	5,104	18,783	347.9	129.0	136.0	7.0	9.0
	KNRC347	RC	496,154	1,087,321	5,120	19,143	345.8	3.0	12.0	9.0	6.2
	KNRD066	RC/DD	496,306	1,087,068	5,024	18,864	343.8	165.0	186.0	21.0	3.1
	KNRD351	RC/DD	496,131	1,087,172	4,991	19,065	342.5	160.0	188.0	28.0	2.1
	KMRC114	RC	495,862	1,087,335	4,943	19,376	349.0	69.0	80.0	11.0	8.6
	KMRC116	RC	495,919	1,087,363	5,001	19,349	347.2	77.0	99.0	22.0	3.7
	KMRC136	RC	495,958	1,087,368	5,030	19,323	345.9	14.0	33.0	19.0	2.8
	KMRD002	RC/DD	496,245	1,087,059	4,978	18,905	341.9	144.0	164.0	20.0	4.5
	KMRD029	RC/DD	495,589	1,087,405	4,821	19,630	356.3	241.0	289.0	48.0	2.7
	KMRD033	RC/DD	495,447	1,087,492	4,797	19,794	346.0	235.0	250.0	15.0	3.9
	KMRD043	RC/DD	495,457	1,087,448	4,770	19,758	345.1	242.0	264.0	22.0	3.0
	KMRD044	RC/DD	496,291	1,087,028	4,984	18,849	342.7	188.0	204.0	16.0	3.7
	KMRD055	RC/DD	495,772	1,087,343	4,891	19,450	350.7	4.0	23.0	19.0	3.1
	KMRD077	RC/DD	495,423	1,087,462	4,758	19,794	345.1	254.0	272.0	18.0	4.7
	KMRD078	RC/DD	495,495	1,087,548	4,871	19,794	349.4	76.0	103.0	27.0	3.2
Konkera	KMRD086	RC/DD	495,961	1,087,219	4,918	19,225	346.2	148.0	151.0	3.0	35.6
Main	KMRD108	RC/DD	495,830	1,087,375	4,953	19,425	350.1	84.0	95.0	11.0	5.1
			405 904	1 097 209	4 027	10 225	249.0	100.0	108.0	8.0	6.4
	KMRD171	RC/DD	495,090	1,007,290	4,937	19,325	340.0	153.0	165.0	12.0	4.3
	KMRD172	RC/DD	495,871	1,087,266	4,896	19,325	348.8	110.6	133.0	22.4	3.7
	KMRD207	RC/DD	496,027	1,087,104	4,872	19,100	343.5	90.0	122.0	32.0	2.0
	KNRC154	RC	495,535	1,087,590	4,928	19,790	350.5	65.0	69.0	4.0	27.1
	KNRD026	RC/DD	495,932	1,087,207	4,890	19,240	347.1	90.7	115.7	25.0	2.6
	KNRD051	RC/DD	495,939	1,087,216	4,901	19,240	346.9	77.0	108.3	31.3	2.4
	KNRD052	RC/DD	495,854	1,087,434	5,014	19,445	349.4	147.5	159.8	12.3	4.3
	KNRD053	RC/DD	495,517	1,087,657	4,968	19,846	353.2	97.0	111.8	14.8	6.4
	KNRD057	RC/DD	495,562	1,087,449	4,838	19,678	357.2	233.0	247.5	14.5	3.9
	KNRD134	RC/DD	495,967	1,087,177	4,890	19,193	345.8	73.0	105.0	32.0	3.3



Prospect	HoleID	Drilling Type	UTM East	UTM North	East Local	North Local	RL	From (m)	To (m)	Width (m)	Au ppm
	KNRD138	RC/DD	495,909	1,087,257	4,914	19,289	347.8	104.0	126.0	22.0	3.3
	KNRD140	RC/DD	495,788	1,087,281	4,855	19,398	350.9	150.0	176.0	26.0	2.8
	KNRD172	RC/DD	495,858	1,087,292	4,908	19,350	349.0	146.0	177.0	31.0	3.8
	KNRD196	RC/DD	495,955	1,087,318	4,990	19,293	346.2	92.0	112.0	20.0	3.3
	KNDD001	DD	494,605	1,088,717	5,194	21,227	358.1	1.0	49.0	48.0	4.6
	KNRC012	RC	495,352	1,088,111	5,210	20,265	369.6	4.0	25.0	21.0	5.2
	KNRC013	RC	495,337	1,088,098	5,191	20,268	369.1	18.0	32.0	14.0	4.9
	KNRC097	RC	495,240	1,088,110	5,138	20,350	368.7	7.0	25.0	18.0	4.8
	KNRC115	RC	494,616	1,088,677	5,170	21,193	358.0	50.0	66.0	16.0	5.9
	KNRC176	RC	494 313	1 089 024	5 241	21 648	354 1	2.0	30.0	28.0	1.9
	Nince 170	i i c	-77-,515	1,007,024	5,241	21,040	554.1	50.0	59.0	9.0	6.2
	KNRC195	RC	495,124	1,088,120	5,070	20,446	361.6	89.0	100.0	11.0	5.6
	KNRC250	RC	494,589	1,088,726	5,191	21,245	357.6	4.0	29.0	25.0	8.8
	KNRC254	RC	494,639	1,088,660	5,172	21,164	358.6	26.0	52.0	26.0	2.1
	KNRC312	RC	494 651	1 088 676	5 192	21,165	358.9	29.0	42.0	13.0	4.0
	14110012	inc.	171,001	1,000,070	5,172	21,100		47.0	58.0	11.0	4.6
	KNRC313	RC	494,627	1,088,645	5,153	21,164	358.5	63.0	91.0	28.0	2.3
	KNRC315	RC	494,694	1,088,610	5,169	21,090	359.7	33.0	45.0	12.0	5.3
Konkera	KNRC322	RC	495,267	1,088,026	5,090	20,275	366.6	47.0	79.0	32.0	1.8
North	KNRC458	RC	494.620	1 088 701	5 191	21,205	358.2	6.0	27.0	21.0	3.8
			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	.,,	0,171	,		46.0	72.0	26.0	4.2
	KNRC459	RC	494 616	1.088.704	5,191	21,210	358 1	8.0	28.0	20.0	3.7
				,, .	- , .	, -		38.0	64.0	26.0	3.5
	KNRC460	RC	494,612	1,088,708	5,192	21,215	358.1	9.0	20.0	11.0	4.7
				,,	- , .	, -		25.0	42.0	17.0	5.4
	KNRC460	RC	494,612	1,088,708	5,192	21,215	358.1	45.0	62.0	17.0	4.9
	KNRC461	RC	494,608	1,088,709	5,190	21,220	358.0	10.0	23.0	13.0	5.3
			, ,	,,	-,	, -		28.0	68.0	40.0	3.3
	KNRC462	RC	494,613	1,088,724	5,205	21,225	358.0	0.0	27.0	27.0	5.5
	KNRC463	RC	494,610	1,088,720	5,200	21,225	357.9	0.0	44.0	44.0	4.4
	KNRC464	RC	494,607	1,088,716	5,194	21,225	358.0	3.0	36.0	33.0	3.5
	KNRC465	RC	494.603	1,088.712	5,189	21,225	357.9	12.0	33.0	21.0	6.3
			,	,	.,	,		35.0	50.0	15.0	5.4
	KNRC466	RC	494,601	1,088,709	5,185	21,225	357.9	20.0	54.0	34.0	4.9



Prospect	HoleID	Drilling Type	UTM East	UTM North	East Local	North Local	RL	From (m)	To (m)	Width (m)	Au ppm
	KNRC467	RC	494,597	1,088,704	5,178	21,225	357.9	32.0	78.0	46.0	4.0
	KNRC468	RC	494,595	1,088,702	5,175	21,225	357.8	35.0	57.0	22.0	3.8
		PC	494 600	1 088 715	5 180	21 220	257.8	10.0	27.0	17.0	3.2
	KNKC407	ĸĊ	494,000	1,000,713	J, 109	21,229	557.0	34.0	65.0	31.0	3.5
	KNRC470	RC	494,596	1,088,719	5,190	21,234	357.9	8.0	60.0	52.0	4.8
	KNRC471	RC	494,626	1,088,697	5,192	21,198	358.4	5.0	14.0	9.0	6.8
	KNRC 472	RC	494 592	1 088 722	5 190	21 240	357 7	7.0	52.0	45.0	6.6
	NINC-172	i i i i i i i i i i i i i i i i i i i	474,37Z	1,000,722	5,170	21,240	557.7	57.0	72.0	15.0	3.8
	KNRC511	RC	494,576	1,088,633	5,111	21,195	358.2	105.0	126.0	21.0	3.2
	KNRC523	RC	495,383	1,088,094	5,217	20,230	369.4	0.0	19.0	19.0	3.5
	KNRC549	RC	494,565	1,088,759	5,200	21,285	357.2	24.0	36.0	12.0	4.3
	KNRC594	RC	494,544	1,088,711	5,150	21,270	357.2	63.0	74.0	11.0	4.7
	KNRD045	RC/DD	494,603	1,088,737	5,208	21,241	357.8	11.0	29.0	18.0	3.9
	KNRD113	RC/DD	494,652	1,088,618	5,148	21,127	358.9	57.0	80.0	23.0	2.8
	KNRD120	RC/DD	494,443	1,088,807	5,159	21,409	355.8	49.0	61.0	12.0	6.7
	KNRD121	RC/DD	494,467	1,088,839	5,199	21,410	355.0	92.0	99.0	7.0	27.3
	KNRD251	RC/DD	494,555	1,088,741	5,180	21,280	356.9	14.0	32.0	18.0	7.3
	KNRD252	RC/DD	494,588	1,088,649	5,131	21,196	358.1	87.0	108.0	21.0	3.8
	KNRD253	RC/DD	494,613	1,088,626	5,129	21,162	358.4	103.0	122.0	19.0	3.5
	KNRD320	RC/DD	494,389	1,088,868	5,171	21,489	354.1	59.0	71.0	12.0	4.4
	KNRD336	RC/DD	494,600	1,088,661	5,148	21,195	358.1	90.0	101.0	11.0	4.9
	KNRD337	RC/DD	494,561	1,088,697	5,150	21,247	357.6	59.7	99.0	39.3	5.8
	KNDU342		101 170	1 088 758	5 128	21 356	356.2	73.0	84.0	11.0	5.8
	KIND J-Z	NC/DD	474,470	1,000,750	5,150	21,550	550.2	168.0	181.0	13.0	5.2
	KNRD343	RC/DD	494,461	1,088,746	5,124	21,355	356.4	84.0	97.0	13.0	4.0
	KNRD377	RC/DD	494,676	1,088,529	5,095	21,051	359.5	131.0	154.0	23.0	2.8
	KNRD380	RC/DD	494,586	1,088,599	5,091	21,166	358.4	130.0	137.0	7.0	10.5
	KNRD381	RC/DD	494,563	1,088,617	5,090	21,195	358.2	133.0	148.0	15.0	5.4
	KNRD385	RC/DD	494,383	1,088,799	5,114	21,449	355.6	137.0	166.0	29.0	6.7
	KNRD391	RC/DD	494,511	1,088,556	5,010	21,195	359.0	217.0	240.0	23.0	3.1
	KNRD402	RC/DD	494,627	1,088,465	5,015	21,048	358.1	262.0	292.0	30.0	2.1
	KNRD427	RC/DD	494,945	1,087,905	4,790	20,445	346.8	499.0	518.0	19.0	4.0
	KNRD446W2	DD	494,663	1,088,329	4,934	20,933	356.2	360.0	366.0	6.0	17.7
	KNRD512	RC/DD	494,545	1,088,604	5,069	21,200	358.5	160.0	181.0	21.0	8.7



Prospect	HoleID	Drilling Type	UTM East	UTM North	East Local	North Local	RL	From (m)	To (m)	Width (m)	Au ppm
	KNRD513	RC/DD	494,556	1,088,680	5,134	21,240	357.6	99.0	114.0	15.0	6.5
	KNRD516	RC/DD	494,428	1,088,793	5,139	21,411	355.7	74.0	88.0	14.0	5.1
	KNRD552	RC/DD	494,661	1,088,510	5,071	21,051	359.3	148.0	171.0	23.0	2.8
	KNRD556	RC/DD	494,401	1,088,814	5,138	21,445	355.3	107.0	123.0	16.0	5.6
	KNRD557W1	DD	494,360	1,088,774	5,080	21,451	356.5	166.0	185.0	19.0	4.7
			404 535	1 088 537	5 011	21 165	350.0	233.0	250.0	17.0	3.2
	KINDJ07	KC/DD	494,555	1,000,007	5,011	21,100	559.0	271.0	302.0	31.0	3.0
	KNRD588	RC/DD	494,560	1,088,569	5,052	21,166	358.9	246.0	252.0	6.0	13.1
	KNRD591	RC/DD	494,465	1,088,680	5,075	21,310	357.4	169.0	176.0	7.0	12.6
			494 520	1 088 633	5 075	21 228	358 1	167.0	189.0	22.0	2.9
	KINDJ92	KC/DD	474,520	1,000,033	3,075	21,230	550.1	246.0	253.0	7.0	10.1
	KNRD595	RC/DD	494,404	1,088,715	5,063	21,380	356.8	168.0	183.0	15.0	10.0
			101 528	1 088 587	5 045	21 202	358.0	189.0	212.0	23.0	4.6
	KINDOOS	RC/DD	494,520	1,000,507	3,043	21,202	550.7	259.0	275.0	16.0	3.7
	KNRD609	RC/DD	494,453	1,088,617	5,019	21,279	358.7	234.0	256.0	22.0	2.5
	KNRD613	RC/DD	494,441	1,088,651	5,038	21,310	358.2	227.0	247.0	20.0	3.1
	KNRD614	RC/DD	494,481	1,088,595	5,021	21,243	358.9	228.0	255.0	27.0	3.8
	KNRD615		494 586	1 088 482	5 002	21 090	358.6	260.0	284.0	24.0	2.5
	KINDOTS	RC/DD	494,500	1,000,402	3,002	21,070	550.0	299.0	313.0	14.0	4.4
	KNRD618W1	DD	494,393	1,088,748	5,081	21,409	356.6	161.0	181.0	20.0	5.4
	KNRD641	RC/DD	494,664	1,088,450	5,027	21,010	358.1	238.0	276.0	38.0	3.3
	KNRD646	RC/DD	494,445	1,088,551	4,964	21,243	358.8	276.0	294.0	18.0	7.5





Figure 17 Konkera Project RC/DD drilling plan showing locations of section lines from figures 5-9. (local grid)





**Figure 18** Simplified cross section for Konkera East at 18900mN (local grid) (mineralised intercepts in g/t Au)





**Figure 19** Simplified cross section for Konkera Main at 19635mN (local grid) (mineralised intercepts in g/t Au)





**Figure 20** Simplified cross section for Konkera North at 21200mN (local grid) (mineralised intercepts in g/t Au)





**Figure 21** Simplified cross section for The Gap at 22850mN (local grid) (mineralised intercepts in g/t Au)





# **Figure 22** Simplified cross section for Kouglaga at 23420mN (local grid) (mineralised intercepts in g/t Au)

## 10.3 Resource Drilling Methods

## 10.3.1 Drill hole Types

For diamond drilling, HQ (63.5mm diameter) was typically used until November 2010 after which NQ2 (50.6mm diameter) was used. Drill diameter was changed to increase efficiency, as there is minimal nugget effect. A  $4\frac{1}{2}$  inch face type sampling hammer (114.25mm) has been used for all RC drilling.

The RC rigs have been fitted with a conical cyclone and the bulk sample has been collected directly from the cyclone. The bulk sample is then passed through a separate riffle splitter and the samples collected. The conical cone splitter is routinely cleaned after every drill run with compressed air and the riffle splitter is knocked with a rubber mallet after every sample passes and visually checked to ensure that no part of the sample has caught in the splitter.

## 10.3.2 Drill Spacing and Orientation

Drilling has been carried out along local grid east-west (UTM 040) orientated fences. This is perpendicular to the main north - south striking orientation of the mineralisation and stratigraphy.

Drill holes were nominally spaced on a 40m by 40m grid interval for Konkera North and Kouglaga and a 50m by 25m grid interval for Konkera Main and East. Konkera North has been infilled to a 40m by 20m spacing and Konkera East and Main to 25m by 25m spacings in some of the shallower (<150m depth) parts of the deposits. The Gap has largely been drilled on 40m by 40m spaced centres, with some infill to 20m by 20m spaced centres in some shallow portions (<50m depth).



Drill holes were typically inclined at 60 degrees on grid east azimuths, but a few grid west azimuths were also used. The general strike of the mineralisation is relatively consistent apart from minor flexures typical of shear zones. The dip of the Konkera Main and East mineralisation is generally between 50-70 degrees while the Konkera North dips are generally more consistent at approximately 70 degrees.

## 10.3.3 Collar and Down Hole Surveying

The relative position of all RC and diamond drill hole collars has been surveyed by RTK-DGPS methods into the WGS84 30N grid. Drill hole locations are considered accurate within 0.1m horizontally and 0.1m vertically. These have been translated to the Konkera Local grid coordinates.

All drill holes have down hole surveys, with surveys generally taken every 30 to 50m using a Reflex single shot digital camera. Drill rigs are aligned using a tape and compass.

## 10.3.4 Drill Core orientation

Diamond drill holes are routinely orientated, currently with the electronic Ori Shot tool. A combination of ball mark and spear were used in previous drilling campaigns until it was verified that the Ori Shot tool gave the most consistent orientations. An orientation line indicating bottom of the hole is marked on the core using a solid line to indicate lengths of core where at least two orientation measurements match. A dashed line is used to indicate lengths of core where only one orientation mark is considered to be satisfactory and a dotted line is used where no orientation marks are considered satisfactory. In general, the quality of the orientations is considered to be good.

## 10.3.5 Drilling Sample Quality Control

Ampella have endeavoured to utilise RC and Diamond drilling practices that adhere to industry best practice standards. All half core material is stored on site and is appropriately labelled. All RC bulk samples collected from the cyclone are weighed and assessed for sample recovery. Satisfactory sample recovery has been achieved. RC holes were terminated early if the sample could not be kept dry and completed with a diamond tail to ensure a high quality sample. Field rejects for all RC holes are stored on site as bagged 1m samples at a sample bag farm.

## 10.4 Ampella Drilling Procedures

Ampella has set up drilling and logging protocols and procedures to which all the company geologists adhere.

## 10.4.1 RC Logging

Holes are logged in detail onto paper A3 log sheets using a system of standard codes. Information that is recorded includes lithology, weathering, alteration, mineralisation and veining. A magnetic susceptibility measurement is recorded from every metre down the hole from the bulk residue sample. A portable ASD Terra Spec instrument is used to collect one spectrum per metre for all RC holes drilled. The data is interpreted using the Spectral Geologist software to convert the collected spectrums to minerals detected as mineral 1 and mineral 2 according to abundance.

## 10.4.2 Core Logging

Once core is received at the core shed, orientation lines are drawn on the core according to degree of confidence, followed by metre marks. Core recovery and RQD measurements are then taken and recorded on paper template sheets. Each core box is checked to see if it is labelled correctly with hole ID, box number and start and end depth of the interval within the core box.



Holes are logged in detail onto paper A3 log sheets using a system of standard codes. Information that is recorded includes lithology, weathering, alteration, mineralisation and veining. All significant changes in geology are recorded as a new interval as well as significant intervals of core loss. Point structures including foliation, faults and veins are measured using a protractor or goniometer using the orientation line as a reference. All data is entered by data entry clerks into excel data entry templates, validated and then imported into Ampella's acQuire database.

The core was photographed wet and dry before sampling using a 10.1 mega pixel digital camera with the hole ID and depth from and to clearly indicated in each photo.

A hand held magnetic susceptibility instrument is used to collect a reading at 1m intervals for all core. The information is recorded on a paper template.

A portable ASD Terra Spec instrument owned by Ampella is used to collect 1 spectrum per metre for all drill holes. The data is interpreted using the Spectral Geologist software to convert the collected spectrums to minerals detected as 'mineral 1' and 'mineral 2' according to abundance.

## 10.4.3 Sampling Method and Approach

## 10.4.4 RC Samplings Labelling and Numbering

Bulk samples were collected directly from the cyclone in a labelled plastic bag. Each bulk sample was weighed and the weight recorded then split into a calico bag that has the sample ID written on it. The calico bags were then placed into clearly labelled polyweave sacks identifying the sample ID range and the number of samples.

## 10.4.5 Laboratory Sample Collection

Laboratory samples were collected from a riffle splitter. During 2008 and 2009 quality control samples were inserted as follows, a standard at every 25th sample, a blank at every 32nd sample and a duplicate at every 20th sample. This protocol was simplified to insertion of standards and blanks in alternating sequence after every 15th sample. Two sets of standards were used - one for insertion into the oxide samples and the other for the fresh rock samples. Approximately 3-4 field duplicate samples were split for each hole with at least two of the duplicates being from the suspected mineralised horizon. Field duplicate samples were collected by re-splitting the original sample. RC samples prior to April 2010 were sent to BIGS Global Burkina SARL and thereafter to ALS Chemex in Ouagadougou for Au analysis by fire assay.

## 10.4.6 Cyclone Sampling

Before the commencement of each new hole, the cyclone was cleaned by blowing compressed air through the sampling hose and opening up the top of the cyclone and cleaning thoroughly by hand. After the completion of each rod, the cyclone was also cleaned by blowing compressed air through the sample hose into the cyclone. The top of the cyclone was fitted with 3m long 6-inch PVC tube to ensure fine dust particles were funnelled away from the sampling area, and water from the hole was directed away from the cyclone to ensure the sampling area was kept dry. Plastic sample bags were fastened to the cyclone by a rope to ensure minimal material was lost as the samples came out of the cyclone. After 1m of sample was collected as marked on the drill rods, the plastic sample bag was removed and quickly replaced by a new plastic to capture the next sample. If the sample could not be kept dry, the RC portion of the hole was terminated and completed by a diamond tail if required.



# 10.4.7 Manual Riffle Splitting

Each 1m bulk sample collected from the cyclone was poured into a riffle splitter to reduce it to the specified sample size. During the 2008 and early 2009 drill programs consecutive 1m splits were passed through a second splitter to produce a 2m composite sample. A second 1m split was stored for each metre drilled and submitted if anomalous assay results were returned. From September 2009 on 1m splits were submitted for each metre drilled. Only dry samples were split and if the samples were considered to be too moist to split, they were sampled by hand grab and the degree of moisture in the sample recorded. To ensure a high quality split, the riffle splitter is kept in good condition, and after each split the splitter is tapped with a rubber mallet and visually checked to ensure that the entire sample has passed through.

## 10.4.8 Recovery

Bulk samples recovered from the 1m drilled intervals were weighed on a suspended scale to help estimate sample recoveries. A description of the moisture content of each sample was recorded. The average weight of dry samples in the moderately to highly weathered material was 25kg and 32kg in fresh rocks. The average recovery assuming a 37.85kg weight represents 100% recovery is better than 85%. Other discrepancies including excessive change in weight of subsequent samples were monitored and investigated to find out if part of samples of the down-hole meter was collected in the previous meter.

## 10.5 Diamond Core Sampling and Logging

## 10.5.1 Sampling

Core is sampled at 1m intervals between metre marks. The core is cut in half using an Almonte Junior core saw along a line slightly offset from the orientation line so that the half of core that has the orientation line is placed back into the core tray for storage. The left hand side is sampled and the metre mark written on the front half of the right side that is put back into the core tray for future reference. The sampled 1m half-split core was then bagged into a clearly labelled plastic bag with a ticket that has the sample ID written on it. More recently portions of unmineralised core, generally in the hangingwall were not sampled.

Blank samples were inserted at an overall frequency of 2% and standards were submitted at an overall frequency of 4%. Field duplicate samples were not collected. Core samples prior to April 2010 were sent to BIGS Global Burkina SARL and after that date were sent to ALS Chemex in Ouagadougou for Au analysis by fire assay.

## 10.5.2 Sample Recovery

Core recovery is considered to be excellent and is generally close to 100%. Holes KMRD035 and KMRD036 from Konkera Main recorded minimal core losses up to 2.5m due to faulty core lifters. One zone of core loss over 2m was from within a mineralised zone and it is planned to re-drill the mineralised interval by wedging off the parent hole.

## 10.5.3 Sample Quality

The sample quality for all drill programs is considered to be consistent with industry standards and suitable for resource estimation and mine planning studies.


# 11. SAMPLE PREPARATION, ANALYSES AND SECURITY

#### 11.1 Introduction

Ampella have utilised several different laboratories to undertake sample preparation and assaying which are detailed below. Assaying has primarily been for Au.

### 11.1.1 BIGS Global Burkina SARL

From 2008 through to April 2010 all regional soil and auger samples including some RC and DD samples were sent to the BIGS Global laboratory in Ouagadougou where they were prepared, analysed and pulps stored on site. Additionally, 1m splits submitted to Acme Laboratory Vancouver were prepared at BIGS Global. During August 2011 a decision was made to recommence sending RC and DD samples to BIGS Global as sample turn-around at ALS was exceptionally slow.

BIGS Global was not accredited during this time.

#### 11.1.2 ALS Chemex Burkina Faso

ALS Chemex have prepared and analysed the bulk of Ampella's RC and DD samples (April 2010 - present). Pulps were stored at the laboratory for later collection. Some pulps in late 2011 were analysed by ALS Johannesburg.

ALS Chemex Burkina Faso have participated in external proficiency test programs including proficiency tests for gold, specifically lead collection FA with AAS measurement but as yet are not accredited.

### 11.1.3 Acme Analytical Laboratories Vancouver

RC samples from the first two drill programs at Konkera (2008 - August 2009) were analysed at Acme if anomalous assay results were returned from 2m composite samples sent to the BIGS Global laboratory for analysis. Samples were pulverised at BIGS Global and 35g pulps returned to Ampella for dispatch to Vancouver. The remaining pulp was stored at BIGS Global.

BSI Management Systems America certified Acme as operating a Quality Management System complying with the requirement of ISO9001:2000 for the provision of assays and geochemical analyses.

Date of original registration: 14/11/1999

Certificate no: FM 63007

### 11.1.4 SGS Burkina Faso SA

A small proportion of pulps from Konkera Main, East and North were submitted to SGS for umpire analysis. SGS Ouagadougou was not accredited during this time.

#### 11.1.5 Performance Laboratories Ghana

Approximately 1660 RC samples from The Gap and KGL prospect were prepared and analysed at Performance Laboratories in June-July 2012.

Performance Laboratories Ghana was not accredited during this time. In 2013 the laboratory became part of the SGS Group.

#### 11.1.6 Batie West Preparation Laboratory

In August 2012, Ampella commissioned a sample preparation laboratory based at the Batie West exploration site. The main driver for construction of a sample prep lab was to decrease turnaround times for samples submitted to Burkina labs and clear a backlog of over 45,000 samples.



The laboratory equipment is owned by Ampella and the laboratory is operated by the independent lab contractor SGS. The laboratory has a capacity to prepare up to 8,000 samples per month.

# 11.2 Sample Preparation and Analysis

## 11.2.1 BIGS Global Burkina SARL

All samples were sorted against the submittal form and the weight as received recorded. Samples were placed in stainless steel trays and dried at 90°C.

Some surface geochemistry samples, including auger, required sieving to  $-180\mu$ m, however, the bulk of this preparation was completed on site in Batie.

The dried RC and DD samples were jaw crushed to <3mm. Samples less than 3.5kg were divided with a Jones riffle to give two portions, one of which was retained and the other pulverised. Samples greater than 3.5kg were split twice to give 1 to 1.5kg for pulverizing. The sample was pulverized in an LM2 pulveriser until >95% of the pulverised product had a particle size of <75 $\mu$ m. A 150g subsample was randomly shovelled into a small plastic bag for analytical use and the remaining pulp stored in another plastic bag.

All RC and DD samples were analysed by 50g fire assay with an AAS finish. A 50g pulp subsample was randomly shovelled into a plastic bag and mixed with a litharge based flux and fused at 1050°C. The resultant lead button was cupelled at 950°C and the residual precious metal prill dissolved in aqua regia and diluted to a known volume. Gold concentration of the solution was determined by Flame AAS. BIGS Global inserted the following quality control samples per batch of 46 samples; a blank at the first position, two certified Rocklabs standards, two preparation repeats (a 2nd split of the crushed sample) and two analytical repeats (a 2nd scoop of the active pulp).

Soil and auger samples from Tiopolo were analysed at BIGS Global by Aqua Regia digest with an AAS finish. A 50g sample of sieved material was dissolved in aqua regia and diluted to a known volume. An aliquot was extracted with DIBK/Aliquat-336 solvent and the gold concentration of the DIBK solution determined by Flame AAS. BIGS Global inserted a solution blank at the commencement of each sample batch, two certified Rocklabs standards and two analytical repeats within the sample sequence.

# 11.2.2 ALS Chemex Burkina Faso

All samples were sorted against the submittal form, logged into the Laboratory Information Management System (LIMS) given unique barcodes and the weight as received captured. Samples were placed into stainless steel trays and dried at 106 °C.

The total sample was jaw crushed until greater than 70% of the sample had a particle size of <2mm. Approximately 250g of the crushed sample was split off and pulverised in an LM2 pulveriser until >85% of the pulverised product had a particle size of  $<75\mu$ m.

All RC and DD samples were analysed by 50g fire assay with an AAS finish. A 50g pulp subsample was mixed with a litharge based flux and fused at 1050°C. The resultant lead button was cupelled at 950°C and the residual precious metal prill dissolved in aqua regia and diluted to a known volume. Gold concentration of the solution was determined by Flame AAS. Samples with a gold value >10g/t are re-assayed with a gravimetric finish. ALS use a fusion furnace capable of handling 84 samples. Each batch includes 78 samples and six quality control samples. The controls consist of a blank at the first position, two certified Rocklabs and or Geostats standards, three analytical repeats (a second scoop of the active pulp) and one duplicate repeat (a second split at the sample prep stage). The position of the standards varies from worksheet to worksheet however the repeats are always positioned as the last four samples.



# 11.2.3 Acme Analytical Laboratories Vancouver

Pulp samples were sorted, labelled and mixed. Analysis was by 30g fire assay fusion and the gold dore bead was digested for an ICP-ES finish.

## 11.2.4 SGS Burkina Faso SA

Pulp samples were sorted and labelled. Analysis was by 50g fire assay fusion with an AAS finish. All pulps were re-run after mixing.

# 11.2.5 Performance Laboratories Ghana

Analysis was by 50g fire assay fusion with an AAS finish.

#### 11.2.6 Batie West Preparation Laboratory

Samples are formally dispatched and receipted onsite using SGS sample submission procedures. Samples are checked and logged into a LIMS system and the receipt weight of each sample is captured. Samples are placed into stainless steel trays and dried in an oven at 105 degrees for 8-12 hours. If samples require crushing, jaw crushers are used to crush to <2mm. A portion of every  $50^{th}$  crushed sample is dry screened to check that >75% has been crushed to less than 2mm. Samples are pulverised using LM2 mills for approximately 4 minutes. A quartz flush is run through the mill after every 10th sample. Approximately 250g of pulverised material is scooped into labelled paper sachets. A second scoop of the pulverised material is collected after every 50th sample. This is wet screened to check that >85% of the pulverised material is less than 75µm.

Completed batches are handed back to Ampella for dispatching to assaying laboratories. SGS provide a signed off digital certificate reporting sample receipt weights and screening analysis.

#### 11.3 Sample Security

Drill core, from diamond drilling (DD), was placed into labelled core trays at the rig site and transported to the Ampella core shed at the main Ampella camp at Batie for processing. The half core samples as well as the QC samples were placed into clearly marked polyweave sacks at the core shed prior to shipment.

For reverse circulation (RC) sampling, the labelled 2.5kg split samples and QC samples were placed into polyweave sacks at the rig site as drilling was in progress. The sacks were clearly labelled using permanent markers with information that included the sample range and the sack number. Immediately after the completion of each hole, all of the polyweave sacks were transported to the Ampella camp prior to shipment. Similar procedures were followed for auger, trench and soil samples.

At the Ampella camp, all samples were placed into numerical order, sorted into batches and cross-checked with sample submission sheets before shipment. Sample dispatch details were recorded on a laboratory sample submission sheet that accompanied the samples to the receiving laboratory. Once each batch of samples had been checked on site, they are either loaded into a secure truck and taken directly to the receiving laboratory in Ouagadougou, or are transported to the receiving laboratory in an Ampella vehicle.

Following the commissioning of the sample preparation laboratory, formal dispatching to the Prep Lab was done onsite and completed batches of pulp samples were sent to the receiving analytical laboratory. Pulps samples are transported to the receiving laboratory in Ampella vehicles.

Both processes are supervised by an Ampella geologist. Samples are usually dispatched from site twice a week.

On arrival at the receiving laboratory the samples are checked against the sample listing by laboratory personnel. A laboratory representative then signs the sample submission sheet to



confirm that the samples have been received; this signed form is returned to Ampella. Finalised results are emailed to responsible persons followed by a hardcopy report which was reconciled with the emailed assay values.

All samples are under direct Ampella control until they are received by the sample preparation laboratory and then until they are received by the analysis laboratory. The Ampella camp is guarded 24 hours a day by security personnel and when samples are transported, they are done so in an Ampella vehicle, or with a single transport company that has an enduring long term relationship with Ampella.

This ensures a secure chain of custody by Ampella from the drill site to the receiving laboratory.

# 11.4 Monitoring of Quality Control Procedures of Labs

This section summarises all of the QA/QC data for the RC and DD drilling programs completed from the Konkera deposits discovery in 2008 through to December 2012.

# 11.5 Analytical Quality Control Procedures

The quality control data available for assessment includes the following:

- Standards (independently submitted commercial standards);
- Blanks (independently submitted commercial blanks);
- Field duplicates (a second split of the drilled material);
- Laboratory duplicates (a second split at the sample prep stage);
- Pulp repeats (a second scoop of the active pulp);
- Laboratory standards (laboratory submitted commercial standards);
- Laboratory blanks (laboratory submitted blanks).

All gold assay results are from fire assay with a 50g charge with the exception of samples sent to Acme Analytical Laboratory, Vancouver where a 30g charge was analysed.

The quality control data from drilling used for the resource estimation has been assessed using:

- Correlation Plots a simple plot of the value of assay 1 against assay 2. This plot allows an overall visualisation of precision and bias over selected grade ranges;
- Quantile-Quantile (Q-Q) Plots a means where the marginal distributions of two datasets can be compared;
- Standard Control Plots plots the assay results of a particular reference standard over time. The results can be compared to the expected value, and the 2nd and 3rd standard deviation lines are also plotted.

As of December 2011 all batches are imported into the database on receipt of the digital assay certificate, and assigned a status of Pending to each individual result. The QAQC of External Standards and Blanks, Duplicates and Internal Standards and Blanks are reviewed for each batch. If the batch passes the review all results are set to a status of 'Accepted'. If the batch fails the review all results are set to a status of 'Rejected' and the laboratory is requested to re-run the entire batch. Rejected results are not deleted from the database outright and are kept for review and as a record at a point in time, however only results that have an Accepted status can be exported and used for resource modelling.



### 11.6 Standards

### 11.6.1 External Standards

During the 2008 drill program two gold Ore Research and Exploration standards (OREAS) were submitted as certified reference materials. These standards covered the 2m composite assays collected from the initial 21 RC drill holes completed over Konkera Main, Konkera North and Kouglaga. The submitted commercial OREAS standards and accepted mean values are provided in Table 8.

Table 8 OREA	OREAS Analytical Reference Material - Certified Values							
Standard	Expected value (Au ppm)	95% confidence limit						
15Pa	1.02	0.01						
18Pa	3.36	0.05						

The results obtained for these two standards were below the certified value for each (see Table 9), however, the majority of the results plotted within 10% of this value. All mineralised samples were subsequently re-analysed at Acme Analytical Laboratory, Vancouver.

		Table 9	Assayed S.R.M. Statistics - Au ppm						
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias		
15Pa	OREAS	29	0.804	1.038	0.9399	0.0720	-0.0785		
18Pa	OREAS	38	1.596	3.562	3.0913	0.3236	-0.0800		

Four Rocklabs standards were included with RC samples submitted to Acme Analytical Laboratory, Vancouver as certified reference materials (Table 10). One batch of samples was analysed using Ag inquart fire assay fusion and subsequently re-analysed. These results have not been included in the statistics below but all plots have been included in this report.

Table 10 Rock	Table 10       Rocklabs Analytical Reference Material - Certified Values										
Standard	Expected value (Au ppm)	95% confidence limit									
OXF65	0.805	0.014									
OXG70	1.007	0.013									
OXJ64	2.366	0.031									
SE29	0.597	0.007									
SH35	1.323	0.017									

The vast majority of the submitted standards reported within a two standard deviation tolerance and the low biases evident in Table 12 indicate the assaying by Acme was accurate.



		Table 11	Assayed S	RM statistic	cs - Au ppm		
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias
OXF65	ROCKLABS	11	0.76	0.83	0.7964	0.0187	-0.0107
OXG70	ROCKLABS	5	0.98	1.04	1.006	0.0215	-0.0010
OXJ64	ROCKLABS	5	2.31	3.02	2.506	0.2615	0.0592
SE29	ROCKLABS	8	0.54	0.64	0.5863	0.0269	-0.0180
SH35	ROCKLABS	10	1.25	1.35	1.3200	0.0214	-0.0023

During 2009 through to 31 January 2013 thirty three commercial standards from Rocklabs and one commercial standard from Geostats were submitted as certified reference materials with Ampella's RC and DD samples. The majority (73%) of standards were sulphide gold only standards while the remaining 27% were oxide gold only standards. These standards cover RC and DD assays collected from 1006 RC, 383 RC with diamond tails (RC/DD) and 65 diamond wedge or diamond from the surface (DD) drill holes completed over Konkera Main (KKM), Konkera East (KKE), Konkera North (KKN) and Kouglaga (KGL) prospects. The submitted commercial standards and accepted mean values are provided in Table 12. Statistics for standards analysed at BIGS Global and ALS Chemex are listed in Table 13 and Table 14 respectively.

Greater than 84% of oxide and 72% of sulphide standard values reported within two standard deviations. Four standards analysed at ALS Chemex, OXG83, OXJ68, SF45 and SG40 show bias towards values higher than the mean certified value. The mean value for both oxide and sulphide standards analysed at BIGS Global tend to show slight bias towards values lower than the certified mean value. Low biases for all standards indicate assaying by both laboratories was accurate.

Errors in recording correct standard identification numbers have occurred and ongoing measures to reduce this include removing and retaining the Rocklabs label with its numerical identification number from the standard sachet with the standard name and sample number recorded on it. Additionally, Ampella's sampling protocol requires the rig geologist to insert standards into the sample sequence at the completion of the drill hole. Where errors can be identified the correct name is recorded in the database and a comment added noting the standard name as recorded in the field.

Two batches of drill samples analysed at BIGS Global in September 2009 were repeated as all standards including internal laboratory standards returned erratic results. As no additional standard sample was provided to the laboratory, 37% of the quality control samples were not able to be re-analysed; however the vast majority of these had returned satisfactory results during the original analysis. A total of 313 samples analysed by ALS Chemex during September 2010 were re-analysed as several standards within the batch returned high values. Re-analysis has not been requested where one to two isolated individual standards within a batch have returned erroneous values.



Table 12       Analytical Reference Material - Certified Values								
Standard	Expected value (Au ppm)	95% confidence limit						
OXA71	0.0849	0.0022						
OXC72	0.205	0.003						
OXD73	0.416	0.005						
OXE74	0.615	0.006						
OXE86	0.613	0.007						
OXF65	0.805	0.014						
OXG70	1.007	0.013						
OXG83	1.002	0.009						
OXI67	1.817	0.024						
OXJ68	2.342	0.025						
OXJ64	2.366	0.031						
OXL63	5.865	0.055						
SE29	0.597	0.007						
SE44	0.606	0.006						
SE58	0.607	0.006						
SF45	0.848	0.01						
SG40	0.976	0.009						
SG56	1.027	0.011						
SH35	1.323	0.017						
SH41	1.344	0.015						
SJ53	2.637	0.016						
HiSilK2	3.474	0.038						
SK43	4.086	0.036						
SK52	4.107	0.029						
G901-9	0.690	0.009						



	Table 13BIGS Global Assayed S.R.M. Statistics - Au ppm									
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias			
G901-9	GEOSTATS	6	0.641	0.7	0.6612	0.021	-0.0418			
OXA71	ROCKLABS	86	0.074	0.146	0.0846	0.0076	-0.0033			
OXC72	ROCKLABS	4	0.192	0.204	0.197	0.0052	-0.039			
OXD73	ROCKLABS	63	0.378	0.438	0.4053	0.0112	-0.0258			
OXE74	ROCKLABS	8	0.465	0.628	0.58	0.0458	-0.0569			
OXF65	ROCKLABS	260	0.094	5.917	0.8246	0.3755	0.0244			
OXG70	ROCKLABS	45	0.917	1.222	1.0105	0.0557	0.0034			
OXG83	ROCKLABS	4	0.954	1.016	0.9835	0.0222	-0.0185			
OXI67	ROCKLABS	54	1.461	1.954	1.8129	0.0911	-0.0022			
OXJ64	ROCKLABS	71	1.965	2.823	2.3544	0.1212	-0.0049			
OXJ68	ROCKLABS	157	1.724	5.465	2.3542	0.2828	0.0052			
OXL63	ROCKLABS	34	4.779	5.965	5.6823	0.242	-0.0311			
SE29	ROCKLABS	39	0.288	0.631	0.5694	0.0571	-0.0462			
SE44	ROCKLABS	216	0.538	0.706	0.5993	0.023	-0.0111			
SE58	ROCKLABS	280	0.286	3.721	0.607	0.1912	0			
SF45	ROCKLABS	139	0.197	0.942	0.8286	0.0799	-0.0229			
SF57	ROCKLABS	51	0.538	0.963	0.8262	0.0706	-0.0257			
SG40	ROCKLABS	150	0.037	1.777	0.9637	0.1363	-0.0126			
SG56	ROCKLABS	92	0.515	5.308	1.0485	0.4549	0.0209			
SH35	ROCKLABS	48	0.18	1.513	1.2893	0.177	-0.0255			
SH41	ROCKLABS	306	0.912	1.722	1.3351	0.0591	-0.0066			
SJ53	ROCKLABS	215	0.025	3.041	2.5776	0.2233	-0.0225			
SJ63	ROCKLABS	10	2.32	2.926	2.6562	0.1896	0.0092			
SK43	ROCKLABS	111	0.023	4.32	3.9823	0.4015	-0.0254			
SK52	ROCKLABS	100	3.177	4.58	4.0129	0.205	-0.0229			



	Table 14     ALS Chemex Assayed S.R.M. Statistics - Au ppm								
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias		
HiSilK2	ROCKLABS	5	3.11	3.49	3.358	0.1373	-0.0334		
OXA71	ROCKLABS	187	0.052	4.18	0.1147	0.3229	0.351		
OXC72	ROCKLABS	235	0.022	2.35	0.2149	0.1404	0.0484		
OXD73	ROCKLABS	11	0.404	3.53	0.7053	0.8934	0.6954		
OXE74	ROCKLABS	225	0.562	0.762	0.6156	0.0242	0.001		
OxE86	ROCKLABS	52	0.542	0.694	0.6153	0.0274	0.0037		
OXF65	ROCKLABS	82	0.597	1.035	0.8273	0.0547	0.0277		
OXG83	ROCKLABS	14	0.835	1.35	1.0441	0.1053	0.042		
OxG84	ROCKLABS	111	0.726	1.565	0.9344	0.1027	0.0134		
OXG98	ROCKLABS	1	0.97	0.97	0.97	0	-0.0462		
OXI67	ROCKLABS	168	0.192	3.63	1.852	0.2581	0.0193		
OXJ64	ROCKLABS	131	1.69	2.74	2.3747	0.1626	0.0037		
OXJ68	ROCKLABS	85	1.705	5.95	2.4187	0.4348	0.0328		
OxK94	ROCKLABS	19	2.85	3.95	3.5632	0.2356	0.0003		
OxK95	ROCKLABS	9	3.31	3.76	3.5144	0.1212	-0.0072		
OXL63	ROCKLABS	67	5.44	6.27	5.8515	0.2026	-0.0023		
OXL93	ROCKLABS	11	5.46	6.18	5.8373	0.2363	-0.0006		
SE44	ROCKLABS	769	0.546	0.705	0.6141	0.0206	0.0133		
SE58	ROCKLABS	399	0.208	1.36	0.6191	0.0614	0.0199		
SF45	ROCKLABS	208	0.782	1.245	0.8896	0.0825	0.0491		
SF57	ROCKLABS	76	0.709	1.135	0.8775	0.0829	0.0348		
SG40	ROCKLABS	627	0.811	1.37	1.0182	0.0467	0.0433		
SG56	ROCKLABS	362	0.077	5.94	1.0545	0.2935	0.0268		
SH35	ROCKLABS	2	1.17	1.375	1.2725	0.1025	-0.0382		
SH41	ROCKLABS	652	1.01	1.585	1.3802	0.0674	0.0269		
SH55	ROCKLABS	146	0.289	1.805	1.3687	0.1609	-0.0046		
SJ53	ROCKLABS	258	0.6	4.44	2.6855	0.3498	0.0184		
SJ63	ROCKLABS	48	0.95	3.33	2.5885	0.2954	-0.0165		
SK43	ROCKLABS	94	3.41	4.45	4.0851	0.1913	-0.0002		
SK52	ROCKLABS	345	2.66	5.83	4.0934	0.3292	-0.0033		
SK62	ROCKLABS	104	0.303	4.73	3.9475	0.6829	-0.0313		
SL61	ROCKLABS	110	0.963	6.47	5.7749	0.6001	-0.0261		
SN60	ROCKLABS	27	5.71	9.68	8.8496	0.7043	0.0296		



# 11.6.2 Internal Standards

Table 15 and Table 16 list standards inserted into sample batches by Acme Analytical Laboratories and assay statistics respectively.

Table 15       Acme Internal Standards - Certified Values								
Standard	Expected value (Au ppm)	95% confidence limit						
OXE56	0.611	0.006						
OXH55	1.282	0.015						
OXK69	3.583	0.033						

Table 16     Assayed S.R.M. Statistics - Au ppm										
StandardSourceNo of AnalysesMinimumMaximumMeanStandard DeviationBias										
OXE56	ROCKLABS	12	0.573	0.649	0.6123	0.0185	0.0020			
OXH55	ROCKLABS	37	1.210	1.400	1.3046	0.0364	0.0176			
OXK69	ROCKLABS	34	1.870	3.770	3.5726	0.3062	-0.0029			

Table 17 and Table 19 list standards inserted into sample batches by BIGS Global and assay statistics derived from the results returned. The majority of analyses plot within the expected value ranges with the exception of OXK48 (n=147) and SL20 (n=3) where 60% and 0% of the total analyses for each standard respectively returned values within two standard deviations of the certified value. In general, analyses at BIGS Global tend to show a bias towards values slightly lower than the certified mean value.



Table 17       BIGS Global Internal Standards - Certified Values							
Standard	Expected Value (Au ppm)	95% Confidence Limi					
HISiLK2	3.474	0.038					
OxC58	0.201	0.003					
OxC72	0.205	0.003					
OxC88	0.203	0.003					
OxD73	0.416	0.005					
OxD87	0.417	0.004					
OxE74	0.615	0.017					
OxE86	0.613	0.007					
OxF53	0.810	0.011					
OxF65	0.805	0.034					
OxF85	0.805	0.008					
OxG60	1.025	0.028					
OxG84	0.922	0.010					
OxH29	1.298	0.015					
OxH66	1.285	0.012					
OxH82	1.278	0.010					
Oxi54	1.868	0.026					
OxK79	3.532	0.026					
OxI67	1.817	0.024					
Oxi81	1.807	0.011					
OxJ80	2.331	0.042					
OxK48	3.557	0.019					
OxK69	3.583	0.033					
OXM16	15.15	0.130					
OxP76	14.98	0.080					
SF30	0.832	0.008					
SF45	0.848	0.010					
SG40	0.976	0.009					
SL20	5.911	0.073					
SL46	5.867	0.066					
SL51	5.909	0.047					



	Table 18     BIGS Global Assayed S.R.M. Statistics - Au ppm									
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias			
HISiLK2	ROCKLABS	31	3.328	3.524	3.4229	0.0536	-0.0147			
OxC58	ROCKLABS	144	0.184	0.224	0.2011	0.0072	0.0004			
OxC72	ROCKLABS	25	0.198	0.213	0.2064	0.0037	0.0068			
OxC88	ROCKLABS	73	0.193	0.241	0.2024	0.0068	-0.003			
OxD73	ROCKLABS	22	0.397	0.434	0.4114	0.0089	-0.011			
OxD87	ROCKLABS	189	0.393	0.439	0.4139	0.0089	-0.0075			
OxE101	ROCKLABS	26	0.579	0.636	0.6024	0.0158	-0.0076			
OxE74	ROCKLABS	22	0.59	0.635	0.6117	0.0123	-0.0054			
OxE86	ROCKLABS	215	0.555	0.642	0.6086	0.0122	-0.0072			
OxF100	ROCKLABS	37	0.768	0.828	0.8034	0.0137	-0.0007			
OxF53	ROCKLABS	229	0.71	0.859	0.8033	0.0204	-0.0082			
OxF65	ROCKLABS	37	0.761	0.861	0.8032	0.0177	-0.0022			
OxF85	ROCKLABS	197	0.753	0.839	0.8033	0.0131	-0.0022			
OxG60	ROCKLABS	204	0.919	1.089	1.0126	0.0262	-0.0121			
OxG84	ROCKLABS	253	0.877	0.988	0.92	0.015	-0.0022			
OxG99	ROCKLABS	24	0.903	0.972	0.9304	0.0165	-0.0017			
OxH29	ROCKLABS	16	1.215	1.304	1.2659	0.0294	-0.0247			
OxH37	ROCKLABS	10	1.216	1.294	1.259	0.0231	0			
OxH66	ROCKLABS	30	1.236	1.314	1.2754	0.019	-0.0075			
OxH82	ROCKLABS	144	1.216	1.327	1.2746	0.0225	-0.0027			
OxH97	ROCKLABS	30	1.216	1.338	1.2694	0.0332	-0.0067			
OXi54	ROCKLABS	205	1.572	1.988	1.8424	0.0478	-0.0137			
Oxl67	ROCKLABS	32	1.734	1.878	1.8275	0.0332	0.0058			
Oxi81	ROCKLABS	78	1.74	1.9	1.8141	0.0255	0.0039			
Oxl96	ROCKLABS	7	1.784	1.836	1.806	0.0171	0.0022			
OxJ80	ROCKLABS	27	2.218	2.429	2.3501	0.0524	0.0082			
OxJ95	ROCKLABS	18	2.229	2.418	2.3153	0.056	-0.0093			
OxK48	ROCKLABS	147	1.814	3.862	3.5103	0.1729	-0.0131			
OxK69	ROCKLABS	32	3.443	3.729	3.5771	0.0793	-0.0016			
OxK79	ROCKLABS	52	3.385	3.641	3.5109	0.0565	-0.006			
OxK94	ROCKLABS	22	3.349	3.734	3.5665	0.096	0.0013			
OxL93	ROCKLABS	21	5.571	5.974	5.8072	0.1047	-0.0058			
OxM16	ROCKLABS	6	14.548	15.002	14.7628	0.1617	-0.0256			
OxN92	ROCKLABS	17	7.362	7.828	7.5834	0.1378	-0.0078			
OxP76	ROCKLABS	26	14.301	15.204	14.6808	0.2149	-0.02			
SF30	ROCKLABS	194	0.207	0.905	0.8163	0.0495	-0.0188			
SF45	ROCKLABS	25	0.807	0.871	0.839	0.0196	-0.0106			
SG40	ROCKLABS	31	0.93	1.011	0.9673	0.0238	-0.0089			
SL20	ROCKLABS	3	5.002	5.282	5.1097	0.1231	-0.1356			



Table 18     BIGS Global Assayed S.R.M. Statistics - Au ppm									
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias		
SL46	ROCKLABS	32	5.607	5.972	5.792	0.0924	-0.0128		
SL51	ROCKLABS	8	5.807	6.011	5.9108	0.0638	0.0003		

Table 19 lists standards inserted into sample batches by ALS Chemex and Table 20, and Table 16 present assay statistics for these standards. With the exception of three standards, greater than 85% of internal ALS standard analyses plot within two standard deviations of their expected value with the majority greater than 90%. The three exceptions are OXK95 (n=17), OXN62 (n=117) and ST-335 (n=5) where 71%, 81% and 80% of the total analyses for each standard respectively returned values within two standard deviations of the certified value. This represents less than 10% of the total analyses of internal standards undertaken at ALS Chemex.



Table 19       ALS Chemex Internal Standards - Certified Values							
Standard	Expected value (Au ppm)	95% confidence limit					
9	1.53	0.012					
G305-7	9.590	0.073					
G396-8	4.820	0.071					
G908-8	9.650	0.102					
G998-3	0.81	0.01					
MG-12	0.886						
HiSilP1	12.05	0.13					
OxA59	0.0817	0.0021					
OxC109	0.201	0.002					
OXD73	0.416	0.005					
OxD87	0.417	0.004					
OxE74	0.615	0.006					
OxF65	0.805	0.014					
0xG70	1.007	0.013					
0xG83	1.002	0.009					
0xG84	0.922	0.033					
0x167	1.817	0.024					
0x.164	2.366	0.031					
OxJ68	2.342	0.025					
OxK69	3.583	0.033					
0xK79	3.532	0.026					
OxK94	3.562	0.042					
OxK95	3.537	0.040					
OxN62	7,706	0.460					
0xN77	7.732	0.058					
OxP50	14.89	0.330					
OXP61	14.92	0.130					
OxP91	14.82	0.100					
SE29	0.597	0.007					
SE30	0.832	0.008					
SH55	1.375	0.014					
Si42	1.761	0.021					
	1.780	0.011					
SK33	4,401	0.041					
SL46	5.867	0.066					
SL51	5.909	0.047					
SL61	5.931	0.057					
ST-335	12.80-14.50						



	Table 20     ALS Chemex Assayed S.R.M. Statistics - Au ppm										
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias				
G300-9	GEOSTATS	75	1.43	1.615	1.5128	0.0423	-0.0112				
G396-8	GEOSTATS	48	4.67	4.95	4.8177	0.0784	-0.0005				
G998-3	GEOSTATS	10	0.765	0.83	0.7926	0.0236	-0.0215				
MG-12		340	0.824	0.947	0.8852	0.026	-0.0009				
OxA59	ROCKLABS	26	0.076	0.089	0.0825	0.0032	0.0098				
OxC109	ROCKLABS	9	0.189	0.211	0.199	0.0072	-0.01				
OXD73	ROCKLABS	1659	0.377	0.458	0.4141	0.0141	-0.0046				
OxD87	ROCKLABS	7	0.394	0.436	0.4113	0.0166	-0.0137				
OxE74	ROCKLABS	270	0.571	0.656	0.6083	0.0222	-0.011				
OxF65	ROCKLABS	69	0.753	0.877	0.8096	0.0247	0.0057				
OxG70	ROCKLABS	37	0.888	1.045	0.9984	0.0352	-0.0086				
OxG83	ROCKLABS	1	1.025	1.025	1.025	0	0.023				
OxG84	ROCKLABS	28	0.878	0.971	0.9231	0.0214	0.0012				
Oxl67	ROCKLABS	30	1.78	1.895	1.8243	0.0288	0.004				
OxJ64	ROCKLABS	33	2.26	2.53	2.3888	0.0718	0.0096				
OxJ68	ROCKLABS	29	2.2	2.41	2.3276	0.0426	-0.0062				
OxK69	ROCKLABS	614	3.22	3.86	3.608	0.0969	0.007				
OxK79	ROCKLABS	218	3.41	3.76	3.5879	0.0762	0.0158				
OxK94	ROCKLABS	41	3.38	3.7	3.559	0.0869	-0.0008				
OxK95	ROCKLABS	463	3.32	3.8	3.5402	0.0949	0				
OxN62	ROCKLABS	117	7.26	7.98	7.6903	0.177	-0.002				
OxN77	ROCKLABS	1033	7.1	8.2	7.7083	0.1659	-0.0031				
SE29	ROCKLABS	103	0.557	0.652	0.5958	0.0198	-0.002				
SF30	ROCKLABS	45	0.779	0.867	0.822	0.021	-0.012				
SH55	ROCKLABS	26	1.315	1.495	1.3921	0.0351	0.0124				
Si42	ROCKLABS	662	1.6	1.92	1.7688	0.0589	0.0044				
Si54	ROCKLABS	808	1.67	1.915	1.7738	0.0431	-0.0035				
SL46	ROCKLABS	29	5.66	6.15	5.8845	0.0944	0.003				
SL51	ROCKLABS	204	5.6	6.21	5.8588	0.1388	-0.0085				
SL61	ROCKLABS	108	4.91	6.28	5.9595	0.2251	0.005				



Table 21     ALS Chemex Assayed S.R.M. Statistics - Au ppm by gravimetric finish										
Standard	Source	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Bias			
G396-8	GEOSTATS	2	4.91	5	4.955	0.045	0.028			
OxK69	ROCKLABS	9	3.49	3.58	3.5411	0.0318	-0.0117			
OxK95	ROCKLABS	33	3.48	3.73	3.5821	0.0543	0.0119			
OxN62	ROCKLABS	9	7.68	7.77	7.7222	0.0368	0.0021			
SL51	ROCKLABS	3	5.79	5.82	5.8	0.0141	-0.0184			
SL61	ROCKLABS	7	5.66	6.24	5.9543	0.2022	0.0041			
G305-7	ROCKLABS	82	9.41	9.83	9.5583	0.0739	-0.0033			
G908-8	ROCKLABS	48	9.36	9.98	9.6335	0.1413	-0.0017			
HiSilP1	ROCKLABS	5	11.05	12.3	11.92	0.4718	-0.0108			
OxP50	ROCKLABS	5	14.9	15.2	15.05	0.1265	0.0107			
OXP61	ROCKLABS	195	14.35	15.5	14.8282	0.1308	-0.0062			
OxP91	ROCKLABS	13	14.75	15.7	14.9769	0.2284	0.0106			
SK33	ROCKLABS	4	4.14	4.16	4.15	0.01	0.027			
ST-335	GANNET		13.05	14.35	13.725	0.3934	0.0055			

### 11.7 Blanks

#### 11.7.1 External Blanks

# Acme Analytical Laboratory Vancouver

All sample batches from the 2008 drill programme submitted to Acme had 1kg to 2kg samples of crushed granite included within the sample sequence as blanks. One batch of samples was analysed using Ag inquart fire assay fusion and subsequently re-analysed. Four analyses returned values greater than three times detection limit with the highest value being 0.09ppm Au. Two of these analyses represent the same sample analysed using both fire assay methods and may indicate a low degree of contamination. Greater than 90% of blank results fall within acceptable assay tolerance.

Late Proterozoic Sandstone from the Taoudeni Basin near Bobo Dioulasso was utilised as blank material during early to mid-2009. One sample returned an assay value greater than three times detection limit however 97% of analyses fall within acceptable assay tolerance.

#### BIGS Global Burkina SARL

Sample batches from the 2008 drill programme submitted to BIGS Global also had 1kg to 2kg samples of crushed granite included within the sample sequence as blanks. Nine analyses returned values greater than three times detection limit with the highest value being 0.343ppm Au. All mineralised intervals were subsequently re-analysed at Acme Laboratory.

Taoudeni Basin Sandstone was initially submitted as blank material to BIGS Global during early to mid-2009 however certified blank material from Rocklabs have been used since early September 2009. A total of 11 samples of sandstone (BLKB) were submitted and two results exceeded three times detection limit with the highest value being 0.024ppm Au. Of the 1,700 analyses from the Rocklabs Blank (BLKR), nineteen values are greater than three times the detection limit; this represents less than 2% of the total analyses. It is probable that six of these samples with values of 0.262, 0.123, 0.777, 0.412, 0.967 and 0.864ppm Au were mislabelled standards.



# ALS Chemex Burkina Faso

Certified Rocklabs blanks only have been submitted with samples dispatched to ALS Chemex. A total of 3,312 blank samples have been included for analysis at ALS. 26 values are greater than three times the detection limit; this represents less than 1% of total analyses. It is probable that the samples with values of 2.31, 1.39, 1.385, 0.959 and 0.236ppm Au are mislabelled standards.

## 11.7.2 Internal Blanks

Acme Analytical Laboratory Vancouver

• All analyses reported are below detection limit.

BIGS Global Burkina SARL

• Two assay spikes occur above three times detection limit. This represents less than 0.2% of total analyses.

ALS Chemex Burkina Faso

• All analyses reported are below three times detection limit.

Batie West Preparation Laboratory

• As part of their internal QAQC procedures, SGS require a blank to be inserted after every 50<sup>th</sup> sample prepared. The blank (SGSPrep) consists of barren quartz chips and is required to be crushed and pulverised. All analyses reported are below three times detection limit.

# 11.8 Duplicates

# 11.8.1.1 Field Duplicates

A total of 82 (70 above 5 x detection limit) RC field duplicate pairs were analysed at Acme Analytical Laboratory. The field duplicates were second sample splits collected at every 20<sup>th</sup> sample. All samples analysed at Acme were prepared at BIGS Global. Summary statistics are included in Table 22 below.

Table 22     Acme Field Duplicate Assay Statistics								
No of Analyses* Minimum Maximum Mean Standard Co-efficier Deviation of Variatio								
Original	70	0.0300	10.7900	1.1047	1.8395	1.6651		
Duplicate	70	0.0400	11.3700	1.1341	1.9288	1.7007		
* No of Analyses above 5 x detection limit								

A total of 1,700 (827 above 5 x detection limit) and 3248 (1,664 above 5 x detection limit) RC field duplicate pairs were analysed at BIGS Global and ALS Chemex respectively. The field duplicates analysed at BIGS were initially second sample splits collected at every 20th sample, however during 2010 and 2011 all RC duplicates were second sample splits from 2 to 4 1m intervals selected by the rig geologist at the conclusion of the drill hole. Two of these samples were to be from within the mineralised zone. Summary statistics for both laboratories are included below in Table 23 to Table 24.



Table 23     BIGS Field Duplicate Assay Statistics								
	No of Analyses*	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	827	0.0025	14.4660	0.4694	1.1415	2.4317		
Duplicate	827	0.0025	22.1200	0.4673	1.2531	2.6817		
* No of Analyses above 5 x detection limit								

Table 24ALS Field Duplicate Assay Statistics								
	No of Analyses*	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	1644	0.0025	>10	0.8557	1.8734	2.1894		
Duplicate	1644	0.0025	>10	0.8533	1.8760	2.1985		
* No of Analyses above 5 x detection limit								

Table 25     ALS Field Duplicate Assay Statistics (Gravimetric finish)								
	No of Analyses*	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	19	9.6300	44.7000	16.4226	8.8225	0.5372		
Duplicate	19	9.4000	54.1000	17.9132	10.0656	0.5619		
* Number of Analyses above 5 x detection limit								

# 11.8.2 Laboratory Duplicates

A total of 37 (26 above  $5 \times detection limit)$  pulp duplicate pairs were analysed at Acme Analytical Laboratory. Summary statistics are included in Table 26.

Table 26     Acme Pulp Duplicate Assay Statistics								
	No of Analyses	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	26	0.0800	12.1100	1.1981	2.4864	2.0753		
* No. of Apply co.	26 s above E v det	0.0500	12.3800	1.1815	2.4702	2.0906		
no of Analyse	s above 5 x det							



Laboratory duplicates analysed at BIGS Global and ALS Chemex consisted of both preparation repeats (a second split of the crushed sample) and analytical repeats (a second scoop of the active pulp). BIGS Global report all check assays in separate columns within the laboratory CSV file for each batch. ALS Chemex only report the analytical repeats, a second sample of the active pulp submitted for fusion and analysis, in the laboratory assay files. Preparation repeats are provided in the quality control certificate for each sample batch. Summary statistics for both the preparation and analytical repeats at BIGS Global are included in Table 27 and Table 28 respectively. Summary statistics for analytical repeats at ALS Chemex are included in Table 29.

Table 27BIGS Prep Duplicate Assay Statistics								
	No of Analyses*	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	1263	0.0200	27.1460	0.6993	1.9286	2.7577		
Duplicate	1263	0.0180	26.4500	0.6946	1.9027	2.7394		
* No of Analyses a	* No of Analyses above 5 x detection limit							

Table 28     BIGS Analytical Repeat Assay Statistics								
	No of Analyses*	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	1090	0.0210	50.3750	0.7754	2.3313	3.0064		
Duplicate	1090	0.0190	46.9230	0.7776	2.2857	2.9394		
No of Analyses above 5 x detection limit								

Table 29     ALS Duplicate Assay Statistics									
No of Analyses* Minimum Maximum Mean Standard Co-efficient of Deviation Variation									
Original	1963	0.0025	>10	0.6727	1.4163	2.1053			
Duplicate	1963	0.0025	>10	0.6736	1.4251	2.1155			
* No of Analyses above 5 x detection limit									

A total of 93 (69 above 5 x detection limit) pulp duplicate pairs were analysed at SGS Burkina Faso. Summary statistics are included in Table 30.



Table 30SGS Pulp Duplicate Assay Statistics								
	No of Analyse s*	Minimum	Maximum	Mean	Standard Deviation	Co-efficient of Variation		
Original	69	6.8900	39.4000	14.6345	5.3233	0.3638		
Duplicate	69	0.0025	39.0000	14.4341	5.5199	0.3824		
* No of Analyses above 5 x detection limit								

Additionally, 627 (587 above 5 x detection limit) pulp samples originally analysed at ALS Chemex were analysed at SGS Burkina Faso. Summary statistics are included below in Table 31. In general there appears to be a slight bias towards higher values for repeat results in the sub-5ppm Au range however repeat values tend to be lower above 5ppm Au.

Table 31SGS Pulp Repeat Assay Statistics										
No of Analyses* Minimum Maximum Mean Standard Co-efficient Deviation of Variation										
Original	587	0.0070	12.7500	0.9664	1.7738	1.8355				
Duplicate       587       0.0050       13.6000       0.9587       1.6818       1.7544										
* No of Analyses a	* No of Analyses above 5 x detection limit									

# 11.8.3 Genalysis

In December 2012 a total of 603 original pulp and coarse reject samples from all four resource prospects were submitted to Genalysis Laboratories in Perth, Western Australia.

Coarse reject samples were prepared at Batie West preparation laboratory. Genalysis used a 50g lead collection fire assay analysed by flame atomic absorption spectrometry.

Original pulp samples analysed at BIGS Laboratory appear to show a biasing towards higher results for the umpire laboratory in the grade range of the Konkera resource. This observation is consistent with some of the standards analysis from BIGS that suggest reported results bias lower than the mean.

Summary statistics are included in Table 32 to Table 36.

Table 32 BIGS Coarse Reject									
No of Analyses* Minimum Maximum Mean Standard Co-ef Deviation of Va									
Original	149	0.062	52.777	4.0837	5.1455	1.2600			
Umpire	149	0.017	33.007	4.0978	4.1646	1.0163			
* Number of Analyses above 5 x detection limit									



Table 33ACME Coarse Reject										
No of Analyses* Minimum Maximum Mean Standard Co-efficient Deviation of Variation										
Original	28	1.02	16.320	3.9004	3.9324	1.0082				
Umpire       28       0.51       12.729       3.2031       2.8097       0.8772										
* Number of Analyses above 5 x detection limit										

Table 34 ALS Coarse Reject										
No of Analyses* Minimum Maximum Mean Standard Co-eff Deviation of Var										
Original	113	0.025	25.500	4.4906	3.9307	0.8753				
Umpire	113	0.013	23.957	4.1730	3.7451	0.8975				
* Number of Analyses above 5 x detection limit										

Table 35 BIGS Pulp										
No of Analyses* Minimum Maximum Mean Standard Co-effic Deviation of Varia										
Original	16	1.201	15.200	3.7459	3.6958	0.9866				
Umpire	Umpire 16 0.156 16.226 4.0448 3.8894 0.9616									
* Number of Analyses above 5 x detection limit										

Table 36 ALS Pulp										
No of Analyses* Minimum Maximum Mean Standard Co-effic Deviation of Varia										
Original	297	1.005	44.700	4.4134	4.6700	1.0581				
Umpire	Umpire       297       0.005       45.031       4.4410       4.8249       1.0864									
* Number of Analyses above 5 x detection limit										



# 11.9 Adequacy of Sample Preparation, Security and Analytical Procedures

Documentation, assay QA/QC, and previous technical reports indicate that sample preparation and analytical procedures are of high standard. Sample security and chain of custody are considered adequate for the area and style of operation. The Independent Qualified Person, Mr Don Maclean, is of the opinion that Ampella have adopted appropriate industry standard sampling, assaying and monitoring programs.



# 12. DATA VERIFICATION

### 12.1 Data Verification by Ampella

The exploration database has been maintained in acQuire since January 2010. Prior to this data was maintained in a series of Excel spreadsheets. As of November 2011 the database was relocated from Perth to the Batie West Camp and a full time database manager was employed.

All data including surface geochemistry sampling data has been migrated to acQuire and reviewed and validated during this process.

The acquire validation process ensures:

- Collar, survey, assay and geology end of drill hole depths are compatible;
- No repeated sample identification numbers can occur within the database;
- Laboratory assay values are loaded to correct sample identification numbers;
- All analytical results are stored in the database as reported from the laboratory. Assay values below detection limit are converted to a value of half the detection limit when displayed or exported for modelling;
- All codes are valid.

### 12.2 Independent Qualified Person Review and Verification

The Independent Qualified Person, Mr Don Maclean, has undertaken the following steps to verify the data upon which this report is based:

Mr Don Maclean has visited the Konkera Project on several occasions between 2010 and 2012, with the most recent visit being in November 2012. Steps undertaken to verify the integrity of data used in this report include:

- Field visits to the Konkera Project outlined in this report;
- Inspection of mineralised and un-mineralised drill core and RC drill chips from Konkera;
- Inspection of RC and Diamond drilling activities, sampling and logging;
- Review of Ampella's data collection, database and data validation procedures.

Mr Don Maclean completed the February 2013 resource estimate for the Konkera Deposit. Additional data verification steps undertaken during this estimate process included:

- Validation of drilling, geology and assay data on import into Minesight Torque<sup>®</sup> (ie checks overlapping intervals, samples beyond hole depth and other data irregularities);
- Review of Ampella QAQC charts for standards, blanks and duplicates;
- Visual and statistical analysis of resource estimate model outputs versus primary data;
- Random cross checks of assay hardcopy reports against the database.



# 13. MINERAL PROCESSING AND METALLURGICAL TESTING

Ampella have completed a metallurgical program at Konkera as part of their ongoing PFS study program (Ampella, 2012). Composite diamond core metallurgical samples from the three main prospects of Konkera Main/East, Konkera North and the Kouglaga area were tested at ALS-Ammtec in Perth and HRL-Testing Laboratories in Brisbane.

The oxide and transition composites from Konkera Main/East, Konkera North and Kouglaga and the Kouglaga primary composite were deemed to be free milling and amenable to conventional cyanide leaching technology. Results of testwork on these materials show that more than 30% of the gold is recoverable by gravity methods, with the remainder recoverable by conventional leaching with a modest grind size of  $P_{80}$  of 106µm (Table 37).

Table 37 Oxide and Transitional Mineralisation Recoveries (grind size $106 \mu m$ )										
	Konkera North Konkera Main/East Kouglaga									
	Oxide	Oxide Transition Oxide Transition Oxide 1								
Gravity Recovery	31.8%	30.8%	60.6%	38.5%	39.3%	37.5%				
Leach Recovery	61.9%	57.6%	35.1%	53.2%	58.5%	57.7%				
Total Recovery	93.7%	88.4%	95.6%	91.7%	97.7%	95.1%				

The sulphide mineralisation at Kouglaga is also amenable to extraction by conventional gravity and leaching with a grind size of  $P_{80}$  of  $106\mu m$  (Table 38).

Table 38 Kouglaga Sulphide Mine	Kouglaga Sulphide Mineralisation Recoveries (grind size 106µm)					
Kouglaga Sulphide						
Gravity Recovery	51.5%					
Leach Recovery	46.4%					
Total Recovery	97.9%					

The sulphide mineralisation at Konkera North and Konkera East/Main is not free milling and requires a different processing route.

Initial tests on the Konkera North sulphide mineralisation shows that 79.7% is recoverable by leaching of  $P_{80}$  of 75µm (leachwell test). The mineralisation is noted to respond well to flotation with 92% of the gold reporting to a flotation concentrate which comprises less than 6% of the feed mass.

Ultra-fine grinding (UFG) to a  $P_{80}$  of  $10\mu$ m and subsequent cyanide leaching tests on the Konkera North concentrate shows that 92% of the gold reporting to the concentrate is recoverable. In addition leaching of the flotation tail shows that 78% of the gold reporting to the flotation tails is recoverable, giving an overall recovery of 91% using a combination of UFG and tails leaching (Table 39).

Initial leach tests on the Konkera Main/East mineralisation 55.6% is recoverable by leaching of  $P_{80}$  of  $75\mu m$  (leachwell test). The mineralisation is noted to respond well to flotation with 95%



of the gold reporting to a flotation concentrate which comprises less than 5% of the feed mass.

Ultra-fine grinding (UFG) to a  $P_{80}$  of  $8\mu$ m and subsequent cyanide leaching tests on the Konkera Main/East concentrate shows that 72% of the gold reporting to the concentrate is recoverable. In addition leaching of the flotation tail shows that 67% of the gold reporting to the flotation tails is recoverable, giving an overall recovery of 71% using a combination of UFG and tails leaching (Table 39).

Table 39       Konkera North and Konkera Main/East Sulphide Ore Recoveries								
Konkera North Konkera Main/East								
Leachwell Recovery (75µm)	79.7%	55.6%						
UFG Recovery	92.0%	71.7%						
Float Tail Recovery	77.9%	67.1%						
Overall Recovery	90.9%	71.4%						

The testwork indicates that the Konkera Main, East, North and Kougala oxide and transitional mineralisation and the Kouglaga fresh mineralisation is amenable to treatment using conventional gravity and CIL leach methods. The Konkera Main, East and North sulphide mineralisation would require treatment involving sulphide float, regrind of the concentrates to 8/10 micron and then cyanidisation.

Ampella's ongoing PFS study work has been based around the above scenario using a 3.0 Mtpa CIL plant with flotation and regrind.



# 14. KONKERA RESOURCE ESTIMATE

In February 2013 Ravensgate completed a resource estimate for the Ampella's Konkera prospect. This estimate was prepared in accordance with the guidelines of the JORC Code (2004). In accordance with NI 43-101 section 7.1 (2) Ravensgate has reviewed the classification criteria for JORC (2004) and NI 43-101 Resources and is of the opinion that in this instance there are no material differences and that the Konkera Resource Estimate also meets the criteria to be classified as a NI 43-101 Inferred and Indicated Resource (also see section 14.9).

The Konkera Mineral Resource was independently estimated by Ravensgate and is discussed in the following sections. The effective reporting date for the estimate was 28 February 2013.

# 14.1 DATA REVIEW

The Qualified Person completed reviews of the various data sets on which the resource estimate was to be based. This review included such aspects as:

- Drilling and sampling methodology
- Down-hole surveys
- Drill collar surveys
- Topographic data
- Drilling and sampling data
- Assaying methods
- Assaying QAQC
- Density data
- Geological models
- Domaining and interpretation
- Data validation

Based upon this review the Qualified Person is of the opinion that Ampella have adopted appropriate industry standard methods to collect, store and validate the data from the project and the data obtained is suitable for in use in developing a JORC (2004) resource estimate.

# 14.2 Geology and Mineralised Domain Modelling

Gold mineralisation at Konkera is interpreted to lie in multiple steeply to moderately west dipping and north striking shear zones within a sequence of deformed/folded metasediments and metavolcanics. These have been intruded by suites of felsic to intermediate porphyries which are often weakly mineralised suggesting that they were intruded before or during the mineralisation event. Gold mineralisation is interpreted to largely related to fluid mixing.

Ampella geologists have developed three dimensional geological models of the major lithological units and structures (Figure 23). These were completed using Micromine<sup>®</sup> software utilising drill hole geological data on 50m and 25m spaced cross sections (depending on the drilling density of the area). Solids were created of the major lithological units, which were used to code the block model used in the resource estimate. A list of these solid domains is included in Table 40.

Interpretation of gold mineralised domains was completed by Ravensgate using Minesight<sup>®</sup> software (Figure 24). This interpretation was based largely upon previous interpretations completed by Ampella, which were refined utilising new assay data from drilling and the updated 3D geological models. Structural data from orientated drill core was also utilised to aid in developing the gold mineralisation wireframe interpretation. This was done by loading the relevant structural data (foliations, veins and contacts) into Minesight<sup>®</sup> and using three dimensionally orientated disks on drill hole traces to guide the mineralisation interpretation.



Mineralisation polygons were constructed utilising a nominal 0.35g/t Au edge definition cutoff, which preliminary engineering studies suggest is around the lower economic cut-off grade for the deposit. Domains were extrapolated half way to the next drill hole along strike and/or down dip along distances typically ranging from 20 to 50m.

Internal waste (i.e. less than 0.35g/t Au) was limited to less than three metres where possible within the wireframe domains. Where continuous zones of internal waste within a domain could be recognised these were modelled and removed from the domain wireframe.

Typical cross sections for each of the main prospect areas showing drilling, gold assays and interpreted mineralisation outlines are shown in Figure 18 to Figure 22.

The mineralisation polygons were used to construct 3-D solid wire framed models of the various mineralised zones. The wireframe domain solids were all checked for closure and integrity. In total, 132 different mineralisation domains were modelled.

In addition to the solid geological and mineralisation domains, weathering surfaces were also constructed by Ampella geologists. Base of complete oxidisation and top of fresh rock surfaces were constructed based on cross-sectional interpretation and subsequent DTM surface generation which were then loaded into Minesight<sup>TM</sup> and used to code the appropriate material type into the model (i.e. oxide, transitional or fresh/sulphide material) and to code appropriate densities for each material type.















### 14.3 Geostatistics

#### 14.3.1 Methods adopted for the Konkera Gold Prospect

The mineralisation domain solids were used to code drill sampling data for geostatistical analysis, with each domain given a unique zone code. The statistics for each zone were reviewed using both raw assay sample data and composite data. Gold was the only element reviewed as it is the only metal considered of economic significance at Konkera.

### 14.3.2 Composites

A standard 1m length down-hole composite interval was selected for compositing as this was the most common typical sample length and is appropriate to honour the dimensions of the mineralisation domains being modelled. The compositing of assay data and the subsequent file generation process was using a straight forward total drill-hole slope (vertical) length composite calculation run on all drill-holes using Minesight<sup>®</sup> Torque.

The composite data was coded according to the various geological and mineralisation domains. The allocation of geologic flagging codes to the composited drill hole intervals was by direct intersection of composite drill hole traces contained within the wireframed geological domain triangulations. Compositing was completed using Minesight Torque® software. Composites were flagged with the various geological lithology domain codes, regolith types and by mineralisation domains.

These coded composites were used in subsequent data analysis which included exploratory data analysis, review of gold sample populations, analysis of top cut analysis and variography.

### 14.3.3 Summary Statistics and Top Cut Strategy

Standard Log Probability plots were generated for each domain to help determine the statistical population distribution of each domain. In particular parameters related to 'outlier' cut-off grades and appropriate variogram grade calculation ranges were examined. A representative set of these plots are presented for review in Appendix 1 for each of the major mineralisation domains.

The distribution of gold within the defined domains at Konkera generally display coefficients of variations (CVs) ranging from 0.5 to 2.88 with the majority of domain CVs ranging from 1.0 to 1.5. These CV ranges indicate that some outlier grades need to be treated appropriately to reduce the potential over-influence of outlier high grades.

Given the generally low to moderate CV's Ravensgate considers that applying a hard cut to outlier grades prior to interpolation would in this instance be an overly harsh approach. To this end Ravensgate used the 99th percentile level or where the sample populations exhibited clear outlier grades as the 'High Yield' threshold at which to limit outlier grades. High yield limits used ranged from 8g/t Au to 24g/t Au depending on the domain (Table 45 to Table 47). The high yield limit was restricted to within 10m of an outlier grade (i.e. grades higher than the yield limit were only used to inform blocks within 10m of a composited sample point).

The restriction distance of 10m was based on review of close spaced drilling within the upper parts of Konkera North where it appeared to be reasonable area of influence for these higher grades. The application of the restriction is by default spherical and internal to the overall anisotropic search ellipsoids that are used locally for interpolation.

Of note is that only the domains with large numbers of samples (i.e. statistically meaningful data sets) were used to select high yield limit outlier grade thresholds (i.e. several hundred composites or more). The domains with fewer samples were collectively grouped (e.g. from within the same shear zone or similar spatial area) into larger datasets for analysis where possible, or had an appropriate top cut value from a neighbouring or adjacent larger domain applied to them.



Table 40 1	Table 40     1m Au Composite summary Statistics by Domain									
Zone	# comps	min Au	Max Au	Mean	SD	CV				
KN_Nov12_ZonA_101	1386	0.003	180	2.11	5.99	2.84				
KN_Nov12_ZonA_102	52	0.032	9.76	1.67	2.18	1.31				
KN_Nov12_ZonA_103	205	0.003	9.05	1.54	1.75	1.14				
KN_Nov12_ZonB_104	2259	0.003	81.1	1.52	2.68	1.76				
KN_Nov12_ZonB_105	762	0.003	23.57	1.34	1.9	1.42				
KN_Nov12_ZonC_106	4914	0.003	41.2	2.3	3.3	1.43				
KN_Nov12_ZonX_107	3	0.03	9.81	5.53	4.48	0.81				
KN_Nov12_ZonX_108	10	0.12	7.52	1.8	2.54	1.41				
KN_Nov12_ZonX_109	18	0.03	5.38	0.94	1.28	1.36				
KN_Nov12_ZonX_110	60	0.03	4.1	0.75	0.85	1.13				
KN_Nov12_ZonX_111	7	0.16	3.19	1.11	1.2	1.08				
KN_Nov12_ZonX_112	7	0.35	1.96	1.09	0.54	0.5				
KN_Nov12_ZonX_113	4	0.22	2.86	1.37	1.18	0.86				
KN_Nov12_ZonX_114	11	0.062	2.75	1.15	1.05	0.91				
KN_Nov12_ZonX_115	8	0.38	3.68	2.25	0.99	0.44				
KN_Nov12_ZonX_116	6	0.34	2.68	1.08	0.68	0.63				
KN_Nov12_ZonX_117	17	0.13	2.4	0.73	0.69	0.95				
KN_Nov12_ZonX_118	13	0.2	2.85	1.03	0.88	0.85				
KN_Nov12_ZonX_119	7	0.25	12.7	2.25	4.6	2.04				
KE_Jan13_ZonA_201	23	0.029	11.25	1.42	2.37	1.67				
KE_Jan13_ZonA_205	58	0.003		1.25	2.06	1.65				
KE_Jan13_ZonA_206	31	0.003	7.37	1.82	2.33	1.28				
KE_Jan13_ZonA_207	191	0.007	18.2	1.87	2.66	1.42				
KE_Jan13_ZonA_218	12	0.33	6.06	1.56	1.93	1.24				
KE_Jan13_ZonB_204	57	0.012	5.6	0.96	0.99	1.03				
KE_Jan13_ZonB_217	19	0.212	4.82	0.92	1.04	1.13				
KE_Jan13_ZonC_209	784	0.007	16.9	1.76	2.25	1.28				
KE_Jan13_ZonC_210	319	0.006	15.56	1.84	2.33	1.27				
KE_Jan13_ZonC_211	229	0.003	20.8	2.03	2.88	1.42				
KE_Jan13_ZonC_216	11	0.087	2.71	1.31	0.8	0.61				
KE_Jan13_ZonD_208	19	0.35	3.8	1.41	1.1	0.78				
KE_Jan13_ZonD_212	159	0.003	13.38	1.81	2.11	1.17				
KE_Jan13_ZonD_215	174	0.025	15.1	1.9	2.47	1.3				
KE_Jan13_ZonE_213	972	0.003	115.5	2.28	6.74	2.96				
KE_Jan13_ZonE_214	53	0.011	9.31	1.45	1.72	1.19				
KE_Jan13_ZonF_202	31	0.003	17.25	2.48	3.47	1.4				
KE_Jan13_ZonF_203	16	0.007	14.79	1.7	3.56	2.09				
KE_Jan13_ZonX_219	5	1.287	3.3	2.58	0.8	0.31				
KE_Jan13_ZonX_220	17	0.01	6.29	1.53	2	1.31				
KE_Jan13_ZonX_221	13	0.157	9.21	2.02	2.53	1.25				
KM_Jan13_ZonA_301	767	0.003	15.05	1.52	1.77	1.16				
KM_Jan13_ZonA_302	166	0.008	18.4	1.45	2.1	1.45				
KM_Jan13_ZonB1_333	142	0.003	10.7	1.2	1.75	1.46				



Table 40 1	Table 401m Au Composite summary Statistics by Domain								
Zone	# comps	min Au	Max Au	Mean	SD	CV			
KM_Jan13_ZonB1_334	107	0.003	9.72	1.32	1.5	1.14			
KM_Jan13_ZonB2_307	78	0.003	4.31	1	0.93	0.93			
KM_Jan13_ZonB2_308	299	0.003	10.2	0.98	1.24	1.27			
KM_Jan13_ZonB2_309	278	0.003	46.76	1.91	4.18	2.19			
KM_Jan13_ZonB2_310	11	0.43	54.56	10.4	17.7	1.7			
KM_Jan13_ZonB3_303	48	0.016	5.11	1.46	1.66	1.14			
KM_Jan13_ZonB3_304	54	0.014	4.01	0.96	0.89	0.93			
KM_Jan13_ZonB3_305	44	0.007	8.42	1.08	1.41	1.31			
KM_Jan13_ZonB3_306	35	0.005	15.9	2.2	3.34	1.52			
KM_Jan13_ZonC_312	365	0.003	15.36	1.97	2.52	1.28			
KM_Jan13_ZonC_313	31	0.35	6.91	2.37	1.8	0.76			
KM_Jan13_ZonC_314	18	0.8	5.85	3.13	1.71	0.55			
KM_Jan13_ZonC_316	166	0.003	13	1.81	2.23	1.23			
KM_Jan13_ZonD_311	127	0.012	9.87	1.23	1.47	1.2			
KM_Jan13_ZonD_315	43	0.014	10.55	3.3	2.98	0.9			
KM_Jan13_ZonD_317	612	0.003	43.8	2.03	3.22	1.59			
KM_Jan13_ZonD_327	52	0.005	54.52	3.52	10.1	2.87			
KM_Jan13_ZonE_318	183	0.007	17.55	2	2.63	1.32			
KM_Jan13_ZonE_319	11	0.34	3.88	2.03	1.25	0.62			
KM_Jan13_ZonE_320	397	0.003	13.5	1.99	2.43	1.22			
KM_Jan13_ZonE_321	363	0.003	11.15	1.29	1.7	1.32			
KM_Jan13_ZonE_328	23	0.1	2.54	1.02	0.66	0.65			
KM_Jan13_ZonE_329	18	0.173	11.15	1.58	2.46	1.56			
KM_Jan13_ZonE_330	41	0.186	9.53	1.84	1.95	1.06			
KM_Jan13_ZonF_322	221	0.01	13.05	1.89	2.39	1.26			
KM_Jan13_ZonF_323	62	0.019	4.84	1.18	1.07	0.91			
KM_Jan13_ZonF_324	60	0.042	10.75	1.78	2.32	1.3			
KM_Jan13_ZonF_325	8	0.212	4.269	1.41	1.32	0.94			
KM_Jan13_ZonE_332	5	0.417	18.45	4.66	7.76	1.67			
KM_Jan13_ZonG_326	132	0.003	16.74	2.08	3.07	1.48			
KM_Jan13_ZonG_331	38	0.016	16.9	2.37	3.71	1.57			
KM_Jan13_ZonG_335	31	0.01	10.5	1.56	2.08	1.33			
KM_Jan13_ZonX_336	36	0.036	3.84	0.95	1	1.05			
KM_Jan13_ZonX_337	11	0.003	11.2	1.76	3.16	1.8			
KM_Jan13_ZonX_338	12	0.21	4.64	1.31	1.46	1.11			
KM_Jan13_ZonX_339	5	1.095	1.8	1.88	1.58	0.84			
KM_Jan13_ZonX_340	5	0.76	8.9	2.92	3.37	1.15			
KM_Jan13_ZonX_341	7	0.029	1.17	0.74	0.38	0.51			
KM_Jan13_ZonX_342	5	0.49	2.87	1.24	0.95	0.77			
KM_Jan13_ZonX_343	4	0.28	5.06	3.1	2.21	0.71			
KM_Jan13_ZonX_344	7	0.27	1.74	0.78	0.52	0.67			
KM_Jan13_ZonX_345	4	1.77	3.85	2.91	1.09	0.37			
KM_Jan13_ZonX_346	3	1.45	2.87	2.07	0.73	0.35			



Table 40     1m Au Composite summary Statistics by Domain									
Zone	# comps	min Au	Max Au	Mean	SD	CV			
KM_Jan13_ZonX_347	5	0.36	2.25	1.34	0.9	0.67			
KM_Jan13_ZonX_348	9	0.017	5.97	1.67	1.92	1.15			
KM_Jan13_ZonX_349	13	0.022	4.68	1.81	1.31	0.72			
KM_Jan13_ZonX_350	2	0.71	5.68	3.17	3.48	1.1			
KM_Jan13_ZonX_351	6	0.387	11.2	3.61	4.09	1.13			
KM_Jan13_ZonX_352	5	0.547	9.36	2.99	3.65	1.22			
KM_Jan13_ZonX_353	5	0.9	4.59	1.98	2.36	1.19			
GP_Jan13_ZonC_401	63	0.006	13.45	1.97	2.16	1.1			
GP_Jan13_ZonB_402	572	0.003	22.59	1.35	2.17	1.61			
GP_Jan13_ZonA_403	170	0.006	16.7	0.98	1.45	1.48			
KG_Jan13_ZonA_501	146	0.014	33.59	1.75	3.9	2.23			
KG_Jan13_ZonA_502	31	0.014	11.8	1.4	2.31	1.65			
KG_Jan13_ZonA_503	6	0.382	5.53	2.04	1.88	0.92			
KG_Jan13_ZonA_517	10	0.22	2.74	0.94	0.76	0.81			
KG_Jan13_ZonA_518	12	0.011	47.9	6.6	14.9	2.27			
KG_Jan13_ZonB_504	88	0.008	52.84	2.08	6	2.88			
KG_Jan13_ZonB_505	67	0.009	7.61	1.11	1.53	1.38			
KG_Jan13_ZonB_506	11	0.25	3.28	0.88	0.88	1			
KG_Jan13_ZonB_532	6	0.294	3.24	1.58	1.04	0.66			
KG_Jan13_ZonC_507	70	0.003	5.42	0.86	0.98	1.14			
KG_Jan13_ZonC_508	58	0.007	14.03	1.86	2.95	1.59			
KG_Jan13_ZonC_516	23	0.297	8.38	1.88	1.82	0.97			
KG_Jan13_ZonC_527	7	0.43	4.85	1.88	1.52	0.81			
KG_Jan13_ZonD_509	167	0.003	23.1	1.91	2.96	1.55			
KG_Jan13_ZonD_510	121	0.05	49.02	3.04	6.42	2.11			
KG_Jan13_ZonD_511	38	0.015	19.5	3.23	4.66	1.44			
KG_Jan13_ZonD_515	15	0.007	4.29	1.64	1.08	0.66			
KG_Jan13_ZonE_512	330	0.016	55.05	2.92	5.78	1.98			
KG_Jan13_ZonE_513	273	0.006	39.9	2.36	4.79	2.03			
KG_Jan13_ZonE_514	26	0.003	8.9	1.59	2.28	1.43			
KG_Jan13_ZonE_528	15	0.235	5.69	1.99	1.75	0.88			
KG_Jan13_ZonE_529	9	0.21	9.79	1.86	3.03	1.63			
KG_Jan13_ZonE_530	13	0.014	5.87	1.89	1.68	0.89			
KG_Jan13_ZonF_519	18	0.291	15.95	5.02	5.59	1.11			
KG_Jan13_ZonF_520	17	0.297	5.77	1.4	1.7	1.21			
KG_Jan13_ZonF_531	3	0.665	16.2	6.8	8.25	1.21			
KG_Jan13_ZonG_521	56	0.123	121.7	5.52	16.8	3.04			
KG_Jan13_ZonH_522	26	0.047	10.4	1.91	2.24	1.17			
KG_Jan13_ZonI_523	67	0.039	25.2	5.65	6.34	1.12			
KG_Jan13_ZonJ_524	20	0.331	9.48	2.37	2.68	1.13			
KG_Jan13_ZonJ_525	7	0.228	10.9	2.29	3.87	1.69			
KG_Jan13_ZonK_526	40	0.002	37.7	2.77	6.15	2.22			
KG_Jan13_ZonL_533	13	0.017	5.43	1.28	1.62	1.27			



Table 401m Au Composite summary Statistics by Domain							
Zone	# comps	min Au	Max Au	Mean	SD	CV	
KG_Jan13_ZonX_534	10	0.356	3.17	1.26	1.07	0.85	
KG_Jan13_ZonX_535	7	0.31	9.9	2.35	3.43	1.46	
KG_Jan13_ZonX_536	15	0.101	5.42	1.36	1.27	0.93	

# 14.3.4 Review of sample statistics by Geology domains

The distribution of gold within the various lithology types at Konkera was investigated using the coded 1m composite data set. Table 41 shows a detailed summary of the various mineralised domains reported out by host rock lithology.

The majority (approximately 60%) of mineralisation is hosted within the volcaniclastics, with subordinate amounts in the basalt and sediments. Mineralisation hosted within the volcaniclastics and sediments is typically higher grade than that hosted in basalt (with mean grades of 1.9g/t Au to 2.46g/t Au for volcaniclastic/sediment lithologies versus 1.41g/t Au for basalt hosted mineralisation). This is interpreted to reflect the different rheological and chemical properties of the host units.

The interpreted mineralised domain solids also capture a small amount of intrusive intermediate (monzonite) to felsic porphyry, which are interpreted to be syn or post mineralisation. These cross-cut mineralisation sequences are interpreted to be largely temporal with mineralisation. As these intrusives are low grade and are predominantly barren blocks which have intrusive geology codes they were coded as null grade and not reported. However composites that had an intrusive geological code were used in the estimate as they are not practical to exclude from the estimate, given these intrusives are very narrow (generally less than 1m), and are often internal to Ampella's 1m sample intervals. Using these generally lower grades within the overall model will only have a very minor detrimental result with respect to the final reported resource summary.

Table 41       Summary of host rock lithology types within mineralised domains								
Domain Name	Code	# Samples	Min	Max	mean	Stand Dev	Coeff Var	
Basalt	30	4,182	0.003	23.187	1.41	1.92	1.36	
Volcaniclastics - undiff	20	10,380	0.003	180	1.90	3.86	2.03	
Volcaniclastics - breccia	21	1,290	0.003	121.7	2.44	5.65	2.32	
Volcaniclastics - sandstone	22	685	0.003	58.79	2.46	5.33	2.17	
Sediments - undiff	10	3,761	0.003	54.56	2.40	3.41	1.42	
Sediments - Shale	11	66	0.009	17.85	2.49	3.14	1.26	
Intrusive Monzonite	91	146	0.003	8.05	0.98	1.80	1.84	
Intrusive - dolerite dike	99	9	0.003	1.24	0.53	0.44	0.83	
Unclassified	-	127	0	46.78	1.81	4.75	2.62	



### 14.3.5 Review of Sample Statistics by Weathering Domains

The distribution of gold within the various weathering material types at Konkera was investigated using the coded 1m composite data set. Table 42 shows a detailed summary of the various mineralised domains reported by weathering material type. Weathering was subdivided into oxide (completely weathered rock (typically clays) and oxidised), transitional (saprolitic rock, mixed oxide and sulphides) and fresh (fresh rock, sulphide mineralisation).

Konkera East, Konkera Main and Konkera North all have relatively shallow weathering profiles, with depths to fresh rock around 20 to 25m. Kouglaga, which is predominantly in a different lithology (volcaniclastic breccia) is more deeply weathered with weathering down to approximately 60m.

From Table 42 it can be seen that the mean grades for oxide and fresh at Konkera Main, East, and The Gap are similar, but transitional grades for those deposits are marginally lower, which may suggest there is a small amount of relative gold depletion within the transitional zone. At Konkera North there appears to be little difference, with oxide grades only marginally lower than transitional and fresh. At Kouglaga, the most deeply weathered deposit, oxide and transitional grades are slightly higher than in fresh rock, suggestive of some supergene enrichment. Globally combining oxide, transition and fresh for all deposits there is very little difference in mean grades.

Table 42	Summary of host rock weathering types within mineralised domains						
Domain Name	Туре	# Samples	Min	Max	Mean	Stand Dev	Coeff Var
Konkera East	oxide	301	0.003	20.80	2.01	2.87	1.43
Konkera East	trans	263	0.003	15.05	1.53	2.22	1.45
Konkera East	fresh	2,583	0.003	115.5	2.02	4.52	2.24
Konkera Main	oxide	231	0.003	15.94	1.59	2.07	1.30
Konkera Main	trans	714	0.003	18.45	1.39	1.95	1.40
Konkera Main	fresh	4,320	0.003	54.46	1.77	2.88	1.63
Konkera North	oxide	592	0.013	23.57	1.81	2.84	1.57
Konkera North	trans	1,418	0.003	19.80	2.07	2.91	1.41
Konkera North	fresh	7637	0.003	18.00	2.00	3.78	1.89
Kouglaga	oxide	334	0.014	121.7	2.83	8.22	2.90
Kouglaga	trans	685	0.003	49.02	2.51	4.95	1.97
Kouglaga	fresh	749	0.003	52.8	2.15	4.33	2.01
The Gap	oxide	171	0.003	15.10	1.28	1.89	1.48
The Gap	trans	152	0.006	22.60	1.18	2.06	1.75
The Gap	fresh	482	0.003	19.70	1.40	2.10	1.50
All Oxide		1,629			1.97		
All Transition		3,232			1.93		
All Fresh		15,771			1.93		



## 14.3.6 Review of Major Domains in Long Section

A set of long sections was generated for each of the major domains to assist in identifying potential shoots and sub-domains. Several of the major domains appear to have higher grade shoots developed within them. However, upon review of the variography of these shoot areas they were found to have very similar variography to the overall domain they were part of. As a result they were estimated with the broader domains as it was felt this would be more representative as the margins of the higher grade shoots could not be clearly distinguished. With additional infill drilling it may be warranted to look at using sub-domains for the potential shoots.

#### 14.3.7 Short Range variability - Geostatistics drill program - summary

In late 2011 Ampella completed a small tightly spaced 'Geostatistics' RC drill program with 5m spaced holes over a 40m strike length and down dip section of the Konkera North orebody. This program was designed to test and demonstrate continuity of mineralisation and collect data to undertake more detailed variography.

The geostatistics program comprised 16 angled RC holes for 1,187m of drilling at the Konkera North deposit. Holes were drilled every 5m along a 40m long strike portion of the deposit and every 5m along a 40m cross section forming a t-shaped pattern (Figure 25).

Key observations from this program included:

- Overall this drilling demonstrates quite good continuity of high/medium grade mineralisation with grades and widths generally showing consistency. There is however some local complexity with the three main zones interpreted in the area appearing to merge into one broader zone then splitting into three zones (i.e. mineralisation is likely to be more complex internally at a local scale).
- Much of area targeted in the geostatistics drill program is at grades/widths that are amenable to underground mining. It is likely that similar high grade shoots are present in deeper parts of Konkera North but their geometry can't be resolved at the current 80 to 100m centre drilling. That is the shoots may have shorter strike lengths than the drilling pattern, and infill drilling is required targeting shoots that have potential for underground development.




Figure 25 Long Section Konkera North Zone 106 (Geostats Program area) looking East showing drill hole Au intercepts and downhole widths



## 14.4 Variography

## 14.4.1 Domain Variography

The semi-variogram (abbreviated to variogram) is a tool to help characterise spatial variability of composites. This type of study is best carried out within a known material type or mineralisation domain which has on average similar geologic features.

Variograms were calculated by using the standard method of determining half of the mean of the squared differences between all pairs of composite points separated according to a set of vectors. The changing observed variance with respective to increasing distance between sample pairs is then plotted to assist with the variogram modelling process.

The semi-variogram (variograms) calculations and modelling were carried out by Ravensgate using Minesight Data Analyst to produce representative variogram models for the major mineralisation domains. Variograms were all calculated and developed using the domain constrained 1m down-hole composite set using the normal variogram function.

Downhole variograms were generated for each major domain using the Minesight Data Analyst Downhole variogram function. Nugget and sill values were obtained from experimental best fit spherical variogram models of this data. Down-hole variograms were typically generated using a 1 (+/- 0.3m) metre lag, with a windowing angle of +/- 7.5 degrees and were normalised by variance. Where possible all the 1 Au metre composites within a domain were used, but in many cases high (typically >12g/t Au) and low (typically less than 0.1g/t Au) grade composite values were filtered from the dataset to produce stable experimental variogram models.

Between-hole (along strike) and down-dip variograms were generated for each of the main domains. These were typically generated using a 25 (+/- 8m) metre lag, with a windowing angle of +/- 7.5 degrees and were normalised by variance. Again, where possible all the 1 Au metre composites within a domain were used, but in many cases high (typically >12g/t Au) and low (typically less than 0.1g/t Au) grade composite values were filtered from the dataset to produce stable experimental variogram models. Experimental best fit spherical variogram models were fitted to this data while attempting to maintain the nugget and sill values for each domain obtained from the downhole variogram modelling. Of note is the between hole variograms were generally less well structured as they are based on composites more widely spaced than that used for the downhole variography which is normally expected

Down-hole variograms typically display nugget to sill ratios ranging from 33% to 66% with most in the 40% to 50% range. Down-hole ranges were from 1.9m to 10m, along strike ranges from 45 to 70m and down dip ranges from 60m to 95m.

## 14.5 Bulk Density

Bulk densities are based on over 3,000 density measurements taken on drill core either conducted by ALS Laboratories or by Ampella Mining. Oxidation boundaries were wireframed by Ampella geologists and used to code the 1m composites and block model. Locations of bulk density samples were reviewed in three dimensions and these show a good representative spread throughout the deposits.

Figure 26 shows a histogram of bulk densities for all fresh rock samples and Figure 27 shows this same data sub-domained just to include bulk density samples from within the mineralised wireframes. These both show very similar distributions and means (2.87 versus 2.89), and based on this it was decided to use the mean value of all data (2.87) as the density for all fresh rock lithologies and mineralisation, with the exception of the intermediate dykes (bulk density of 2.78) and feldspar porphyry dykes (bulk density of 2.71).

Bulk densities for oxide and transitional material displayed a wider range of values (Figure 28 and Figure 29) so it was decided that applying the mean bulk density to each material type was not the appropriate method in this case. Instead bulk densities show a clear relationship to their depth below surface (i.e. density increases with depth as weathering decreases as, clay content decreases). The exception is at Kouglaga where the density in the first 10m is slightly denser



than the oxide/transitional material below (1.96 versus 1.7 to 1.83). This is due to the denser ferriginous duricrust at surface at Kouglaga.

Table 43 summarises bulk density data for Konkera Main, East and North and Table 44 shows bulk density data for Kouglaga and the Gap (which are more deeply weathered). Densities used were for Konkera Main, Konkera East and Konkera North were 1.96 (0-10m), 2.17 (10-20m), 2.40 (20-30m), 2.62 (30-40m) and 2.79 (40-50m). Densities used for Kouglaga and the Gap (which are more deeply weathered) were 2.06 (0-20m), 1.73 (20-30m), 1.79 (30-40m), 1.83 (40-50m), 2.14 (50-60m), 2.18 (60-70m) and 2.34 (70-80m).

Figure 26 Bulk density data for all Konkera Bulk Density data - all fresh samples



Figure 27 Bulk density data for all Konkera Bulk Density data - fresh samples from within mineralised zones







Figure 28 Bulk density data for all Konkera Bulk Density data - all oxide samples

Figure 29 Bulk density data for all Konkera Bulk Density data - all transition samples



Table 43	Summary of ox	kide/transii	tion bulk de Konkera N	ensities - Ko orth	onkera Mai	n, Konkera	East and
Konker	a North	Konkera Ea	Main and ast	Su	mmary of bu	ılk density da	ata
Rl From	rl To	rl From	rl To	# Samples	Bulk Density min	Bulk Density max	Bulk Density mean
surface	345	surface	335	122	1.46	2.91	1.96
345	335	335	325	98	1.50	2.93	2.17
335	325	325	315	66	1.78	3.32	2.40
325	315	315	305	52	1.96	2.91	2.62
315	305	305	295	22	2.64	2.93	2.79



7	able 44 Sun	nmary of oxide/t	ransition bulk d	ensities - Kougla	ga
Koug	laga		Summary of bu	ılk density data	
rl From	rl To	# Samples	Bulk Density min	Bulk Density max	Bulk Density mean
400	380	22	1.5	2.69	2.06
380	370	36	1.39	2.00	1.73
370	360	39	1.22	2.71	1.79
360	350	42	1.56	2.23	1.83
350	340	34	1.74	2.72	2.14
340	330	30	1.80	2.77	2.18
330	320	15	1.67	2.80	2.34

## 14.6 Block Model Construction

## 14.6.1 Block Model Cell Size Selection

After consideration of the drilling and sample densities present at the Konkera deposits it was decided that the estimation block size to be used at the project area for block modelling would be  $2.5m \times 10.0m \times 5.0m$  - (East (X), North(Y), Elev(Z)). This block size is appropriate reflecting the drill spacing and the mineralisation geometry. This block size is also appropriate for the potential 'Selective Mining Unit' (SMU) for the deposit. The block height and width is expected to closely match the expected bench height and scale of mining equipment required to achieve relatively 'high resolution ore recovery' practices that may ultimately be required for any anticipated mining exploitation at Konkera.

## 14.6.2 Block Model Interpolation Technique Selection

Based on review of the local deposit statistics for the Konkera deposit, the Ordinary Kriging interpolation technique was selected. This technique is appropriate for the block model interpolation of gold mineralisation and is a commonly used technique with these deposit styles. It is particularly appropriate for use with deposits where the mineralisation is locally constrained into geologically similar or spatially related sample population set. The mineralised domains at Konkera display relatively moderate coefficients of variation which suggests interpolation treatment using the Ordinary Kriging technique is appropriate.

## 14.6.3 Model Structure and Coding

The estimate was run as one large model which encompasses all the prospect areas at Konkera. Blocks lying below the topographic surface were coded using the topographic percentage item, which is a block proportion defined percentage item. This item is used to ensure that the correct volumetric summaries are reported for mineralised zones particularly if they contact or outcrop at the natural topographic surface. This percentage item will at the topographic surface deplete block volumes where necessary that are normally coded from mineralisation domains.

Oxidisation and density items were then coded within the model using oxidisation surfaces. Geological solids were used to code lithological items within the model. Barren and weakly mineralised lithologies were coded and excluded from the estimation process (felsic and intermediate porphyry dykes and dolerite dykes).

The mineralised domains were coded in the model using a unique zone code for each domain and zone percentage items (percentage of that domain within a block). This enables block volumes



to accurately represent domain volumes without the need to use sub blocking. Wireframe volumes were compared with block model volumes to ensure they had been accurately coded.

Bulk densities were coded into the model using oxidisation state and/or by depth as outlined in 14.5.

Many of the various mineralised domains are locally complex so local area domains were used to code areas of similar orientation of mineralisation within each domain. Mineralisation wire frames were split into areas of similar orientation, with the resulting solids used to code area domains (AREA). These area domains were later used to apply appropriate search ellipses in the interpolation process.

Ancillary items derived in the estimate and block model interpolation included:

- Number of composites used to estimate a block;
- Minimum distance from block centroid to a composite;
- Kriging variance;
- Block estimate quality;
- Block estimate confidence;
- Check estimate (using inverse distance squared interpolation).

The following is a more detailed list of the model parameters used for the Ordinary Kriging interpolation runs carried out for the Konkera Model Area.

#### 14.6.4 Grade Estimation

Gold item values have been interpolated using Ordinary Kriging (OK) using a standard version of Minesight<sup>®</sup> software. Program M624V1 was the main program executable used.

For most of the Konkera gold deposit domains it was possible to assign specific nugget and sill and search ellipsoid parameters because most exhibited quite robust down-hole variograms. The same nugget and sill values used in neighbouring domains were applied to the remaining domains where sample numbers were insufficient to produce robust variograms.

The nugget and sill values together with the search ellipse dimensions and orientation and high yield outlier limiting for each domain are shown in Table 45 to Table 48. In each interpolation run a minimum of one composite and up to a maximum of 24 composites were used to estimate each block. A maximum of three composites was allowed from each drill hole to help mitigate uni-directional bias.

For most domains grade estimation was performed in a single pass using a search ellipse with the dimensions the same as the variogram model ranges. However several of the domains (notably at Konkera North) have drill spacing in the deeper parts of the domains greater than the variogram range. For these domains a first pass using a wider search ellipse (typically 100m along strike and down dip and 30m across strike) was used to fill peripheral blocks within the wireframes, followed by a second pass with the search ellipse at the variogram range.

To account for variations in dip and strike of domains, many were divided into area sub-domains based on their geometry. These area domains were used to apply an appropriately orientated search ellipse. No lithology, weathering, or oreshoot sub-domains were used in the estimate as it was felt that data density was generally sufficient to use in the well drilled (and higher confidence) parts of the deposit to resolve changes in the aforementioned. Conversely in the less well drilled parts of the deposit defining the boundaries between sub-domains is largely interpretative, so it was felt sub-domains were not appropriate given the lower level of confidence.

The influence of outlier grades was constrained by the use of a high yield limit within an area of 10m influence from an outlier sample. These limits were selected as being at the 99% on probability plots for each domain or where a clear outlier grades could be identified as is mentioned in section 14.3.3.



In addition to the ordinary kriged estimate an inverse distance squared estimate was run as a check estimate. This estimate used search ellipses the same as used with the ordinary kriged estimate, a minimum of 1 and maximum of 24 samples for a block, three samples per drill hole.

A summary of the parameters used for each of the modelled domains is included in Table 45 to Table 48.



				Table	45 K	onkera	North	- Ordi	nary Kri	ged est	imatio	on para	meters						
			,	/ariogra	m Parame	ters - St	ructure	1	Sea (	arch Ellip Geometry	se	Se Dime	arch Ellij nsions -	ose pass 1	Se Dime	arch Ellij nsions -	pse pass 2	Outlier	Limiting
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	Min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KN_Nov12_ZonA_101	101	1	0.45	1.04	0.59	60	60	3.5	5	0	75	100	100	15	60	60	10	15	10
	101	2	0.45	1.04	0.59	60	60	3.5	10	0	71	100	100	15	60	60	10	15	10
KN_Nov12_ZonA_102	102		0.45	1.04	0.59	60	60	3.5	8	0	80	100	100	15	60	60	10	15	10
KN_Nov12_ZonA_103	103		0.45	1.04	0.59	60	60	3.5	2	0	43	100	100	15	60	60	10	15	10
KN_Nov12_ZonB_104	104	1	0.50	1.01	0.50	65	50	5.0	0	0	72	100	100	15	65	50	10	11	10
	104	2	0.50	1.01	0.50	65	50	5.0	6	0	64	100	100	15	65	50	10	11	10
KN_Nov12_ZonB_105	105	1	0.55	1.38	0.83	65	50	5.0	0	0	38	100	100	15	65	50	10	11	10
	105	2	0.55	1.38	0.83	65	50	5.0	0	0	65	100	100	15	65	50	10	11	10
	105	3	0.55	1.38	0.83	65	50	5.0	0	0	62	100	100	15	65	50	10	11	10
	105	4	0.55	1.38	0.83	65	50	5.0	15	0	75	100	100	15	65	50	10	11	10
KN_Nov12_ZonC_106	106	1	0.40	1.05	0.65	65	50	10.0	5	0	35	100	100	15	65	50	10	15	10
	106	2	0.40	1.05	0.65	65	50	10.0	0	0	63	100	100	15	65	50	10	15	10
	106	3	0.40	1.05	0.65	65	50	10.0	2	0	60	100	100	15	65	50	10	15	10
	106	4	0.40	1.05	0.65	65	50	10.0	9	0	73	100	100	15	65	50	10	15	10
	106	5	0.40	1.05	0.65	65	50	10.0	0	0	71	100	100	15	65	50	10	15	10
	106	6	0.40	1.05	0.65	65	50	10.0	0	0	61				65	50	10	15	10
KN_Nov12_ZonX_107	107		0.40	1.05	0.65	65	50	10.0	10	0	63				65	50	10	11	10
KN_Nov12_ZonX_108	108		0.40	1.05	0.65	65	50	10.0	0	0	70				65	50	10	11	10
KN_Nov12_ZonX_109	109		0.40	1.05	0.65	65	50	10.0	3	0	65				65	50	10	11	10
KN_Nov12_ZonX_110	110		0.40	1.05	0.65	65	50	10.0	5	0	72				65	50	10	11	10
KN_Nov12_ZonX_111	111		0.40	1.05	0.65	65	50	10.0	8	0	56				65	50	10	11	10
KN_Nov12_ZonX_112	112		0.40	1.05	0.65	65	50	10.0	0	0	58				65	50	10	11	10
KN_Nov12_ZonX_113	113		0.40	1.05	0.65	65	50	10.0	0	0	80				65	50	10	11	10



				Table	45 Ka	onkera	North	- Ordi	nary Kri	ged est	imatio	on parai	meters						
				Variogra	m Paramet	ers - Sti	ructure 1	I	Sea (	arch Ellip Geometry	se	Se Dime	arch Ellij nsions - j	ose Dass 1	Se Dime	arch Ellip nsions - p	ose Dass 2	Outlier	Limiting
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	Min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KN_Nov12_ZonX_114	114		0.40	1.05	0.65	65	50	10.0	0	0	80				65	50	10	11	10
KN_Nov12_ZonX_115	115		0.40	1.05	0.65	65	50	10.0	0	0	76				65	50	10	11	10
KN_Nov12_ZonX_116	116		0.40	1.05	0.65	65	50	10.0	0	0	76				65	50	10	11	10
KN_Nov12_ZonX_117	117		0.40	1.05	0.65	65	50	10.0	0	0	70				65	50	10	11	10
KN_Nov12_ZonX_118	118		0.40	1.05	0.65	65	50	10.0	2	0	77				65	50	10	11	10
KN_Nov12_ZonX_119	119		0.40	1.05	0.65	65	50	10.0	5	0	68				65	50	10	11	10



	Table 46 Konkera East - Ordinary Kriged estimation parameters																		
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KE_Jan13_ZonA_201	201	1	0.6	1.07	0.47	75	62	3.5	0	0	73	75	62	10				12	10
KE_Jan13_ZonA_205	205	1	0.6	1.07	0.47	75	62	3.5	150	0	-54	75	62	10			_	12	10
KE_Jan13_ZonA_206	206	1	0.6	1.07	0.47	75	62	3.5	150	0	-64	75	62	10			_	12	10
KE_Jan13_ZonA_207	207	1	0.6	1.07	0.47	75	62	3.5	4	0	70	75	62	10				12	10
12	218	1	0.6	1.07	0.47	75	62	3.5	2	0	72	75	62	10				12	10
KE_Jan13_ZonB_204	204	1	0.6	1.07	0.47	75	62	3.5	10	0	62	75	62	10				12	10
		2	0.6	1.07	0.47	75	62	3.5	0	0	66	75	62	10				12	10
KE_Jan13_ZonB_217	217	1	0.6	1.07	0.47	75	62	3.5	3	0	62	75	62	10				12	10
KE_Jan13_ZonC_209	209	1	0.6	1.07	0.47	75	62	3.5	3	0	67	75	62	10				12	10
KE_Jan13_ZonC_210	210	1	0.49	0.9	0.41	75	62	3.5	0	0	63	75	62	10				12	10
		2	0.49	0.9	0.41	75	62	3.5	166	0	-54	75	62	10				12	10
		3	0.49	0.9	0.41	75	62	3.5	5	0	65	75	62	10				12	10
KE_Jan13_ZonC_211	211	1	0.49	0.9	0.41	75	62	3.5	175	0	-70	75	62	10				12	10
		2	0.49	0.9	0.41	75	62	3.5	10	0	62	75	62	10				12	10
		3	0.49	0.9	0.41	75	62	3.5	5	0	55	75	62	10				12	10
KE_Jan13_ZonC_216	216	1	0.49	0.9	0.41	75	62	3.5	0	0	80	75	62	10				12	10
KE_Jan13_ZonD_208	208	1	0.49	0.9	0.41	75	62	3.5	5	0	65	75	62	10				10	10
KE_Jan13_ZonD_212	212	1	0.49	0.9	0.41	75	62	3.5	175	0	-75	75	62	10				10	10
		2	0.49	0.9	0.41	75	62	3.5	15	0	68	75	62	10				10	10
		3	0.49	0.9	0.41	75	62	3.5	0	0	54	75	62	10				10	10
KE_Jan13_ZonD_215	215	1	0.49	0.9	0.41	75	62	3.5	176	0	-66	75	62	10				10	10
		2	0.49	0.9	0.41	75	62	3.5	10	0	71	75	62	10				10	10
		3	0.49	0.9	0.41	75	62	3.5	177	0	-68	75	62	10				10	10
		4	0.49	0.9	0.41	75	62	3.5	15	0	75	75	62	10				10	10
KE_Jan13_ZonE_213	213	1	0.6	0.95	0.35	75	62	4.0	3	0	63	75	62	10				16	10
		2	0.6	0.95	0.35	75	62	4.0	3	0	44	75	62	10				16	10
KE_Jan13_ZonE_214	214	1	0.6	0.95	0.35	75	62	4.0	7	0	43	75	62	10				16	10
KE_Jan13_ZonF_202	202	1	0.6	0.95	0.35	75	62	4.0	5	0	68	75	62	10				10	10
KE_Jan13_ZonF_203	203	1	0.6	0.95	0.35	75	62	4.0	3	0	47	75	62	10				10	10
218 v2!!									0	0	70	_						10	10
KE_Jan13_ZonX_219	219	1	0.6	0.95	0.35	75	62	4.0	2	0	54	75	62	10				10	10
KE_Jan13_ZonX_220	220	1	0.6	0.95	0.35	75	62	4.0	0	0	70	75	62	10				10	10
KE_Jan13_ZonX_221	221	1	0.6	0.95	0.35	75	62	4.0	0	0	60	75	62	10				10	10
KE_Jan13_ZonX_222	222	1	0.6	0.95	0.35	75	62	4.0	0	0	62	75	62	10				10	10



				Та	ble 47	Konke	era M	ain - C	Ordinary	Kriged e	estimat	ion pai	ramete	rs					
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KM_Jan13_ZonA_301	301	1	0.6	1.05	0.45	80	68	2.8	9	0	74	80	70	10				8	10
		2	0.6	1.05	0.45	80	68	2.8	8	0	80	80	70	10				8	10
		3	0.6	1.05	0.45	80	68	2.8	175	0	-72	80	70	10				8	10
		4	0.6	1.05	0.45	80	68	2.8	0	0	88	80	70	10				8	10
KM_Jan13_ZonA_302	302	1	0.6	1.05	0.45	80	68	2.8	11	0	73	80	70	10				8	10
		2	0.6	1.05	0.45	80	68	2.8	0	0	65	80	70	10				8	10
KM_Jan13_ZonB1_333	333	1	0.46	1.2	0.74	65	50	2.8	0	0	70	65	50	10				8	10
KM_Jan13_ZonB1_334	334	1	0.46	1.2	0.74	65	50	2.8	177	0	-62	65	50	10				13.5	10
		2	0.46	1.2	0.74	65	50	2.8	10	0	60	65	50	10				13.5	10
		3	0.46	1.2	0.74	65	50	2.8	0	0	70	65	50	10				13.5	10
KM_Jan13_ZonB2_307	307	1	0.46	1.2	0.74	65	50	2.8	0	0	51	65	50	10				13.5	10
KM_Jan13_ZonB2_308	308	1	0.46	1.2	0.74	65	50	2.8	3	0	56	65	50	10				13.5	10
		2	0.46	1.2	0.74	65	50	2.8	2	0	68	65	50	10				13.5	10
KM_Jan13_ZonB2_309	309	1	0.46	1.2	0.74	65	50	2.8	177	0	-63	65	50	10				13.5	10
KM_Jan13_ZonB2_310	310	1	0.46	1.2	0.74	65	50	2.8	5	0	73	65	50	10				13.5	10
KM_Jan13_ZonB3_303	303	1	0.46	1.2	0.74	65	50	2.8	3	0	60	65	50	10				13.5	10
KM_Jan13_ZonB3_304	304	1	0.46	1.2	0.74	65	50	2.8	1	0	43	65	50	10				13.5	10
KM_Jan13_ZonB3_305	305	1	0.46	1.2	0.74	65	50	2.8	175	0	-43	65	50	10				13.5	10
KM_Jan13_ZonB3_306	306	1	0.46	1.2	0.74	65	50	2.8	173	0	-30	65	50	10				13.5	10
KM_Jan13_ZonC_312	312	1	0.46	1.2	0.74	65	50	2.8	172	0	-70	65	50	10				12	10
		2	0.46	1.2	0.74	65	50	2.8	165	0	62	65	50	10				12	10
		3	0.46	1.2	0.74	65	50	2.8	10	0	63	65	50	10				12	10
KM_Jan13_ZonC_313	313	1	0.46	1.2	0.74	65	50	2.8	164	0	-50	65	50	10				12	10



				Та	ble 47	Konke	era M	ain - C	Ordinary	Kriged e	estimat	ion par	ameter	rs					
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KM_Jan13_ZonC_314	314	1	0.45	1.2	0.75	65	50	2.8	0	0	70	65	50	10				12	10
KM_Jan13_ZonC_316	316	1	0.45	1.2	0.75	65	50	2.8	0	0	62	65	50	10				12	10
		2	0.45	1.2	0.75	65	50	2.8	170	0	-62	65	50	10				12	10
KM_Jan13_ZonD_311	311	1	0.44	1.01	0.57	60	60	3.0	3	0	60	60	60	10				11	10
KM_Jan13_ZonD_315	315	1	0.44	1.01	0.57	60	60	3.0	2	0	65	60	60	10				11	10
KM_Jan13_ZonD_317	317	1	0.44	1.01	0.57	60	60	3.0	2	0	68	60	60	10				11	10
KM_Jan13_ZonD_327	327	1	0.44	1.01	0.57	60	60	3.0	0	0	72	60	60	10				11	10
KM_Jan13_ZonE_318	318	1	0.5	1.5	1	60	70	8.0	3	0	78	60	70	8				11	10
KM_Jan13_ZonE_319	319	1	0.5	1.5	1	60	70	8.0	0	0	72	60	70	8				11	10
KM_Jan13_ZonE_320	320	1	0.5	1.5	1	60	70	8.0	175	0	-80	60	70	8				11	10
		2	0.5	1.5	1	60	70	8.0	157	0	-60	60	70	8				11	10
		3	0.5	1.5	1	60	70	8.0	2	0	62	60	70	8				11	10
KM_Jan13_ZonE_321	321	1	0.5	1.5	1	60	70	8.0	4	0	60	60	70	8				11	10
KM_Jan13_ZonE_328	328	1	0.5	1.5	1	60	70	8.0	4	0	70	60	70	8				11	10
KM_Jan13_ZonE_329	329	1	0.5	1.5	1	60	70	8.0	2	0	35	60	70	8				11	10
KM_Jan13_ZonE_330	330	1	0.5	1.5	1	60	70	8.0	2	0	85	60	70	8				11	10
KM_Jan13_ZonF_322	322	1	0.46	1.2	0.74	65	50	2.8	2	0	78	65	50	10				11	10
		2	0.46	1.2	0.74	65	50	2.8	27	0	76	65	50	10				11	10
KM_Jan13_ZonF_323	323	1	0.46	1.2	0.74	65	50	2.8	177	0	-76	65	50	10				11	10
KM_Jan13_ZonF_324	324	1	0.46	1.2	0.74	65	50	2.8	15	0	61	65	50	10				11	10
KM_Jan13_ZonF_325	325	1	0.46	1.2	0.74	65	50	2.8	175	0	-72	65	50	10				11	10
KM_Jan13_ZonE_332	332	1	0.46	1.2	0.74	65	50	2.8	2	0	73	65	50	10				11	10
KM_Jan13_ZonG_326	326	1	0.46	1.2	0.74	65	50	2.8	3	0	68	65	50	10				11	10
KM_Jan13_ZonG_331	331	1	0.46	1.2	0.74	65	50	2.8	30	0	70	65	50	10				11	10



				Та	ble 47	Konke	era M	ain - C	Ordinary	Kriged e	estimat	ion pai	ametei	rs					
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KM_Jan13_ZonG_335	335	1	0.46	1.2	0.74	65	50	2.8	177	0	-73	65	50	10				11	10
KM_Jan13_ZonX_336	336	1	0.46	1.2	0.74	65	50	2.8	3	0	68	65	50	10				11	10
KM_Jan13_ZonX_337	337	1	0.46	1.2	0.74	65	50	2.8	1	0	43	65	50	10				11	10
KM_Jan13_ZonX_338	338	1	0.46	1.2	0.74	65	50	2.8	1	0	41	65	50	10				11	10
KM_Jan13_ZonX_339	339	1	0.46	1.2	0.74	65	50	2.8	1	0	54	65	50	10				11	10
KM_Jan13_ZonX_340	340	1	0.46	1.2	0.74	65	50	2.8	2	0	63	65	50	10				11	10
KM_Jan13_ZonX_341	341	1	0.46	1.2	0.74	65	50	2.8	0	0	35	65	50	10				11	10
KM_Jan13_ZonX_342	342	1	0.46	1.2	0.74	65	50	2.8	3	0	65	65	50	10				11	10
KM_Jan13_ZonX_343	343	1	0.46	1.2	0.74	65	50	2.8	4	0	77	65	50	10				11	10
KM_Jan13_ZonX_344	344	1	0.46	1.2	0.74	65	50	2.8	177	0	-55	65	50	10				11	10
KM_Jan13_ZonX_345	345	1	0.46	1.2	0.74	65	50	2.8	0	0	60	65	50	10				11	10
KM_Jan13_ZonX_346	346	1	0.46	1.2	0.74	65	50	2.8	0	0	46	65	50	10				11	10
KM_Jan13_ZonX_347	347	1	0.46	1.2	0.74	65	50	2.8	0	0	58	65	50	10				11	10
KM_Jan13_ZonX_348	348	1	0.46	1.2	0.74	65	50	2.8	0	0	65	65	50	10				11	10
KM_Jan13_ZonX_349	349	1	0.46	1.2	0.74	65	50	2.8	0	0	63	65	50	10				11	10
KM_Jan13_ZonX_350	350	1	0.46	1.2	0.74	65	50	2.8	0	0	77	65	50	10				11	10
KM_Jan13_ZonX_351	351	1	0.46	1.2	0.74	65	50	2.8	0	0	37	65	50	10				11	10
KM_Jan13_ZonX_352	352	1	0.46	1.2	0.74	65	50	2.8	0	0	68	65	50	10				11	10
KM_Jan13_ZonX_353	353	1	0.46	1.2	0.74	65	50	2.8	0	0	31	65	50	10				11	10



	Table 48 Kouglaga and The Gap - Ordinary Kriged estimation parameters																		
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KG_Jan13_ZonA_501	501	1	0.62	1.11	0.49	75	65	3.3	15	0	42	75	65	10				16	10
		2	0.62	1.11	0.49	75	65	3.3	0	0	54	75	65	10				16	10
KG_Jan13_ZonA_502	502	1	0.62	1.11	0.49	75	65	3.3	175	0	-27	75	65	10				16	10
KG_Jan13_ZonA_503	503	1	0.62	1.11	0.49	75	65	3.3	0	0	24	75	65	10				16	10
KG_Jan13_ZonA_517	517	1	0.62	1.11	0.49	75	65	3.3	3	0	51	75	65	10				16	10
KG_Jan13_ZonA_518	518	1	0.62	1.11	0.49	75	65	3.3	0	0	44	75	65	10				16	10
KG_Jan13_ZonB_504	504	1	0.62	1.11	0.49	75	65	3.3	25	0	47	75	65	10				11	10
		2	0.62	1.11	0.49	75	65	3.3	145	0	-38	75	65	10				11	10
		3	0.62	1.11	0.49	75	65	3.3	0	0	34	75	65	10				11	10
KG_Jan13_ZonB_505	505	1	0.62	1.11	0.49	75	65	3.3	5	0	51	75	65	10				11	10
KG_Jan13_ZonB_506	506	1	0.62	1.11	0.49	75	65	3.3	0	0	65	75	65	10				11	10
KG_Jan13_ZonB_532	532	1	0.62	1.11	0.49	75	65	3.3	0	0	30	75	65	10				11	10
KG_Jan13_ZonC_507	507	1	0.62	1.11	0.49	75	65	3.3	0	0	48	75	65	10				11	10
		2	0.62	1.11	0.49	75	65	3.3	173	0	-43	75	65	10				11	10
		3	0.62	1.11	0.49	75	65	3.3	3	0	50	75	65	10				11	10
KG_Jan13_ZonC_508	508	1	0.62	1.11	0.49	75	65	3.3	0	0	52	75	65	10				11	10
KG_Jan13_ZonC_516	516	1	0.62	1.11	0.49	75	65	3.3	7	0	57	75	65	10				11	10
KG_Jan13_ZonC_527	527	1	0.62	1.11	0.49	75	65	3.3	0	0	43	75	65	10				11	10
KG_Jan13_ZonD_509	509	1	0.55	1.17	0.62	70	62	2.5	5	0	44	70	62	10				20	10
KG_Jan13_ZonD_510	510	1	0.55	1.17	0.62	70	62	2.5	7	0	30	70	62	10				20	10
KG_Jan13_ZonD_511	511	1	0.55	1.17	0.62	70	62	2.5	36	0	57	70	62	10				20	10
KG_Jan13_ZonD_515	515	1	0.55	1.17	0.62	70	62	2.5	0	0	50	70	62	10				20	10
KG_Jan13_ZonE_512	512	1	0.62	1.11	0.49	95	65	3.3	5	0	46	95	65	10				24	10
		2	0.62	1.11	0.49	95	65	3.3	171	0	-31	95	65	10				24	10



	Table 48 Kouglaga and The Gap - Ordinary Kriged estimation parameters																		
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
KG_Jan13_ZonE_513	513	1	0.62	1.11	0.49	95	65	3.3	0	0	45	95	65	10				24	10
KG_Jan13_ZonE_514	514	1	0.62	1.11	0.49	95	65	3.3	170	0	-30	95	65	10				24	10
KG_Jan13_ZonE_528	528	1	0.62	1.11	0.49	95	65	3.3	15	0	65	95	65	10				24	10
KG_Jan13_ZonE_529	529	1	0.62	1.11	0.49	95	65	3.3	0	0	55	95	65	10				24	10
KG_Jan13_ZonE_530	530	1	0.62	1.11	0.49	95	65	3.3	0	0	45	95	65	10				24	10
KG_Jan13_ZonF_519	519	1	0.62	1.11	0.49	75	65	3.3	0	0	25	75	65	10				11	10
KG_Jan13_ZonF_520	520	1	0.62	1.11	0.49	75	65	3.3	175	0	-30	75	65	10				11	10
KG_Jan13_ZonF_531	531	1	0.62	1.11	0.49	75	65	3.3	0	0	30	75	65	10				11	10
KG_Jan13_ZonG_521	521	1	0.62	1.11	0.49	75	65	3.3	10	-70	90	75	65	10				24	10
KG_Jan13_ZonH_522	522	1	0.62	1.11	0.49	75	65	3.3	155	0	-37	75	65	10				11	10
KG_Jan13_ZonI_523	523	1	0.62	1.11	0.49	75	65	3.3	0	-35	20	75	65	10				24	10
KG_Jan13_ZonJ_524	524	1	0.62	1.11	0.49	75	65	3.3	15	0	58	75	65	10				11	10
KG_Jan13_ZonJ_525	525	1	0.62	1.11	0.49	75	65	3.3	0	0	41	75	65	10				11	10
KG_Jan13_ZonK_526	526	1	0.62	1.11	0.49	75	65	3.3	117	0	-44	75	65	10				11	10
KG_Jan13_ZonL_533	533	1	0.62	1.11	0.49	75	65	3.3	175	0	-48	75	65	10				11	10
KG_Jan13_ZonX_534	534	1	0.62	1.11	0.49	75	65	3.3	0	0	60	75	65	10				11	10
KG_Jan13_ZonX_535	535	1	0.62	1.11	0.49	75	65	3.3	0	0	53	75	65	10				11	10
KG_Jan13_ZonX_536	536	1	0.62	1.11	0.49	75	65	3.3	7	0	56	75	65	10				11	10
GP_Jan13_ZonC_401	401	1	0.65	0.98	0.33	60	45	1.9	173	0	-76	100	80	10	60	45	10	11	10
GP_Jan13_ZonB_402	402	1	0.65	0.98	0.33	60	45	1.9	0	0	63	100	80	10	60	45	10	11	10
		2	0.65	0.98	0.33	60	45	1.9	0	0	50	100	80	10	60	45	10	11	10
		3	0.65	0.98	0.33	60	45	1.9	27	0	61	100	80	10	60	45	10	11	10
		4	0.65	0.98	0.33	60	45	1.9	160	0	-50	100	80	10	60	45	10	11	10



			Та	able <b>48</b>	Kougl	aga d	and T	he Go	ap - Ordir	nary Kri	ged est	imatio	n parar	neters					
Domain Name	Code	Area1	Nugget	Total Sill	Sill (less nugget)	Max	Int	min	Azimuth	Plunge	East Dip	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Major axis (m)	Semi- Major Axis (m)	Minor axis (m)	Outlier cut-off (g/t Au)	Distance (m)
GP_Jan13_ZonA_403	403	1	0.65	0.98	0.33	60	45	1.9	18	0	63	100	80	10	60	45	10	11	10
		2	0.65	0.98	0.33	60	45	1.9	171	0	-59	100	80	10	60	45	10	11	10



# 14.7 Resource Classification

The JORC Code (2004) outlines a range of assessment criteria dependent on the quality of several important data inputs. The most important of these inputs are related to factors that include amongst others, the following:

- Adequate levels of drilling and sample density;
- Precise drilling and sampling technique;
- Regular checking of assay data quality;
- Adequate survey control for drill-holes and sample points;
- Reliable estimation and allowance for variability of specific gravity;
- Consistent and accurate logging of drill-hole data;
- Precise definition and modelling of ore zones with reference to geology;
- Thorough reviews of deposit statistics;
- Appropriate application of grade cut-offs and area of influence restrictions;
- Correct application of interpolation techniques;
- Thorough analysis of all modelling parameters and the results derived; and
- The minimisation of all assumptions where possible.

The JORC (2004) Code defines an Inferred Mineral Resource as "that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability."

Furthermore, the Inferred category is "intended to cover situations where a mineral concentration or occurrence has been identified and limited measurements and sampling completed, but where the data are insufficient to allow the geological and/or grade continuity to be confidently interpreted. Commonly, it would be reasonable to expect that the majority of Inferred Mineral Resources would upgrade to Indicated Mineral Resources, with continued exploration. However, due to the uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur. Confidence in the estimate of Inferred Mineral Resources is usually not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning. For this reason, there is no direct link from an Inferred Resource to any category of Ore Reserves (see Figure 1). Caution should be exercised if this category is considered in technical and economic studies".

The JORC (2004) Code defines an Indicated Mineral Resource as "that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed."

In addition the JORC Code states "An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource, but has a higher level of confidence than that applying to an Inferred Mineral Resource. Mineralisation may be classified as an Indicated Mineral Resource when the nature, quality, amount and distribution of data are such as to allow confident interpretation of the geological framework and to assume continuity of mineralisation. Confidence in the estimate is sufficient to allow the application of technical and economic parameters, and to enable an evaluation of economic viability."



Using NI 43-101 (CIM Definition Standards, Nov 2010) an 'Inferred Mineral Resource' is "that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes".

Furthermore "due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies".

The CIM Definition Standards (2010) definition of an Indicated Mineral Resource" is; that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed."

Furthermore the CIM Definition states "Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions."

Ravensgate has reviewed the classification criteria for JORC (2004) and NI 43-101 Inferred and Indicated Resources as outlined above and in their respective supporting documentation and is of the opinion that in this instance with respect to the Konkera Resource Estimate there are no material differences.

To assign the resource estimate to the appropriate category at Konkera classification was carried out on a domain by domain basis utilising a quality of estimate (QLTY) variable to assist in assigning an appropriate resource classification to each, or part of each, domain.

The QLTY variable was based a resource confidence item which takes into account the distance of a block from a sample composite, the number of composites used to estimate the block (COMPS) and the kriging variance for each block interpolation. The thresholds for each of these items are shown in Table 49 and were selected based on histogram analysis of each item as well as data from earlier variogram analysis.

Each mineralised domain was reviewed in long section using the QLTY variable. Domains (or parts of domains) that were dominantly QLTY=1 or QLTY=2 were assigned to the Indicated Resource category, and areas that were dominantly QLTY=3 were assigned to the Inferred Resource Category (i.e., a cookie cutter approach was used for domains of varying drill density).

Of note is that geological confidence was an overriding factor in assigning the resource classification. In some areas blocks that had QLTY=1 and QLTY=2 were classified as Inferred as it was felt the geological confidence in the interpretation was insufficient for it to be classified as an Indicated resource. Conversely some QLTY=3 blocks were classified as Indicated Resources when they lay within domains that were predominantly QLTY=1 or QLTY2. Figure 30 and Figure 31 show domains by QLTY item, and by resource category.

On the above basis blocks that have been assigned as Indicated Resources have good sample support (>15 composite samples), have low kriging variance, have drill spacing's ranging from



50m by 50m spacing down to 20m by 20m spacing and there is sufficient reason to assume geological/grade continuity. Lower confidence Inferred Resources have lesser sample support (<15 samples), higher kriging variances, were generally at spacing's greater than 50m by 50m spacing or were from domains that had less than 20 composite samples, but there is reasonable basis to infer geological/grade continuity.

Ravensgate is of the opinion that this methodology outlined above is in line with the Guidelines of the JORC Code (200412 Guidelines and NI 43-101 criteria to be classified as an Inferred Resource and Indicated Resources as outlined in the above section.

Table 49 Konker	a deposit - QLTY item	Classification Code Cal	culation Parameters
Distance to nearest Composite (m)	Number of Composites used Range	Kriging 'Variance'	~QLTY
<12	>24	<0.2	1
12-24	15-23	0.2-0.35	2
>24	<15	>.35	3















## 14.8 Validation

Validation was carried out by:

- Completing a check estimate using an alternative estimation technique (inverse distance squared);
- Swath Plots;
- Comparison of input versus output statistics globally;
- Visual checking of interpolation in plan and section;
- Generation of grade shells at varying Au cut-offs to visually check model honours drilling data;
- Review of Quality of Estimate data and associated confidence coding analysis (Block Model QLTY Item);
- Comparison with previous estimates.

# 14.8.1 Check Estimate

A check estimate was run using an alternative estimation technique (inverse distance interpolation) to validate the ordinary kriged estimate. Search and sample selection parameters used were very similar to that used for the ordinary kriged estimate. This estimate used search ellipses similar to those used in ordinary kriged estimates, a minimum of 1 and maximum of 24 samples to inform block, and a maximum of 3 samples per drill hole. Inverse distance to the power of two was used (i.e. inverse distance squared).

The inverse distance estimate returned a result similar to the ordinary kriged estimate at a zero Au cut-off, but the grade appears marginally higher (1.67 versus 1.62g/t Au) (Table 50). The difference between the two estimates is slightly more pronounced at higher Au cut-offs, with the inverse distance squared model tending to report more material at slightly higher grades in the higher Au reporting cut-off ranges. This is not unexpected as interpolation using inverse distance is an arbitrary estimator as opposed to ordinary kriging which uses nugget and sill values based on the underlying real Au sample population data; however, overall the estimates are quite similar.

# 14.8.2 Swath Plots

Figure 32 to Figure 36 show swath plots for each of the main prospect areas by northing and by RL. These diagrams show the model and composite data used to build the model reported out in 40 or 20m flitches through the model (swaths) to visualise how the modelled data compares to the input data. These show a reasonable correlation between input 1m Au composite grades and the ordinary kriged and check inverse distance squared estimates plotted data tending to track each other.

The 1m Au composite graphs are more spiky, with the ordinary kriged Au and inverse distance estimate grades graphs more smoothed, which is expected given that these estimation techniques are in effect smoothing algorithms when point samples are interpolated to a numerically much larger number of block model blocks. The ordinary kriged grades are typically marginally lower than the inverse distance squared Au grades, which are both typically lower than the raw 1m composite Au grades, which largely reflect the removal of outlier grades through the use of a high yield limit.



Table 50 Comparison of Ordinary Kriged to Inverse distance estimate										
February 2013 Model Ordinary Kriged Estimate February 2013 Model Inverse Distance squared										
Au Cut-off	Vol (m³)	Tonnes	Au g/t	oz Au	Vol (m³)	Tonnes	Au g/t	oz Au		
0.0	22,851,094	63,335,421	1.62	3,300,756	22,682,670	62,852,470	1.67	3,368,540		
0.5	21,335,446	59,174,565	1.71	3,253,231	21,326,918	59,165,612	1.75	3,326,924		
1.0	15,473,864	43,015,694	2.06	2,854,436	15,342,980	42,694,375	2.12	2,915,472		
2.0	5,641,238	15,738,093	3.18	1,608,014	5,950,983	16,594,072	3.23	1,721,080		





Figure 32 Konkera North Block Model Swath Plots by Northing and RL

Note: (blue bars show number of composites and the orange lines shows the composite grades. The orange lines show the block model kriged grade and the red lines the check inverse distance estimated grades.)





Figure 33 Konkera East Block Model Swath Plots by Northing and RL

Note: (blue bars show number of composites and the green lines shows the composite grades. The red lines show the block model kriged grade and the orange lines the check inverse distance estimated grades.)





Figure 34 Konkera Main Block Model Swath Plots by Northing and RL

Note: (blue bars show number of composites and the green lines shows the composite grades. The red lines show the block model kriged grade and the orange lines the check inverse distance estimated grades.)





Figure 35 Kouglaga Block Model Swath Plots by Northing and RL

Note: (blue bars show number of composites and the green lines shows the composite grades. The red lines show the block model kriged grade and the orange lines the check inverse distance estimated grades.)





Figure 36 The Gap Block Model Swath Plots by Northing and RL

(blue bars show number of composites and the green lines shows the composite grades. The red lines show the block model kriged grade and the orange lines the check inverse distance estimated grades.)



# 14.8.3 Comparison of Input and Model Statistics

The block model statistics for each domain were reviewed and compared with raw input 1m Au composite statistics. Konkera is drilled on a fairly systematic grid and preliminary review of declustered sample statistics for several of the major domains showed very similar sample distributions to the raw input 1m Au composites. Based on this, Ravensgate's opinion is that comparing the raw 1 metre Au composites to the block model kriged grades at a zero cut is a reasonable approach to assist in model validation. The better informed domains (>100 samples) have block model Au grades ranging from 68% to 115% of the input composite grades, with most being in the 80% to 90% range. The lower block model grades largely reflects; (1) the use of a high yield limit which mitigates the local effects of high grade outliers; (2) the spatial distribution of the various composite samples. The few domains which have grades higher than the raw assays, are thought to be a function of the spatial distribution of higher grade composites.

The less well informed domains (<100 samples) have block model Au grades ranging from 36% to 136% of the input composite grades, with most being in the 90% to 100% range. These relatively poorly informed domains are more variable given their smaller sample populations and based on this many of these domains were classified as inferred.

## 14.8.4 Visual Validation

Block model grades were compared visually to the modelled domains and drilling in section and plan. Grade shells were also generated for the model, and used to visualise the 3D Distribution of grade. Figure 37 shows an oblique view of Konkera showing drilling and grade shells.

Overall grades and their distribution appear to be reasonable and tend to honour the composite and sample data upon which they are based. Of note is that in some of the widely spaced drilled areas there is the possibility that some of the isolated higher grade composites may be carried or interpolated across relatively large distances, however high grade outlier composites in sparsely drilled areas are treated relatively harshly with a distance restriction regime during interpolation and these areas were classified as inferred reflecting their lower geological confidence.



Figure 37 Konkera February 2013 Resource - view by resource Au grade. Pale blue = 0.3-0.5g/t Au, green = 0.5-1.0g/t Au, yellow = 1.0-2.0g/t Au, red =2.0-4.0g/t Au, purple>4.0g/t Au





## 14.8.5 Comparison to previous estimates

Table 51 shows a comparison of the previous JORC (2004) resource estimate in November 2011 compared with the estimate documented in this report.

The main change since the previous estimate is an increase in the Indicated Resource which is a result of improved geological confidence from infill drilling. The resource grade for both the Indicated and Inferred Resources have increased marginally, which is largely a result of using a higher edge cut-off (0.35g/t Au versus 0.25g/t Au) in developing wireframe interpretations coupled with some positive results from drilling, primarily in the Konkera North area. The bulk densities used are also marginally higher based on new bulk density data for the project.

The main Indicated Resource increase is at Konkera North which has increased as a result of new infill drilling since the previous estimate. Indicated Resources have also increased Konkera Main, Konkera East and The Gap; reflecting increased geological confidence as a result of this new drilling and interpretation work. The Indicated Resource for Kouglaga has decreased, primarily due to infill drilling in the western part of the deposit where mineralisation has been found to be more complex than was recognised in the November 2011 model.

The Inferred Resources for Konkera North, Konkera Main, Konkera East and Kouglaga have all decreased, primarily reflecting re-classification of material into the Indicated category. The Gap Inferred Resource has increased as a result of new material being added from new drilling data.



	Nov 2011 Model							February 2013 Model					
	Indicated Resourc	e			Inferred Resource			Indicated Resource			Inferred Resource		
Prospect	Au Cut-off	Tonnes	Au g/t	oz Au	Tonnes	Au g/t	oz Au	Tonnes	Au g/t	oz Au	Tonnes	Au g/t	oz Au
Karlan Math	0.5	12 900 000	1 7	706.000	20 100 000	1.6	1 053 000	17 500 000	1.8	1 029 000	17 000 000	1 7	953 000
Konkera North	0.5	12,900,000	1.7	700,000	20,100,000	1.0	1,035,000	17,500,000	1.0	1,029,000	17,000,000	1.7	755,000
	1.0	9,900,000	2.0	628,000	14,600,000	2.0	915,000	12,800,000	2.2	912,000	11,500,000	2.2	824,000
	2.0	3,600,000	3.0	338,000	5,300,000	2.9	497,000	5,000,000	3.5	560,000	5,100,000	3.3	534,000
Konkera Main	0.5	9,600,000	1.3	415,000	5,500,000	1.4	242,000	9,100,000	1.6	471,000	3,400,000	1.6	169,000
	1.0	5,800,000	1.7	321,000	3,400,000	1.7	190,000	7,200,000	1.8	423,000	2,500,000	1.8	148,000
	2.0	1,400,000	2.8	128,000	900,000	2.7	80,000	2,100,000	2.7	186,000	700,000	2.9	64,000
Konkera East	0.5	5,600,000	1.5	275,000	3,100,000	1.5	144,000	5,700,000	1.7	312,000	900,000	1.7	46,000
	1.0	3,900,000	1.9	233,000	2,100,000	1.8	119,000	4,800,000	1.9	288,000	600,000	2.0	40,000
	2.0	1,200,000	2.9	113,000	600,000	2.8	53,000	1,500,000	2.7	134,000	300,000	2.6	24,000
Kougalaga	0.5	1,800,000	1.8	106,000	1,100,000	1.4	53,000	1,700,000	1.8	100,000	400,000	2.7	36,000
	1.0	1,200,000	2.4	91,000	600,000	2.0	41,000	1,300,000	2.1	90,000	400,000	2.8	35,000
	2.0	500,000	3.7	59,000	200,000	3.3	22,000	500,000	3.2	51,000	200,000	4.6	24,000
The Gap	0.5	0	0.0	0	1,900,000	1.3	80,000	200,000	1.2	6,000	3,400,000	1.2	131,000
	1.0	0	0.0	0	1,200,000	1.6	62,000	100,000	1.3	5,000	1,700,000	1.6	90,000
	2.0	0	0.0	0	200,000	2.6	15,000	0	2.2	0	400,000	2.6	30,000
TOTAL	0.5	30,000,000	1.6	1,502,000	31,800,000	1.5	1,572,000	34,200,000	1.7	1,919,000	25,100,000	1.7	1,335,000
	1.0	20,800,000	1.9	1,273,000	21,900,000	1.9	1,326,000	26,300,000	2.0	1,717,000	16,700,000	2.1	1,137,000
	2.0	6,700,000	3.0	637,000	7,200,000	2.9	667,000	9,200,000	3.2	932,000	6,700,000	3.1	676,000

# Table 51Comparison of Konkera November 2011 Resource Estimate to February 2013 Estimate by Resource Category and prospect



## 14.9 Mineral Resource Reporting

Ravensgate has estimated an Indicated and Inferred Mineral Resource for the Konkera prospect. All the mineralisation is in the Inferred Mineral Resource category and includes drilling data up until the end of January 2013

A breakdown of the estimate is as follows using a cut-off of 0.5g/t Au (Table 52):

- Indicated Resource of 34.2 million tonnes at 1.8g/t gold for 1.92 million ounces gold;
- Inferred Resource of 25.0 million tonnes at 1.7g/t gold for 1.33 million ounces gold (using a 0.5g/t gold cut-off).

The Global Resource above has been further divided into two parts for reporting clarity. For resources above the 100mRL (Table 53) (i.e. from surface to 250m below surface) a reporting cut-off of 0.5g/t Au is appropriate as these resources have potential to be developed using open pit mining methods. The Resource above the 100mRL using a 0.5g/t Au cut-off is:

- Indicated Resource of 34.2 Mt at 1.8g/t Au (1.92 Moz Au);
- Inferred Resource of 12.5 Mt at 1.4g/t Au (0.58 Moz Au).

Resources below the 100mRL (Table 54) (i.e. from 250m to 450m below surface) have potential to be developed using underground mining methods and thus a reporting cut-off of 2.0g/t Au is more appropriate for reporting. The Resource below the 100mRL using a 2.0g/t Au cut-off is:

• Inferred Resource of 4.6 Mt at 3.3g/t Au (0.49 Moz Au).

A detailed summary of the Konkera Resource by prospect and oretype is shown in Table 55.

The Qualified Person understands that presently no major environmental, permitting, legal, taxation, socio-economic, marketing or political factors have been identified that would materially affect the resource estimate have presently been identified.



Table 52 Konkera Prospect - Mineral Resource Estimate (Gold)											
			Indicated Resource		Inferred Resource						
	Au Cut-off	Tonnes*	Grade (g/t Au)*	Contained Gold (ounces)*	Tonnes	Grade (g/t Au)*	Contained Gold (ounces)*				
	0.5+	34,200,000	1.7	1,919,000	12,100,000	1.4	552,000				
Open Pit Potential	1	26,300,000	2.0	1,717,000	7,500,000	1.8	441,000				
(0-23011)	2	9,200,000	3.2	932,000	2,000,000	3.0	189,000				
Underground Potential	0.5				12,900,000	1.9	783,000				
(below 250m)	1				9,200,000	2.3	696,000				
	2.0**				4,600,000	3.3	487,000				
	0.5	34,200,000	1.7	1,919,000	25,000,000	1.7	1,335,000				
Global	1	26,300,000	2.0	1,717,000	16,800,000	2.1	1,137,000				
	2	9,200,000	3.2	932,000	6,600,000	3.2	676,000				

\* Denotes preferred grade for reporting potential open-pit resources

\*\* Denotes preferred grade for reporting potential underground resources



Table 53 Kon	nkera Febru	ary 2013 Resc	ource Estimate	- Summary by	Prospect Arec	a ar	nd Resource Co	ategory - Pote	ntial Open Cut	resources	
		I	NDICATED RESO	URCE		INFERRED RESOURCE					
Prospect	Au Cut-off	Vol (m³)	Tonnes	Au g/t	oz Au		Vol (m³)	Tonnes	Au g/t	oz Au	
Konkera North	0.5*	6,300,000	17,500,000	1.8	1,029,000		1,400,000	4,100,000	1.3	170,000	
(Surface to	1.0	4,600,000	12,800,000	2.2	912,000		800,000	2,300,000	1.8	128,000	
100mRL)	2.0	1,800,000	5,000,000	3.5	560,000		200,000	500,000	3.2	47,000	
Konkera Main	0.5*	3,300,000	9,100,000	1.6	471,000		1,200,000	3,400,000	1.6	169,000	
	1.0	2,600,000	7,200,000	1.8	423,000		900,000	2,500,000	1.8	148,000	
	2.0	700,000	2,100,000	2.7	186,000		200,000	700,000	2.9	64,000	
Konkera East	0.5*	2,100,000	5,700,000	1.7	312,000		300,000	900,000	1.7	46,000	
	1.0	1,700,000	4,800,000	1.9	288,000		200,000	600,000	2.0	40,000	
	2.0	500,000	1,500,000	2.7	134,000		100,000	300,000	2.6	24,000	
Kouglaga	0.5*	700,000	1,700,000	1.8	100,000		200,000	400,000	2.7	36,000	
	1.0	600,000	1,300,000	2.1	90,000		200,000	400,000	2.8	35,000	
	2.0	200,000	500,000	3.2	51,000		100,000	200,000	4.6	24,000	
The Gap	0.5*	100,000	200,000	1.2	6,000		1,300,000	3,400,000	1.2	131,000	
	1.0	0	100,000	1.3	5,000		700,000	1,700,000	1.6	90,000	
	2.0	0	0	2.2	0		100,000	400,000	2.6	30,000	
TOTAL*	0.5	12,500,000	34,200,000	1.7	1,919,000		4,500,000	12,100,000	1.4	552,000	
	1.0	9,500,000	26,300,000	2.0	1,717,000		2,800,000	7,500,000	1.8	441,000	
	2.0	3,300,000	9,200,000	3.2	932,000		800,000	2,000,000	3.0	189,000	

\*Denotes preferred cut-off for reporting 'open-cut pit' resources - 0.5g/t Au



Table 54 Konkera February 2013 Resource Estimate - Summary by Prospect Area and Resource Category - Potential Underground Resources													
		IND	ICATED RESOU	RCE		INFERRED RESOURCE							
Prospect	Au Cut-off	Vol (m³)	Tonnes	Au g/t	oz Au	Vol (m <sup>3</sup> )	Tonnes	Au g/t	oz Au				
Konkera North	0.5					4,500,000	12,900,000	1.9	783,000				
(below 100mrl)	1.0					3,200,000	9,200,000	2.3	696,000				
	2.0*					1,600,000	4,600,000	3.3	487,000				
TOTAL	0.5					4,500,000	12,900,000	1.9	783,000				
	1.0					3,200,000	9,200,000	2.3	696,000				
	2.0*					1,600,000	4,600,000	3.3	487,000				

\*Denotes preferred cut off grade for reporting 'underground' resources - 2.0g/t Au


Table 55Detailed Summary of Konkera Resources by Prospect and Ore Type																			
		Indicated Resource							Inferred Resource										
		Oxide			Transition			Fresh			Oxide			Transition			Fresh		
Prospect	Au Cut- off g/t	Tonnes	Grade (g/t Au)	Oz's	Tonnes	Grade (g/t Au)	Oz's	Tonnes	Grade (g/t Au)	Oz's	Tonnes	Grade (g/t Au)	Oz's	Tonnes	Grade (g/t Au)	Oz's	Tonnes	Grade(g/t Au)	Oz's
Konkera North	0.5	720,000	1.7	39,200	1,650,000	1.6	85,400	15,080,000	1.9	904,900	0	0.8	100	20,000	0.9	600	16,920,000	1.8	952,800
	1	480,000	2.2	33,300	1,100,000	2.0	71,600	11,220,000	2.2	807,300	0	1.0	0	10,000	1.2	400	11,480,000	2.2	823,700
	2	170,000	3.5	19,500	350,000	3.4	38,100	4,520,000	3.5	502,500	0	1.0	0	0	2.4	0	5,070,000	3.3	534,100
Kouglaga	0.5	510,000	2.0	33,600	270,000	1.8	15,500	950,000	1.7	50,900	170,000	2.5	13,700	70,000	4.1	8,800	180,000	2.3	13,100
	1	390,000	2.4	30,600	210,000	2.1	13,900	730,000	1.9	45,200	160,000	2.6	13,400	60,000	4.2	8,700	170,000	2.3	12,800
	2	180,000	3.6	21,100	80,000	3.2	8,100	240,000	2.8	22,200	70,000	4.0	9,200	40,000	6.2	7,500	50,000	4.4	7,700
Konkera Main	0.5	180,000	1.4	8,300	710,000	1.3	30,200	8,220,000	1.6	432,900	20,000	1.4	1,000	110,000	1.3	4,600	3,230,000	1.6	163,300
	1	120,000	1.8	6,800	460,000	1.6	24,100	6,630,000	1.8	391,700	10,000	2.2	700	60,000	1.7	3,500	2,450,000	1.8	143,500
	2	30,000	2.7	3,000	90,000	2.7	7,400	1,980,000	2.8	175,400	0	3.3	500	10,000	2.9	1,400	660,000	2.9	61,900
Konkera East	0.5	290,000	1.7	15,700	340,000	1.4	14,800	5,100,000	1.7	281,600	30,000	1.2	1,200	30,000	1.2	1,400	800,000	1.7	43,400
	1	240,000	1.9	14,200	250,000	1.6	12,400	4,330,000	1.9	261,600	20,000	1.5	800	20,000	1.7	800	580,000	2.0	38,100
	2	70,000	2.8	6,800	40,000	2.5	2,900	1,420,000	2.7	124,500	0	2.3	100	0	2.4	300	280,000	2.6	23,600
The Gap	0.5	20,000	1.3	600	40,000	1.1	1,400	120,000	1.1	4,200	350,000	1.3	14,100	340,000	1.2	12,700	2,710,000	1.2	104,100
	1	10,000	1.3	600	30,000	1.2	1,000	70,000	1.3	3,100	180,000	1.7	10,000	170,000	1.6	8,900	1,380,000	1.6	71,300
	2	0	2.2	0	30,000	1.2	1,000	0	2.1	100	50,000	2.6	3,900	30,000	2.4	2,500	280,000	2.6	23,600



# 15. MINERAL RESERVE ESTIMATES

There are no mineral reserves currently on the Konkera Project.



## 16. MINING METHODS



# 17. RECOVERY METHODS



## 18. PROJECT INFRASTRUCTURE



# 19. MARKET STUDIES AND CONTRACTS



# 20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL STUDY OR COMMUNITY IMPACT

Ampella have completed an Environmental Impact Assessment Study (EIA) and a Relocation Plan Study, which have gone through public consultation which were submitted to the Burkina Government who approved the EIA on 15<sup>th</sup> January 2014 (Ampella, 2014). Ampella have indicated that all required environmental permits are now in place prior to the submission of a PFS study report to the Government which will support the Mining License application.



## 21. CAPITAL AND OPERATING COSTS



## 22. ECONOMIC ANALYSIS



# 23. ADJACENT PROPERTIES

The Qualified person is not aware of any adjacent properties that are relevant to the Konkera Project.



#### 24. OTHER RELEVANT DATA AND INFORMATION

The Konkera Project does not fall into the NI 43-101 classification of an advanced project as although resource estimates have been completed at the property, the potential economic viability supported by a preliminary economic assessment (PEA), a pre-feasibility study (PFS) or a feasibility study (FS) has not been publically released. As such there is no requirement to complete sections 15 to 23 of this technical report.

Ravensgate notes that Ampella have been undertaking PFS level study work at the project since early 2012 and have completed a substantial amount of work on this study (Ampella, 2013). This work has included such work as metallurgy, mine planning, infrastructure design and permiting. Ampella have indicated that their PFS target strategy is based upon a 3.0 Mtpa CIL, flotation and regrind plant, a mine life of greater than nine years averaging 150,000 ozAupa, with an initial 3 to 4 years of free milling material. This would allow deferral of construction of the flotation and regrind circuit until year's two to three of the project which would reduce up-front capital expenditure costs and improve project economics. In order to achieve this, Ampella have indicated that an additional 300,000 to 400,000 oz Au of free milling material is needed on top of the current resource base discussed in this report. Ravensgate understands that Ampella's exploration program over the past 18 months has largely been focussed on exploring for free milling Au satellite deposits to Konkera that will help achieve their PFS target strategy.

Ravensgate also notes that Ampella have completed an Environmental Impact Assessment Study and a Relocation Plan Study, which have gone through public consultation and have been submitted and were approved by the Burkina Government on the 15<sup>th</sup> January 2014 (Ampella, 2014). Ampella have indicated that all required environmental permits are now in place prior to submitting a PFS study report to the Government to support a Mining License application (Ampella, 2014).



### 25. INTERPRETATIONS, CONCLUSIONS

#### 25.1 Key Conclusions

The pertinent observations and interpretations which have been developed in producing the resource estimate at Konkera are detailed in the sections above.

The key conclusions are contained in the section below.

- The Konkera Project hosts a substantial gold deposit that has potential for development and warrants further exploration and economic assessment.
- The Konkera February 2013 reported resource complies with the JORC (Dec 2004) code guidelines and have been compiled and reported according to the ASX Appendix 5A Listing Rules. It is the Qualified Person's opinion this estimate also meets NI 43-101 requirements as has been described in this report.
- The Konkera Resource Estimate data spacing, quality of data, and current confidence in the geological understanding of the deposit is sufficient to imply or infer continuity of mineralisation and grade. Additional infill drilling is needed to improve confidence in the inferred resources to a level needed for detailed economic assessment (i.e., to define Indicated Resources).
- The Qualified Person understands that presently no major environmental, permitting, legal, taxation, socio-economic, marketing or political factors have been identified which would materially affect the resource estimate.
- The main risk factors at this stage are fluctuating commodity prices and technical risks such as data spacing, geological interpretation and grade/geological continuity. These technical factors are reflected in JORC (2004)/NI 43-101 Inferred and Indicated Resource classifications of the Konkera Resource Estimate.
- Metallurgical test work returned to date indicates that gold is amenable to recovery by conventional metallurgical processing techniques.
- The Konkera resource is largely open at depth, and further drilling is warranted to test strike and depth extensions.

Exploration auger, aircore, RC and Diamond drilling on the Konkera property has almost entirely been carried out by Ampella since 2008. They have utilised industry best practice drilling, sampling, data collection and assaying practices.

The following is a summary table of the relative risk assessment of various aspects related to the Konkera Gold Project resource estimate and is of relative qualitative assessment only (Table 56). This is an internal Ravensgate risk assessment summary to provide guidance on potential areas of risk in the resource estimate and the relative impact of each of the factors. It is not necessarily intended to comply with any other formal national or international risk assessment system standards.



Table 56	Resources Estimation Risk Review - Konkera Project
Database integrity	<ul> <li>Ampella has employed a well-established and tested system for collection of and validation of data used in the estimation process.</li> <li>Ravensgate has been made aware that most of the data available from drilling compliant and accounting and accounting the form subjected to a set the set of the se</li></ul>
	appropriate industry best practice QA/QC procedures.
	Some external certified standard data plots outside acceptable ranges - which Ampella indicates are largely the result of mislabelled standards and blanks
	Where necessary any data not considered of appropriate quality was not used to help define mineralisation domains and wireframe envelopes or other modelling parameters.
	LOW RISK
Geological interpretation	Interpretation of the lithological boundaries model for the mineralisation interpretation used for the current resource modelling is currently supported by a significant amount of drill logging. However, small scale controls on mineralisation and localisation of higher grades are not fully understood at this stage. Ongoing refined logging and where possible, future geological pit mapping and analysis may enable tighter controls and therefore improved resource modelling as the resource development progresses.
	Interpretation of the lithological boundaries and the generation of a rock mass and mineralogical models from available drilling is appropriate for the category of resources. Geological continuity is based upon a coherent and relatively predictable lithological model. This model requires refinement as more data is collected. In particular the models would benefit from more structural data from core logging being incorporated into the model to aid and support the interpretations of mineralisation and its controls.
	Ampella have completed a small tightly spaced Geostatistics RC drill program with 5m spaced holes over a 40m strike length section of the Konkera North orebody. This drilling demonstrates the continuity of broader mineralisation zones between sections, but does suggest that there will be some internal local complexity.
	LOW TO MODERATE RISK
Mineralisation Geometry and Dimensions	The main gold mineralised zones are comprised of lithologically and structurally controlled zones of mineralisation. Drilling to date using relatively uniform patterns have generally taken into account the entire footprint of the main deposit areas. The new resource model encompasses the entire extents of mineralisation also and down to 200m RL.
	No cross-cutting faults of substance have been defined within the Konkera North, Konkera East, Konkera Main or The Gap (but small scale faulting may be present which cannot be resolved at the current drill spacing). Kouglaga is interpreted to be cross cut by several reverse faults which truncate and offset mineralisation. These have been modelled and used to constrain mineralisation wireframes.
Block Model	LUW KISK
Construction	using standard 3D uniform block size modelling techniques. Owing to the low/moderate coefficients of variation observed for available sample composites for each domain area, it is Ravensgate's opinion that the reliable Ordinary Kriging Interpolation technique should be employed.
	The uniform block sizes for the Konkera Project Area deposit is set at 2.5mE x 10mN x 5.0mRL elevation. An associated block proportion was also coded to all blocks with a precision of +/- 1% to accurately account for coded mineralisation shell volumes.
1	$\rightarrow$ A rigorous review of the localised deposit geostatistics was carried out.



Table 56	Resources Estimation Risk Review - Konkera Project					
	All mineralised domains were designated as separate zones according to prospect area and lode number. This coding effectively constrained the known mineralised domains based upon the existing drilling. Ongoing data collection may enable an effective refining and further geometric sub-domaining by additional lithological and / or structural knowledge if necessary.					
	LOW TO MODERATE RISK					
Outlier Grade cut-off strategy	Outlier assays greater than a cut-off at the 99th percentile level were limited to an area of influence of 10m. This was done to minimise the potential for over-estimation of grades, particularly in sparsely drilled areas. Outlier cut-offs ranged from 8g/t Au to 24g/t Au depending on the domain.					
	LOW TO MODERATE RISK					
Variography	Semi-Variograms were generated for each mineralisation domain where possible for Au. The co-variance variogram calculation function was used and resulting variance plots were modelled using a 'spherical' model curve fitting to define the nugget, sill and range parameters specific to each domain. Robust down-hole variograms could be generated for most domains but reasonable along strike and down dip variograms could only be generated for the larger domains. These range from 50 to 95 along strike and 45 to 70m down dip.					
	LOW TO MODERATE RISK					
estimation	Search ellipses used to inform blocks ranged from 70m by 60m by 10m to 60 by 50 by 5m, which were based on the variogram ranges, except for several zones which were drilled on 80m spaced centres. For these an initial wider spaced 100 by 100 by 10 m pass was used, followed by a tighter pass at the domain variogram range. The more widely spaced drilled parts of these domains were classified as inferred. Of note is that					
	a sample maximum of 24 composites was used with a maximum of three composites from a single drill hole. This effectively means a block would be informed by the eight nearest drill holes in more well drilled parts of the deposit.					
	Overall, the resulting interpolated block models are considered to be relatively robust for most of the project areas due to a relatively good drilling density and an acceptable understanding of the controls on the mineralisation distribution.					
	<ul> <li>Interpolated blocks in areas of low data density have some potential for grade smearing. These areas have been coded as inferred resource.</li> <li>It is important to note that further identification of any small scale structural controls will still be necessary prior to mining as these zones</li> </ul>					
	may be of some economic importance when used to refine ore reserves and mining schedules.					
	Of note is that in general global grades and tonnages within a deposit estimated using the ordinary kriging method will probably show a small amount of variation with increased amounts of infill drilling or mining reconciliation (assuming that the interpretation and other factors used are appropriate). However due to the inherent nugget effect in these style gold deposits and the relatively sparse amount of data on which is used to estimate a block there is potential for substantial local grade variations when a block is mined compared to the estimated grade in the resource model.					
	LOW TO MODERATE RISK					



Table 56	Resources Estimation Risk Review - Konkera Project
Bulk Density	Ampella have completed a moderate amount of density data testwork. Bulk densities derived and used in the mode are similar to other comparable West African gold deposits. Collection of additional data is warranted from drill core to provide better spatial coverage of the various prospects and ore-types.
	LOW RISK
Reporting Lower Cut- off parameters	The choice of reporting lower cut-off should be viewed with respect to the JORC notion of transparency and reasonable expectations of future mining related lower cut-off levels. The lower cut-off levels are important with respect to overall resource estimate reporting. Ravensgate considers that a cut-off of 0.5g/t Au are appropriate at this stage of the Konkera project.
	Of note is that reported tonnages and grades at higher grade cut-offs may not be geologically feasible to mine (i.e. blocks >2g/t Au). The models have been constructed with a view to open pit mining. Ravensgate recommends constructing higher cut-off grade interpretations and models to more accurately assess the underground potential.
	LOW RISK
Mining factors or assumptions	> The scale of mining equipment ultimately that may be selected in relation to ore block dimensions as well as any blasting practices may affect levels of dilution and aspects relating to ore loss. Such important considerations with respect to mining factors or assumptions relating to reserves estimation is yet to be considered in detail. These considerations are independent of estimated resources as described in this report.
	<ul> <li>For resource modelling, resource classification and reporting at the Konkera Project Area, no specific assumptions were made about mining methods, other than nominally considering the use of standardized surface and underground mining methods. The parameters around these future mining scenarios can reasonably be assumed given the type of terrain at the project areas and that these methods are commonly used for this type of mining in most modernized mining areas of the world.</li> <li>The block model has been primarily designed for assessing the open pit potential of the Konkera Deposit. For detailed assessment of underground potential modelling of mineralisation using higher grade edge cut-offs is warranted.</li> </ul>
	LOW RISK
Classification	<ul> <li>Reported resources comply with the JORC - (Dec 2004) code and have been compiled and reported according to the ASX Appendix 5A Listing Rules.</li> <li>The localised variations in drilling and sampling density were carefully considered and mineralisation domain shells were adjusted accordingly to reflect the underlying level of geological and mineralogical confidence. Only once the assumptions used in the data generation and compilation were eliminated or minimised, was the data used in these</li> </ul>
	<ul> <li>Classification of resources rely on the underlying sample and associated data quality used to build the respective resource block models. The actual classification methodology was carried out using an unbiased allocation of material volumes bases on ancillary block mode parameters such as 'distance of block from nearest composite', 'number of composites' within any given interpolation search ellipsoid and also the estimated local kriging variance. All of these parameters are condensed for review as a quality of estimate (QLTY) item used to base the final formal classification or resources as measured, indicated and inferred resources as necessary.</li> </ul>



Table 56	Table 56         Resources Estimation Risk Review - Konkera Project								
	The final reported block model resource tonnages and grades were checked with respect to the local domain geometry and domain statistical summaries.								
	LOW RISK								



#### 26. **RECOMMENDATIONS**

#### 26.1 Konkera Resource

Based on the data review and estimation work carried out by the Qualified Person on the Konkera Gold project the following recommendations are made to improve the quality of estimate for future resource updates:

- The Qualified Person recommends investigating the drill spacing needed for Measured Resources as defining a portion of Measure Resource for the project would be of benefit in mitigating resource risk to the project.
- It would be of benefit to complete some grade control type drilling at varying hole spacings (e.g. 10 by 10m spaced drilling and less) over selected parts of the deposit to assist in the above and to enable comparison with the model to assist in demonstrating the quality/confidence in the estimate. This data would also be useful to assist in developing an appropriate grade control method for future production.
- Given the shallow outcropping nature of mineralisation a small test pit may be of benefit to confirm mineralisation geometry, controls and grade distribution.
- Further detailed study of the structural geology of the deposit would be of benefit to assist in refining future geological and resource models. In particular it would be useful to assist in outlining potential shoot controls within the mineralised shears.
- Ampella have completed a small tightly spaced 'Geostatistics' RC drill program with 5m spaced holes over a 40m strike length section of the mineralised zone. This program proved beneficial at demonstrating continuity and short range variability and may be useful exercise to repeat at Konkera Main, Konkera East and Kouglaga.
- Future refinements to the estimation should include examining the use of lithological type sub domains to control interpolation runs (e.g. estimating only using composites of a particular host lithology). Further work is also warranted on defining and estimating potential high grade shoot domains.
- Collection of additional density data is warranted from drill core to provide better spatial coverage of the various prospects and ore-types.
- The block model has been primarily designed for assessing the open pit potential of the Konkera Deposit. For detailed assessment of underground potential modelling of mineralisation using higher grade edge cut-offs is warranted.

#### 26.2 Recommended Budget

Further work on the project is warranted and Ravensgate recommends a work program with the aim of completing a positive PFS study for the project. This program would build on work Ampella have done to date.

It is envisaged that this program would consist of two parts.

(1) Satellite Deposit Exploration and Evaluation

Ampella have indicated that project economics at Konkera would be greatly enhanced by the identification of 300,000 to 400,000 ounces Au of free milling material that can be mined and treated early in the project life. Continuation of the systematic exploration/drilling program targeting satellite deposits within trucking distance of the plant is warranted. It is envisaged that this program would take at least one year depending on exploration success. The aim is to define Inferred and Indicated Resources that can be used in PFS study work.



#### (2) PFS Study completion

Ravensgate understands that much of the PFS level study work has already been completed. Assuming success of the first part of the program then this new potential resource would be used to finalise a PFS for market release and to obtain further funding for the project. It is also envisaged that this work would also encompass optimisation of inputs into the PFS such as methods to improve metallurgical recovery and other inputs that may reduce operating and capital costs. It is envisaged that this work would take approximately six to nine months.



Table 57	Konkera Project: Proposed Budget				
(1) Satellite Deposit Evaluation					
EXPENDITURE ITEMS 12 MONTH BUDGET					
Exploration Overheads	Taxes & Fees	47,000			
	Community	10,000			
	Premises and Utilities	300,000			
	General Office Expenses	25,000			
	Information services and Communications	56,000			
	Professional Fees	83,000			
	Travel	210,000			
	Other	0			
	Salaries and Benefits	1,390,000			
Exploration Costs	Remote Sensing and Geophysics	0			
	Sampling Consumables	125,000			
	Geochemistry	67,500			
	Trenching & Pitting	0			
	Diamond Drilling	185,000			
	RC Drilling	1,890,000			
	RAB & Aircore	309,000			
	Auger	216,200			
	Metallurgy and Mining Studies	90,000			
	Professional Fees	30,000			
	Other	0			
	Transport	55,500			
	Camp	591,600			
Capital expenditure		130,000			
TOTAL BUDGET		5,810,800			
(2) PFS Study Completion		<u>.</u>			
EXPENDITURE ITEMS	9 Month BUDGET	US\$			
	Study Management	130,000			
	Resources	100,000			
	Mining	150,000			
	Metallurgy	350,000			
	Plant design	150,000			
	Infrastructure	120,000			
	Environmental	100,000			
	Water	100,000			
	Geotechnical	100,000			
	Social	100,000			
TOTAL BUDGET		1,400,000			



#### 27. **REFERENCES**

Ampella, 2012, Ampella releases positive conventional metallurgical testwork results for Konkera, Ampella Mining Limited ASX Market release 30 January 2012

Ampella, 2013, September 2013 Quarter Update Presentation, Ampella Mining Limited ASX Market release October 2013

Ampella, 2014, December 2013 Quarterly Report, Ampella Mining Limited ASX Market release 29 January 2014

Hout, D. & Sattran, V., 1987, Gold in Birimian Greenstone Belts of Burkina Faso, West Africa. Economic Geology - Vol 82, 1987. pp 2033-2044.

JORC, 2004. Australasian Code for Reporting of Mineral Resources and Ore Reserves (The JORC Code) prepared and jointly published by: The Joint Ore Reserve Committee of the Australasian Institute of Mining and Metallurgy, Australia Institute of Geosciences and the Minerals Council of Australia (JORC) Published December 2004.

Kitto, P., Shepherd, R., Rudd, T., and Ouedraogo, S., 2011, Konkera gold discovery: Unearthing a new gold province at Batie West in southern Burkina Faso. In NewGen Gold 2011 Conference Proceedings: case histories of discovery

Large, R., Meffre, S., Kamenetsky, M., Goemann, K., 2011. Paragenesis of Pyrite and Gold at the Konkera Deposit, Burkina Faso: Application of MLA and LA-ICPMS to Characterising the Main Gold Event. Report prepared for Ampella Mining Ltd, 2011.

Maclean, D, Hyde R, Munro, P.D, 2013, 43-101 Technical report, Boulsa Project, Burkina Faso. NI 43-101 report for West African Resources, December 2013.

Sharpe, R, and Blake M, 2010, Geological Interpretation of the Konkera Main and Konkera East Resource Areas Outcomes from Drill Core and RC Chip Re-logging. Report prepared for Ampella Mining Ltd, 2010.

VALMIN, 2005. Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports - The VALMIN Code, 2005 Edition.

Websites that were used include:

CIM DEFINITION STANDARDS Nov 2010- For Mineral Resources and Mineral Reserves http://www.crirsco.com/cim\_definition\_standards\_2010.pdf

National Instrument 43-101 <u>http://www.osc.gov.on.ca/documents/en/Securities-</u> Category4/ni\_20110624\_43-101\_mineral-projects.pdf

Volta Resources Inc. Website, July 2011, http://www.voltaresources.com/s/Home.asp



## 28. CERTIFICATES OF QUALIFIED PERSONS

Certificate of Independent Qualified Person - Donald Maclean

As an author of the report entitled "NI 43-101 Technical Report" dated 26<sup>th</sup> March 2014, on the Konkera Project (the "Study"), I hereby state:-

- 1. My name is Donald Maclean and I am a Principal Consultant with the firm of Ravensgate of Level 3, Parliament Place, West Perth, WA, 6005, Australia. My residential address is 50 Mountain Road, Henderson Valley, Auckland, New Zealand.
- 2. I am a Registered Professional Geologist in the fields of Exploration and Mining with the Australian Institute of Geoscientists. My member number is 4059.
- 3. I am a graduate of the University of Canterbury, Christchurch, New Zealand and hold a Master of Science majoring in Geology.
- 4. I have practiced my profession continuously since 1994.
- 5. I am a "qualified person" as that term is defined in National Instrument 43-101 (Standards of Disclosure for Mineral Projects) (the "Instrument").
- 6. I have personally visited the Konkera Project area.
- 7. I contributed to the preparation of 1-3, 5-9, 12-14, and 24-26 sections of the Study. I have reviewed and made appropriate cross checks of the remaining sections of the study, and as the Independent Qualified Person assume overall responsibility for the study.
- 8. I am not aware of any material fact or material change with respect to the subject matter of the Study which is not reflected in the Study, the omission of which would make the Study misleading.
- 9. I am independent of the Konkera Project pursuant to section 1.5 of the Instrument.
- 10. I have read the National Instrument and Form 43-101F1 (the "Form") and the Study has been prepared in compliance with the Instrument and the Form.
- 11. I do not have nor do I expect to receive a direct or indirect interest in the Konkera Project of Ampella Mining Ltd/Centamin Plc, and I do not beneficially own, directly or indirectly, any securities of Ampella Mining Ltd/Centamin Plc or any associate or affiliate of such company.

Dated on the 27<sup>th</sup> March, 2014.

Don Maclean For and on behalf of: **RAVENSGATE** 

Certificate of Qualified Person - Dean Smith

As an author of the report entitled "NI 43-101 Technical Report" dated 26<sup>th</sup> March 2014, on the Konkera Project (the "Study"), I hereby state:-

- 1. My name is Dean Smith and I am the database manager for Ampella Mining Ltd of Suite 22 513 Hay Street, Subiaco, WA 8008. Australia. My residential address is 4157 Maple Path Circle, Nottingham, MD21236, USA.
- 2. I am a Registered Professional Geologist in the fields of Exploration and Mining with the Australian Institute of Geoscientists. My member number is 3253.
- 3. I am a graduate of the University of Otago, Dunedin, New Zealand and hold a Master of Science majoring in Geology.
- 4. I have practiced my profession continuously since 1994.
- 5. I am a "qualified person" as that term is defined in National Instrument 43-101 (Standards of Disclosure for Mineral Projects) (the "Instrument").
- 7. I contributed to the preparation of sections 11 and 12 of the Study.
- 8. I am not aware of any material fact or material change with respect to the subject matter of the Study which is not reflected in the Study, the omission of which would make the Study misleading.
- 10. I have read the National Instrument and Form 43-101F1 (the "Form") and the Study has been prepared in compliance with the Instrument and the Form.
- 11. I am an Employee of Ampella and have participated in Ampella Mining Ltd's long term incentive share option and performance rights schemes.

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Dated at 26th Marchin 2014