

Prepared by:

G M Greenway
Principal Resource Geologist
BSc (Hons) Geology
Pr.Sci.Nat, MSAIMM, MGSSA

D H Kullmann
Principal Consultant Mining Engineer
MSc (Eng), BSc (Eng) Mining
MSAIMM, MSANIRE

Reviewed by:

K J Palmer
Consultant Resource Geologist
BSc (Hons) Geology
Pr.Sci.Nat

Ir. M J P M Struik
Principal Consultant, General Manager – Africa
MSc (Eng), MPD
MSAIMM, MKIVI, MSME

**FINAL****AVNEL GOLD LIMITED****KALANA GOLD MINE****TECHNICAL REPORT****20 FEBRUARY 2005****PROJECT NUMBERS J704 & J754**

©Snowden Mining Industry Consultants (Pty) Ltd

TABLE OF CONTENTS

1	SUMMARY.....	1
2	INTRODUCTION AND TERMS OF REFERENCE.....	5
3	DISCLAIMER	6
4	PROPERTY DESCRIPTION AND LOCATION	7
5	ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY	11
6	HISTORY	13
6.1	PREVIOUS EXPLORATION	14
6.2	1963 TO 1991	14
6.3	1995 TO 1996	14
6.3.1	First phase	14
6.3.2	Second phase	15
6.3.3	Results of Ashanti-JCI exploration	15
6.4	PREVIOUS MINING PRODUCTION.....	15
6.4.1	Sogemork	15
6.5	MINING PRODUCTION BY SOMIKA-SA	16
6.6	KALANA II.....	17
6.7	MINING RECONCILIATION.....	17
6.8	PLANT RECOVERY	17
6.8.1	Tailings	18
6.8.2	Sand stockpiles.....	18
6.8.3	Sampling of tailings and sand stockpiles	18
6.9	PREVIOUS RESOURCE ESTIMATES	18
7	GEOLOGICAL SETTING	20
7.1	REGIONAL GEOLOGY.....	20
7.2	GEOLOGY OF THE KALANA GOLD MINE.....	20
8	DEPOSIT TYPES.....	22
9	MINERALISATION.....	23
9.1	FLAT DIPPING VEINS.....	23
9.2	STEEP DIPPING VEINS.....	25
9.3	DISSEMINATED MINERALISATION	25
9.4	STOCKWORK MINERALISATION	25
10	EXPLORATION.....	26
11	DRILLING	27
12	SAMPLING METHOD AND APPROACH	28

13	SAMPLE PREPARATION, ANALYSES AND SECURITY	29
14	DATA VERIFICATION	30
15	ADJACENT PROPERTIES	31
16	MINERAL PROCESSING AND METALLURGICAL TESTING	32
17	MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES	33
17.1	MINERAL RESOURCE	33
17.1.1	Mineral resource estimate	33
17.1.2	Geological interpretation – veins and stockwork	33
17.1.3	Underground	33
17.1.4	Open pit	34
17.1.5	Resource volume estimation	35
17.1.6	Stockwork resource blocks	35
17.1.7	Comments on the interpretation of resource blocks	36
17.1.8	Estimation of block grades	36
17.1.9	Top-cutting	36
17.1.10	Reconciliation	38
17.1.11	Tailings and sand dumps	39
17.1.12	Tailings	39
17.1.13	Sand stockpiles	39
17.1.14	Sampling of tailings and sand stockpiles	39
17.1.15	Resource classification	40
17.1.16	Resource tabulation	40
17.1.17	Evaluation of risks associated with the resource estimate	41
17.2	MINERAL RESERVES	43
17.2.1	Inclusion of Reserves within Resources	43
17.2.2	Underground Mineral Reserves	43
17.2.3	Coarse tailings sands	46
17.2.4	Mineral Reserve Statement	47
18	OTHER RELEVANT DATA AND INFORMATION	50
18.1	MINING OPERATIONS	50
18.1.1	Shaft Infrastructure	50
18.1.2	Mine Layout and Design	51
18.1.3	Mining Method	51
18.1.4	Geotechnical design	51
18.1.5	Underground production	52
18.1.6	Other planned production	52
18.1.7	Utilities	52

18.2 ECONOMIC ANALYSIS.....	53
18.2.1 Production Forecast.....	53
18.2.2 Revenue Forecasts.....	54
18.2.3 Mine Operating Costs	54
18.2.4 Royalties and Taxes	56
18.2.5 Capital Expenditure	56
18.2.6 Cash Flow Analysis	57
18.2.7 Sensitivity Analysis	58
18.2.8 Mine Life Beyond the 10-Year Business Plan.....	60
18.3 ENVIRONMENTAL AND PERMITTING CONSIDERATIONS	61
19 INTERPRETATION AND CONCLUSIONS	63
20 RECOMMENDATIONS.....	65
21 REFERENCES	66
22 CERTIFICATE OF AUTHORS	67
23 CONSENT OF QUALIFIED PERSON.....	69

LIST OF TABLES

Table 6.1 Kalana Gold Mine Production for 2004.....	17
Table 6.2 Kalana Gold Mine Historical Resource and Reserve Estimates	19
Table 6.3 Kalana Gold Mine Resource – Snowden June 1997.....	19
Table 17.1 Kalana Gold Mine resource blocks in flat dipping quartz veins	34
Table 17.2 Kalana Gold Mine reconciliation of predicted production versus actual production	39
Table 17.3 Kalana Gold Mine Measured and Indicated Resource - June 2004.....	41
Table 17.4 Kalana Gold Mine Inferred Resource - June 2004	41
Table 17.5 Kalana Gold Mine check list of assessment and reporting criteria.....	42
Table 17.6 Kalana Gold Mine Total Resource - June 2004.....	43
Table 17.7 Underground Mineral Reserves.....	47
Table 17.8 Coarse sand tailings Reserves - June 2004.....	48
Table 17.9 Conversion of Underground Mineral Resources into Mineral Reserves - June 2004	49
Table 18.1 Planned Production 2005 to 2014	53
Table 18.2 Planned Processing 2005 to 2014.....	54
Table 18.3 Estimated Revenue for 2005 to 2014	54
Table 18.4 Mine operating costs for 2005 to 2014	55
Table 18.5 Distribution of Administrative Costs for 2005 to 2014	55
Table 18.6 Royalties and Taxes Payable for 2005 to 2014.....	56
Table 18.7 Mine capital costs for 2005 to 2014.....	57
Table 18.8 Projected Cash Flow.....	58

LIST OF FIGURES

Figure 4.1 Map showing the location of the Kalana Gold mine in Mali, West Africa.	7
Figure 4.2 Geological map indicating the location of the Kalana Gold Mine.	9
Figure 5.1 Kalana Gold Mine surface infrastructure (local mine grid).	12
Figure 7.1 Geological map of the Bougouni Basin.	21
Figure 9.1 Plan of the Kalana Gold Mine.	24
Figure 9.2 Vertical cross-section through the Kalana Gold Mine, along line A-B (Figure 9.1).	25
Figure 17.1 Statistics for borehole composites from the resource blocks, no top-cut applied.	37
Figure 17.2 Statistics for borehole composites from the resource blocks.	37
Figure 18.1 Kalana 10-year business plan - NPV sensitivity.	60

LIST OF APPENDICES

Appendix A Composited grade intervals for boreholes used in the Mineral Resource estimation	
Appendix B Resource tabulation for underground and open pit	

1 SUMMARY

Snowden Mining Industry Consultants Pty Ltd (“Snowden”) was engaged by Avnel Gold Ltd (“Avnel”) to undertake a review of the Mineral Resource / Mineral Reserve estimate and produce a resource/reserve statement for the Kalana Gold mine (“Kalana mine”). The resource/reserve estimation work was undertaken in compliance with the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Mineral Resource and Mineral Reserve definitions that are referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects. This Technical Report has been prepared in compliance with the requirements of document 43-101 F1.

The site was visited by the author between 15 and 19 July 2004. The drillhole logging results, geological interpretation, underground face sampling and resource estimation were reviewed. No diamond drill core was available for review. After review Snowden has concluded that the drillhole database, face sampling and geological interpretations provide a reliable framework for geological modelling and gold grade estimation. Snowden has not reviewed the land tenure situation and has not independently verified the legal status or ownership of the properties or any agreements that pertain to the Kalana Gold Mine. The land tenure and legal status of the Kalana Gold Mine has been verified by Lette Lette and Partners (subject of a separate report).

Kalana Gold Mine is an operating gold mine located in the South West of Mali. The Kalana Gold Mine is owned by Société d'Exploitation des Mines d'Or de Kalana (“SOMIKA-SA”), a subsidiary of Avnel (80% ownership), and the Government of Mali (20% ownership).

Gold mineralisation is predominantly within flat dipping quartz veins that make up approximately 80% of the resource tonnage, with the remainder of the resource occurring within stockworks, situated within metasedimentary rocks centred on a diorite stock and a small amount from tailings and sand stock-piles.

The Kalana gold deposit was explored in the period 1962 to 1982 by two Malian national companies with Soviet technical assistance. Production commenced in 1985 and a total of 227,000 tonnes of ore were treated at an average head grade of 13 g/t to produce 81,800 ounces of gold by August 1991 at a recovery of 86%. The technical and financial resources were withdrawn in 1991 from the Kalana Gold Mine with the break-up of the former Soviet Union, and the mine was placed on care and maintenance.

After the acquisition by SOMIKA-SA in late 2002, mining operations were resumed in January 2004. From January to end December 2004, a total of 35,667 tonnes of ore at an average grade of 9.4 g/t Au has been milled, as shown in the following table.

Mineral resources at Kalana Gold Mine have been estimated in compliance with CIM Standards of Mineral Resources and Reserves (CIM, 2000). The tonnage of the underground and open pit resources have been estimated using polygonal interpretation within a horizontal projection of each vein. The areal extent of the resource blocks were defined by using a cut-off of 7.0 metre-grams, equivalent to 3.5 g/t Au over a 2 m thickness, using the drill hole information, i.e. the block did not include a drill-hole with an intersection below 7.0 metre-grams. The grade of the resource blocks was estimated by calculating the length weighted average grades of the intersections (after top-cutting) for the vein within the block.

Kalana Gold Mine Production for 2004				
Month	Tonnes milled	Head grade (g/t)	Recovered Gold metal (oz)	Recovery (%)
January	1,885	11.1	521	77
February	2,368	7.1	369	69
March	3,066	8.7	516	60
April	2,978	10.2	655	67
May	3,256	8.7	523	58
June	2,911	9.4	594	67
Sub-total	16,464	9.1	3,178	65
Production subsequent to resource and reserve statements – June 2004				
July	2,237	13.2	671	71
August	2,737	14.2	943	75
September	2,989	12.6	882	73
October	2,848	10.5	783	81
November	4,224	5.5	454	63
December	4,168	5.8	485	62
Sub-total	19,203	9.5	4,218	70
Total for 2004	35,667	9.4	7,396	69

A mineral resource classification scheme compliant with CIM (2000) definitions and standards was applied. The resource estimates are categorised as Measured, Indicated and Inferred Mineral Resources. The classified Mineral Resource is tabulated in the following table.

Kalana Gold Mine Classified Resource Estimate - June 2004			
Category	Tonnes	Au (g/t)	Au (oz 000's)
Measured	355,600	7.5	86
Indicated	2,691,800	10.8	934
Total - Measured & Indicated	3,047,400	10.4	1,020
Inferred	2,261,000	3.4	249

The Kalana Gold Mine was re-opened in January 2004 but has not completed development of a system of resource inventory management at the mine site that will withstand scrutiny, as required for a publicly listed company. SOMIKA-SA expects to complete development of this system in early 2005. Snowden recommends that SOMIKA-SA continues with this development and maintains such a system so that mining depletion can be monitored and the production reconciliation against the mineral resource is accurately maintained. This will assist in verification of the company's resources and reserves and provide important information to potential investors.

Additional resource potential exists in an area to the north of the mine associated with Vein 6 and an area of disseminated mineralisation between Vein 6 and the Kalana I pit. Further exploration drilling is recommended in these areas, as well as, in the Kalana I and II open pit areas to

improve the confidence in the resource classification (convert Inferred to Indicated Resources) and to determine the production potential of these areas.

The classification of Mineral Reserves (following tables) is based on Kalana's existing 10-year business plan, which outlines in detail infrastructure and development requirements that enable production to continue from the current upper levels of the deposit into new veins and resources blocks. On-going use of technical consultants in the areas of metallurgy, engineering, geotechnical and environmental disciplines provides SOMIKA-SA with the support required to ensure that the business plan can be achieved provided that planned capital expenditure is committed.

Kalana Gold Mine Classified Surface Reserve Estimate - June 2004					
Category	Reserves (tonnes)	Head grade (g/t)	Contained Au (oz)	Recovery	Recoverable Au (oz)
Proved Reserve	9,800	5.0	1,530	50%	765

Snowden was able to update the mine's underground Reserves by depleting the June Reserve statement by the reported production for the second half of 2004. This updated underground Reserve statement is provided below.

Kalana Gold Mine Classified Underground Reserve Estimate – December 2004					
Category	Reserves (tonnes)	Head grade (g/t)	Contained Au (oz)	Recovery	Recoverable Au (oz)
Proved Reserve	70,000	15.4	34,620	79%	27,350
Probable Reserve	881,300	14.1	400,390	79%	316,308
Total Reserves	951,300	14.2	435,010		343,658

Snowden concludes that the Kalana Gold Mine is an operating gold mine that has the potential to recover at least 344,000 ounces of gold from the current identified reserves and represents a project with merit. With additional upgrade of the plant, an increased gold recovery to 90% could result in an additional 48,000 ounces. In Snowden's opinion, there remains a reasonable potential to define additional Reserves from Inferred and Indicated Resources through continued mine development and exploratory drilling.

Over the next ten years, from 2005 to 2014, Kalana's gold production is expected to be 254,000 ounces from nearly 585,000 tonnes of ore. The average operating cost of production during this time is \$228 per ounce, including administrative expenses (on and off-site) required to support the ongoing operations. During this time, the required capital expenditure of \$11.6 million will cover shaft deepening and equipment, underground mining equipment, plant upgrade and tailings dam expansion. An allowance has also been made for continued underground exploration required to confirm and upgrade additional resources.

The 10-year business plan has been produced based on the exploitation of the underground ore reserves as determined by Snowden. The mining schedule represents a logical progression in the development of the underground infrastructure required to open up the reserves for extraction. Beyond the 10-year plan, mining will progress into additional veins and at increased depth until the identified reserves have been exhausted. From the current reserve base tabulated above, this

represents more than 360,000 tonnes at an average predicted head grade of 9 g/t and will sustain underground production for at least another 6 years.

Projected Cash Flow										
US\$ millions	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue	6.2	9.5	10.1	10.7	10.5	10.6	11.1	11.2	9.1	8.1
Operating cost	6.5	6.3	6.1	5.8	5.7	5.7	5.7	5.6	5.5	5.6
Avnel fees	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3
Royalties	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Capital cost	2.8	2.6	2.3	0.9	0.3	1.6	0.5	0.4	0.0	0.0
Cash flow	-3.6	-0.1	0.9	3.2	3.6	2.4	4.1	4.3	2.9	1.9
Cumulative cash flow	-3.6	-3.7	-2.8	0.3	3.9	6.4	10.5	14.8	17.6	19.5

As with most gold mining operations, Kalana's cash flow is most sensitive to variations in gold price / head grade and operating costs. From Avnel's cash flow modelling, a payback period of nearly 4 years has been determined (by late 2008) before consideration of the mine's existing debt position and required interest payments. In terms of the existing debt, the shareholders of Avnel have provided the loan finance to SOMIKA-SA. Avnel Gold Mining Limited (the parent company of Avnel), which controls the distribution of cash from SOMIKA-SA, will either repay this debt or re-invest in additional exploration or mine capital projects. These loans may be capitalised in SOMIKA-SA in the future.

New capital invested after 2004 is reflected in the above cashflow and the mine becomes cash generative in 2007. Prior to 2005, new investment capital is treated as sunk capital. Following completion of the proposed initial public offering of common shares of Avnel Gold Mining Limited, the only debt at Avnel level will be convertible loan notes issued in exchange for the cancellation of approximately 50% of the existing shareholders' loans. The aggregate principal amount of the convertible loan notes is anticipated to be approximately US\$ 10.5 million, bearing interest at US LIBOR plus 2% and with a five year term. The interest can be paid in cash or shares at the election of the company. The loan can be converted into shares at 150% of the Avnel Gold Mining Limited common share issue price. When the price of the common shares is 200% of the issue price, the company can force conversion.

The Malian government, a 20% shareholder in SOMIKA-SA, will receive corporate tax and any dividends paid. The 10-year business plan indicates that free cash is generated and this can be used for payment of interest/loans to Avnel, exploration expenditure on the Kalana Permit and dividend distribution if new project funding is not required.

There exists a significant, near surface resource identified in Kalana 1, which cannot be categorised as a reserve as the design of an open pit has not been conducted. Therefore, this Indicated Resource cannot be converted into a Reserve. Kalana should pursue the design of a potential open pit for this area in order to increase its reserve base.

2 INTRODUCTION AND TERMS OF REFERENCE

Snowden Mining Industry Consultants Pty Ltd (“Snowden”) was engaged by Avnel Gold Ltd (“Avnel”) to undertake a review of the Mineral Resource / Mineral Reserve estimate and produce a resource/reserve statement for the Kalana Gold mine (“Kalana mine”). The Kalana Gold Mine is owned by Société d’Exploitation des Mines d’Or de Kalana (“SOMIKA-SA”), a subsidiary of Avnel (80% ownership), and the Government of Mali (20% ownership).

The resource/reserve estimation work was undertaken in compliance with Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Mineral Resource and Mineral Reserve definitions that are referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects. This Technical Report has been prepared in compliance with the requirements of document 43-101 F1.

This report is based on reports, hard copy data and mining results provided by Avnel. Mr Graham Greenway from Snowden undertook a site inspection and review of the Kalana deposit from 15 to 19 July 2004.

3 DISCLAIMER

The information contained herein with respect to resources and reserves at the Kalana Gold Mine is based on information provided by Avnel and reviewed by Snowden in 1997 and 2004. Snowden had to rely in part on information and data provided by other parties such as Mineral Development Services of UK, SOMIKA-SA's metallurgical consultants and Metago Environmental Engineers of South Africa, who provide independent environmental services. While exercising all reasonable diligence in checking, confirming and testing it, Snowden has relied upon the data presented by Avnel in formulating its opinion.

This report includes technical information, which requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, Snowden does not consider them to be material.

The various agreements under which SOMIKA-SA holds title to the mineral lands for these projects have neither been investigated nor confirmed by Snowden and Snowden offers no opinion as to the validity of the mineral title claimed by SOMIKA-SA. The description of the property, and ownership thereof, as set out in this report, is provided for general information purposes only.

A complete Certified Legal Opinion ("the Legal Opinion") of the ownership of the mineral title was prepared for Avnel by Lette, Lette and Partners based in Paris, France. Snowden has not reviewed this document, but has no reason to believe that any of the information proved therein is misleading in any way.

4 PROPERTY DESCRIPTION AND LOCATION

The Kalana Gold Mine is located approximately 250 km by road south of Bamako, the capital of Mali. Access from Bamako is via a sealed highway for about 160 km and the rest by a dirt road to Kalana (Figure 4.1).

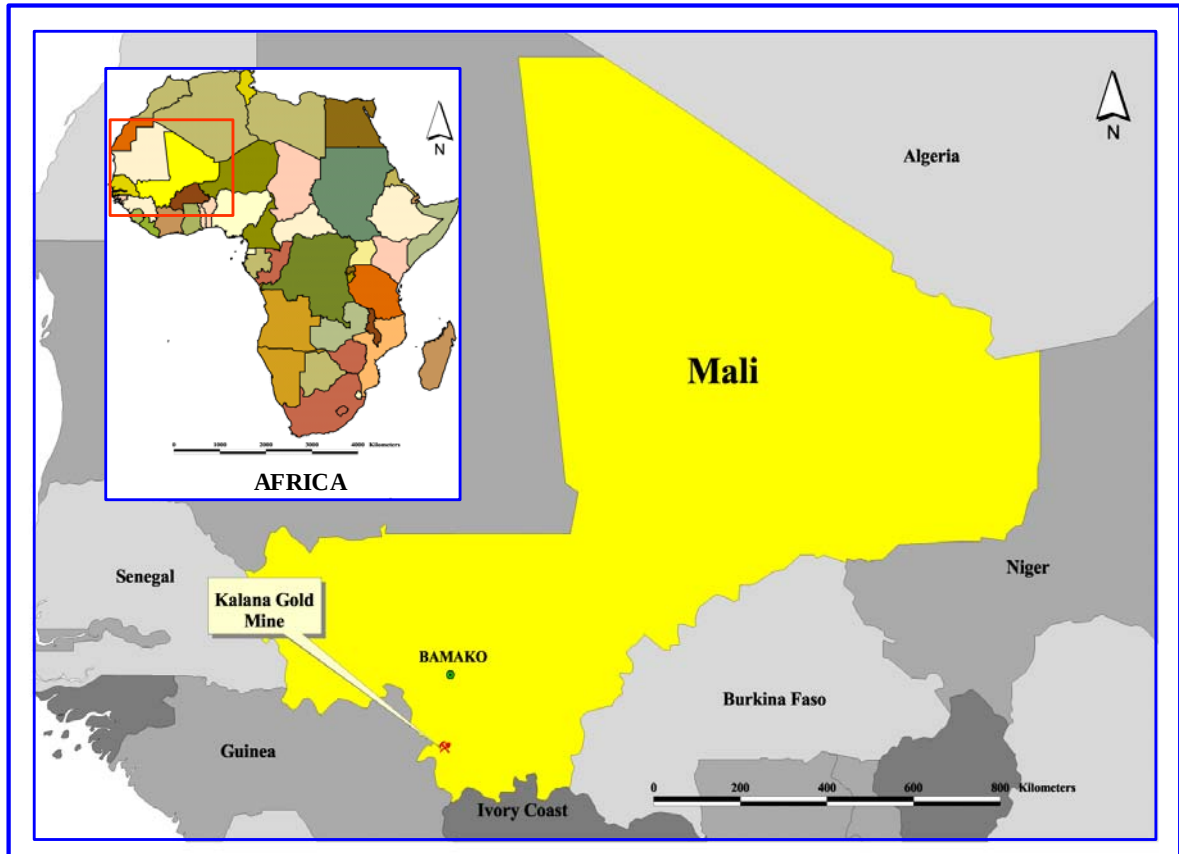


Figure 4.1 Map showing the location of the Kalana Gold mine in Mali, West Africa.

Mali, located in West Africa, has a land area of 1,241,000 km², a third of which is covered by the Sahara desert. It is a land-locked country, connected by railway (1,228 km) to the port of Dakar in Senegal. Mali has a population of approximately 11 million people.

The Kalana exploitation permit was transferred to Avnel according to decree No 03147/PM-RM dated April 7, 2003, of the Mali Government. SOMIKA-SA was formed on 23 July, 2003 and Avnel then transferred the permit to SOMIKA-SA.

The perimeter of the exploitation permit is defined as follows using latitude and longitude co-ordinates:

Perimeter: A, B, B1, B2, C, D, E, F, G, H (Figure 4.2),

- A: Intersection of the Mali-Guinea borderline with parallel 10°44'00"N. From point A to point B following parallel 10°44'00"N;
- B: Intersection of the parallel 10°44'00"N with the meridian 8°13'30"W. From point B to point B1 following the meridian 8°13'30"W;

- B1: Intersection of the meridian 8°13'30" W with the parallel 10°48'30" N. From point B1 to point B2 following the parallel 10°48'30"N;
- B2: Intersection of the parallel 10°48'30 N with the meridian 8°12'00"W. From point B2 to point C following the meridian 8°12'00"W;
- C: Intersection of the meridian 8°12'00"W with the parallel 10°49'47" N. From point C to D following the parallel 10°49'47"N;
- D: Intersection of the parallel 10°49'47" N with the meridian 8°10'00"W. From point D to E following the meridian 8°10'00"W;
- E: Intersection of the meridian 8°10'00"W with the parallel 10°44'00"N. From point E to F following the parallel 10°44'00"N;
- F: Intersection of the parallel 10°44'00"N with the Ouassoulou-Balé river. From point F to G following the Ouassoulou-Balé river;
- G: Intersection of the Ouassoulou-Balé river with the parallel 10°37'47"N. From point G to H following the parallel 10°37'47"N; and
- H: Intersection of the parallel 10°38'00" N with the Mali-Guinea borderline. From point H to A following the Mali-Guinea borderline.

Snowden has not reviewed the land tenure situation in detail and has not independently verified the legal status or ownership of the properties or underlying option and/or joint venture agreements. Snowden understands, however, that a certified legal opinion has been provided by Lette, Lette and Partners based in Paris, France, and that no issues were raised during the formulation of this opinion.

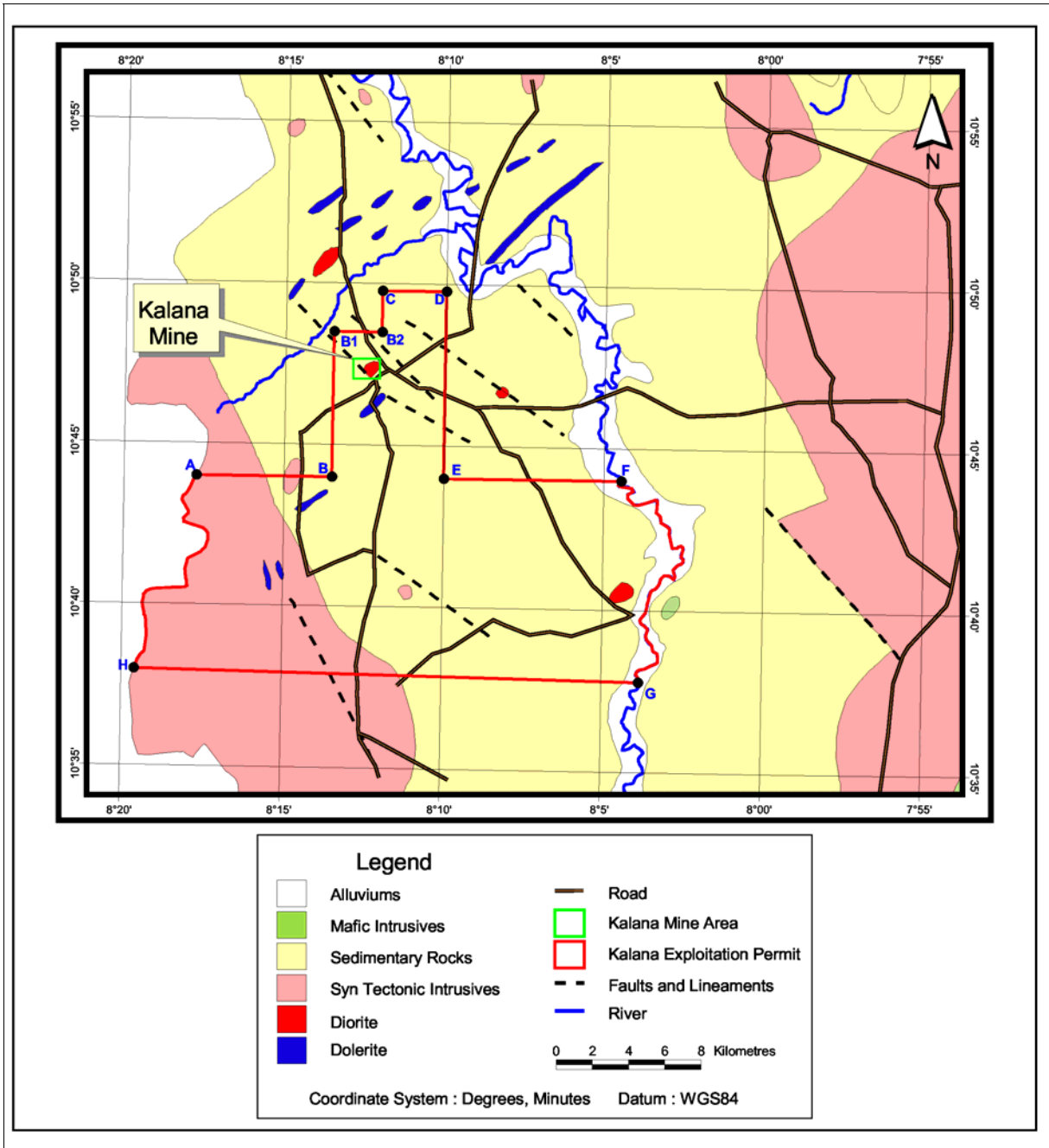


Figure 4.2 Geological map indicating the location of the Kalana Gold Mine.

The permit states the following general terms (Mali Government, 2003):

- The exploitation permit is for gold and silver within the permit perimeter;
- The exploitation permit is granted for a period of time of 30 years as from the date of signature of the present Decree;
- Avnel shall invest during the first three years of validity of the exploitation permit a total amount of \$1,335,000, corresponding to the exploration and development works on the perimeter of the permit, divided as follows:
 - o \$270,000 for the 1st year;
 - o \$365,000 for the 2nd year; and
 - o \$700,000 for the 3rd year.

- If, at the end of the three-year period, Avnel has not begun commercial production of the Kalana Deposit, Avnel Gold must deliver to the State an evaluation report highlighting the technical and economic factors that seemingly have prevented commercial exploitation;
- In such an event, the State shall negotiate with Avnel the terms for granting a research and prospecting permit in accordance with the provisions of the Mining Code;
- The Kalana Deposit defined in Annex I of the Foundation Agreement signed between the Government of the Republic of Mali and Avnel Gold shall be excluded from the area of such permit, the surface-area of which shall not exceed one-half of the present Mining Permit.

Avnel have indicated to Snowden that the expenditure on bringing the mine into production, feasibility studies and exploration work is in compliance with the investment conditions stipulated by the exploitation permit. Snowden notes that the Kalana Gold Mine is operating and observed that gold is being produced during the site visit in July 2004, this is well within the three year period dictated by the exploitation permit.

The Kalana Gold Mine consists of an underground mining operation, an associated gravity processing plant and infrastructure adjacent to the village of Kalana in South West Mali. The Kalana Gold Mine occurs in the northern part of the Kalana concession and covers a surface area of 2 km² of the 387.4 km² concession (Figure 4.2).

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Kalana Gold Mine is a year round operation that is serviced from Bamako via a sealed highway for about 160 km and the rest by a dirt road to Kalana. Bamako has an international airport with daily flights to many other West African and European destinations.

The climate is sub-tropical with rainfall mostly in the period June through to September. The topography is undulating at an average elevation of 390 metres above mean sea level with approximately a 40 m range in elevation around the mine.

The Kalana Gold Mine is located within 1 km of the village of Kalana, in the Sikasso District.

Water for mining and process operations is available from underground sources. Excess water from the underground operations is discharged into a perennial stream and will be used for local agricultural activity.

Power is provided from the national electricity grid. The capacity of the power line is 5 MVA and the Kalana Gold Mine operation currently averages 1.2 MVA demand.

The mine currently discharges tailings into an existing facility. The wall of tailings dam was raised in 2003. Figure 5.1 is a plan showing the layout of the surface infrastructure of the Kalana Gold Mine.

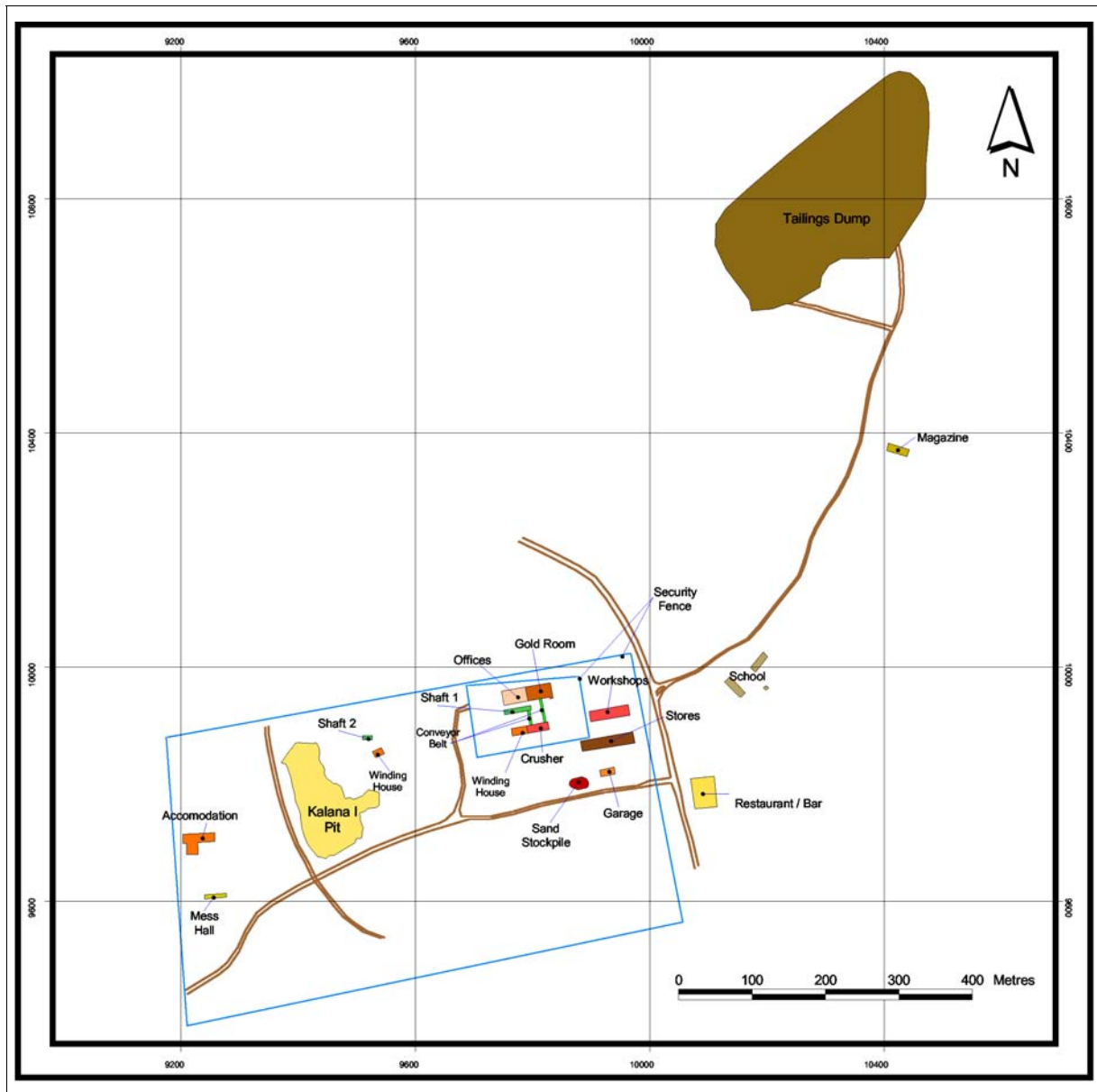


Figure 5.1 Kalana Gold Mine surface infrastructure (local mine grid).

6 HISTORY

The Kalana exploitation permit and in particular the Kalana gold deposit was subject to intensive exploration in the period 1967 to 1982 by two Malian National companies, Société Nationale de Recherche et d'Exploitation Minière ("SONAREM") and Société de Gestion des Mines d'Or de Kalana ("SOGEMORK"), as part of a Soviet Technical Assistance Programme to Mali.

A decision was taken in 1982 to develop the Kalana Gold Mine as a small underground mine using a recovery process based on crushing, milling and gravity concentration. Production commenced in 1985 and a total of 227,000 tonnes of ore was treated at an average head grade of 13 g/t to produce 81,000 ounces of gold by August 1991. The technical and financial resources were withdrawn in 1991 from the Kalana Gold Mine with the break-up of the former Soviet Union. This resulted in operations being stopped and the mine placed on care and maintenance.

The mining and exploration permit for the Kalana exploitation permit was originally granted to SOGEMORK in 1984 and reverted to the State following the dissolution of SOGEMORK in February 1992.

In 1994 the Malian Government embarked on a privatisation programme with the assistance of the World Bank. As part of that programme the Malian Government launched an international call for tenders for the Kalana exploitation permit. The invitation to tender stipulated that the main aims were the re-starting of the existing gold mining operation at the Kalana Gold Mine and the exploration for further resources within the Kalana exploitation permit boundaries.

In February 1995 a joint venture of Ashanti Gold Fields Co. Ltd. ("Ashanti") and Johannesburg Consolidated Investments Ltd. ("JCI") were awarded the Kalana exploitation permit and therefore the right to acquire an 80% interest in the Kalana exploitation permit with the Government of Mali holding the remaining 20% free carried interest. Ashanti was to be the operator of the Kalana exploitation permit. JCI withdrew from its joint venture with Ashanti in 1996 and in 1997 Ashanti mandated Rothschild Natural Resources LLC (Washington DC) to seek a suitable mining company to develop, operate and acquire a majority interest in the Kalana exploitation permit.

In May 1997 Nelson Gold Corporation Ltd. ("Nelson Gold") reached agreement with Ashanti subject to approval of the Malian Government. Following that agreement Nelson Gold conducted a Feasibility Study on the Kalana Gold Mine.

On 15 April 1999 the Minister of Mines of the Republic of Mali notified Ashanti that the Government had terminated its right to the Kalana exploitation permit as the joint venture had failed to meet its contractual commitment to put the Kalana Gold Mine into production within the prescribed three-year term.

The Malian government re-issued international tenders in July 1999, and again in October 2001. Nelson Gold submitted a tender in July 1999, but was unsuccessful. However, the successful company did not meet its initial financial commitments, as a result of which the tender was cancelled.

In July 2000 Nelson Gold disposed of its gold assets due to the acquisition of hydrocarbon assets in Kazakhstan. Elliot Associates acquired Nelson Gold's intellectual property of the Kalana Gold Mine. This consisted of the various feasibility studies undertaken by Nelson Gold. In 2001 Elliot Associates formed Avnel Gold Limited, specifically to tender for the Kalana Gold Mine.

Avnel tendered in the October 2001 invitation. It ranked highest in its technical bid, but was the second highest financial bidder and accordingly was not awarded the tender. When the company that was successful failed to meet its commitments the Malian Government offered Avnel the right

to acquire the Kalana exploitation permit and the tender was formally awarded to Avnel on 23 December 2002.

The necessary legal agreements were concluded in the early part of 2003 and the Kalana exploitation permit awarded to Avnel on 7 April 2003. On 23 July 2003 Société d'Exploitation des Mines d'Or de Kalana ("SOMIKA-SA") was incorporated as an 80% subsidiary of Avnel with the Government of Mali holding a free carried 20% interest. Subsequent to the Foundation Agreement Avnel transferred the permit to SOMIKA-SA and the transfer was confirmed by the decree of the Malian Parliament in mid 2004.

The Kalana exploitation permit confers the right to exploit and explore for gold and silver for a period of 30 years and is renewable thereafter for the life of any mine on the exploitation permit area. The exploitation permit decrees that the company shall invest a total amount of US\$1,335,000 on exploration during the first three years of validity of the exploitation permit.

6.1 PREVIOUS EXPLORATION

The region has a long history of gold extraction with artisanal miners exploiting the alluvial placers. The first report of gold at Kalana was in 1931 by a geologist conducting regional exploration when a high grade quartz-gold vein was found in an artisanal working (Ashanti, 1996).

6.2 1963 TO 1991

Initial work on the exploration of the Kalana area was carried out by SONAREM and SOGEMORK between 1967 and 1982, in this period 815 diamond drill holes (totalling 81,524 metres) were drilled.

In a second phase of drilling between 1989 and 1991 a further 56 holes (totalling 16,000 metres) were drilled by SOGEMORK to test the deeper parts of the Kalana Gold Mine.

The result of the exploration drilling was a final drill spacing of approximately 50 m by 50 m. Sampling of core was generally only where high gold grades were apparent, i.e. the quartz veins. The metasediments adjacent to the quartz veins were poorly sampled.

Borehole information was interpreted by SOGEMORK on northeast-southwest sections that are spaced at intervals of between 45 m and 50 m. In addition there are longitudinal sections aligned northwest-southeast at intervals of approximately 60 m. The SOGEMORK exploration staff interpreted lithologies, structure and the mineralised features, such as quartz veins and areas of stockwork, on these sections in great detail.

6.3 1995 TO 1996

Ashanti and JCI formed a joint venture in 1995 to evaluate the Kalana Gold Mine and conduct regional exploration in the Kalana concession area. The joint venture undertook regional exploration, surface exploration for near surface mineralisation and underground mapping and sampling between 1995 and 1996 in two phases of work.

6.3.1 First phase

Initial work by Ashanti-JCI concentrated on an area encompassing the mine complex and the Kalana I open pit workings to the west of No 2 Shaft. This exploration was aimed at assessing the oxide and supergene gold potential within the lateritic weathering profile, above the bedrock

mineralisation and underground workings, with a view to possible bulk mineable open pit operations.

Reverse circulation percussion (“RC”) drilling was carried out on a 100 m by 100 m grid. In addition two diamond drill holes were drilled to compare the geology, and to evaluate the potential of the SOGEMORK interpretations and assay results. Although the collars of the diamond drill holes were not exactly in the same position, these holes in general confirmed the correlation and continuity of mineralised zones and the repeatability of the quartz veins. Snowden acknowledges that the correlation of some of the vein systems may be difficult.

The results of the drilling programme were reported as disappointing and it was decided to complete a surface geochemical survey in order to establish geochemical trends and dispersions. The geochemical survey was carried out by digging pits to a depth of between four metres and eight metres deep.

6.3.2 Second phase

A second phase of drilling was undertaken to examine the potential of the area 600 m to the east of No 1 Shaft (called Kalana II) by RC drilling and a north-south deformation corridor by diamond drilling. The north-south deformation corridor had been previously observed by Ashanti-JCI in the underground workings.

Between August and November 1995, detailed geological and structural mapping, plus sampling of the underground development was completed. A total of 200 channels were sampled, plus an additional 41 samples for metallurgical testing were taken from underground. The sampling made up a total of 1,773 individual samples. Systematic sampling was carried out by taking chips along horizontal channels, mineralised structures such as quartz veins were cut orthogonally. In a second phase of sampling, 319 samples were taken from vertical channels that had indicated gold mineralisation of 1 g/t Au, or greater. Duplicates of vein material were also taken (110 samples).

A total of 50 m diamond drill core was drilled in two underground holes to test the north-south deformation corridor and the metamorphic aureole around the diorite stock. The programme was halted due to poor progress and core recovery.

6.3.3 Results of Ashanti-JCI exploration

Ashanti-JCI concluded that there is a strongly leached zone down to the upper saprolite and that there are no indications for substantial oxide mineralisation. As the results of the exploration programme did not meet with the Ashanti-JCI expectations for a bulk mineable open pit, the programme was stopped in 1996.

6.4 PREVIOUS MINING PRODUCTION

6.4.1 Sogemork

SOGEMORK undertook mining operations from 1985 to 1991 of the quartz veins in two areas at the Kalana Gold Mine. These are the Kalana underground workings, and the Kalana I open pit working.

Underground

The flat dipping quartz veins were mined via two shafts that reach depths of 108 m and 103 m below surface and access the 290 Level. Approximately 2 km of development headings were developed on the 290 Level exposing a number of veins, namely veins '1', '3', '14' and '15', as well as a stockwork zone. Vein 1 has been mined along strike from the No 2 Shaft at the 315 m elevation. The majority of the ore was extracted from Vein '1' and the '1c' and '1d' quartz vein splays between the 290 m RL and 315 m RL levels.

Kalana I open pit

Gold ore was initially extracted in the Kalana I open pit area via a 20 m deep shaft with 80 m of lateral development along Vein 1 (Ashanti 1996). This mining method was later changed to an open pit that measured approximately 100 m by 50 m and 5 m deep. Approximately 10,000 tonnes of ore was extracted from this pit (Snowden 2004).

Total production

A total of 227,000 tonnes of ore at a grade of approximately 13 g/t Au were mined by SOGEMORK between 1985 and 1991 to produce 81,800 ounces of gold at a recovery of 86%.

6.5 MINING PRODUCTION BY SOMIKA-SA

Mining operations were resumed by SOMIKA-SA in January 2004. From January to end December 2004 a total of 35,063 tonnes of ore at an average grade of 9.9 g/t Au has been milled. From January to April ore has been taken mainly from the mining of sweepings (material left behind by the SOGEMORK mining operation) and removal of pillars. From May 2004 stope faces were established on Vein 3 and a winze was driven below the 290 Level along Vein 1 in order to develop additional mining faces. Stope production from Vein1 commenced in July when the winze holed into the 265 level. The expected increase in head grade was seen from July as the higher grade Vein 1 ore production started. In October there was a rock fall in the Vein 1 raise and stope production was stopped until a new raise was developed to access the stope faces in Vein 1. Mining was limited to the lower grade stopes in Vein 3 and lower grade ore development. Ore production from Vein 1 stopes re-commenced in late December.

During this period the mine reclaimed 4,606 tonnes of coarse sand from the stockpile. The grade of the coarse sand was 4.7 g/t and the estimated gold recovery was 50%.

Gold recovery has steadily increased to 81% in October. The increase in recovery is attributable to modifications in the plant circuit, improved operating experience and a higher head grade. The tails grade has decreased from 3.5 g/t in March to 2.0 g/t in the 4th quarter. Recovery in November and December was lower due to the re-processing of coarse sands that are estimated to have achieved a recovery of approximately 50%.

SOMIKA-SA is intending to build up production to 5,000 tonnes of ore per month by the second half of 2006.

Table 6.1 shows the monthly production since SOMIKA-SA resumed mine operations in January 2004.

Table 6.1 Kalana Gold Mine Production for 2004				
Month	Tonnes milled	Head grade (g/t)	Recovered Gold metal (oz)	Recovery (%)
January	1,885	11.1	521	77
February	2,368	7.1	369	69
March	3,066	8.7	516	60
April	2,978	10.2	655	67
May	3,256	8.7	523	58
June	2,911	9.4	594	67
Sub-total	16,464	9.1	3,178	65
Production subsequent to resource and reserve statements – June 2004				
July	2,237	13.2	671	71
August	2,737	14.2	943	75
September	2,989	12.6	882	73
October	2,848	10.5	783	81
November	4,224	5.5	454	63
December	4,168	5.8	485	62
Sub-total	19,203	9.5	4,218	70
Total for 2004	35,667	9.4	7,396	69

Note: that 4,604 t at a grade 4.7 g/t Au of coarse sand was milled during late October, November and December, thereby reducing the grade and recovery for these months.

6.6 KALANA II

Kalana II lies 600 m to the east of the underground mine and consists of stockwork mineralisation related to the eastern lobe of the diorite stock. Mining has occurred at Kalana II as evidenced by a shallow 100 m by 150 m open pit. No documentation of this mining was observed by Snowden and it is possible that artisanal mining was responsible for the workings.

6.7 MINING RECONCILIATION

It has been reported that the production reconciliation during the SOGEMORK period of mining from 1982 to 1991 was “positive”, in other words more gold was recovered than predicted from the underground operation (Clark 1996). Snowden completed a reconciliation of predicted gold production (from the resource estimate) versus the estimated actual gold production for the period 1982 to 1991. This reconciliation indicates that approximately 30% more gold was produced than was predicted (Snowden 2004).

Snowden is of the opinion that more gold will be recovered during mining than is predicted by the resource estimates. This is because gold that occurs within the metasediments adjacent to the quartz veins was not always included during the sampling of diamond drill core by SONAREM and SOGEMORK. Additional minor quartz vein splays have been observed underground that also provide additional gold to that predicted.

6.8 PLANT RECOVERY

SOMIKA-SA stated that SOGEMORK reported a gold recovery of 86% from their process plant. The remaining 14% gold will have reported to the tailings dam. SOMIKA-SA reports that the

current Kalana Gold Mine processing plant has an average gold recovery of 69%, however, SOGEMORK had a small cyanide circuit that ran for an unknown time period and this may have resulted in the better recovery than the current plant. The gold that is not recovered by the process plant is contained within sulphides, or is too fine to be recovered by the gravity separation plant.

6.8.1 Tailings

SOGEMORK do not appear to have separated sand from tailings material and sent all the reject material to the tailings dam.

6.8.2 Sand stockpiles

SOMIKA-SA has a different process plant flow sheet and have stock-piled the tailings material and sands separately. Two sand stockpiles have been accumulated. The mine currently has two coarse tailings dumps from production during the current year: a small, low grade dump and one larger, high grade dump. Kalana will continue to re-process these dumps during 2005, when a shortfall of underground production is expected due to a shaft deepening programme and ore reserve development.

6.8.3 Sampling of tailings and sand stockpiles

The tailings material that has been stock-piled is a resource for when a Carbon in Leach ('CIL') circuit is added to the plant. In May, 2004, a sampling programme was completed on the tailings dam and the two recent sand stockpiles. The sampling was performed by using an auger and taking 1 m vertical samples on a grid of 10 m by 10 m. The tonnage of the tailings dam has been estimated from the historical production records with the addition of the tailings from ore milled in the period January to June 2004. No survey measure of the tailings dam is possible as there is no survey record of the original topographic base for the dam. The volume of the sand stockpiles was surveyed and the tonnage estimated by the Kalana surveyor.

6.9 PREVIOUS RESOURCE ESTIMATES

SOGEMORK estimated the tonnage of the underground resources using polygonal interpretation within a horizontal projection of each vein based on the diamond drillhole information. The areal extent of the resource blocks was defined by using a cut-off of 7.0 metre-grams, equivalent to 3.5 g/t Au over a 2 m thickness. This method has been used by subsequent workers. A resource estimate was completed at the start of mining in 1985 and at the cessation of mining in 1991 by SOGEMORK.

In August 1996, Glen Clark, (Clark, 1996) reviewed the resource estimate and reserve conversion on behalf of Ashanti-JCI. Clark applied a minimum mining stope height to the SOGEMORK resources to estimate an Ore Reserve for the underground quartz veins (Clark 1996).

In September 1996 a team of experts from Geoconsult Limited reviewed the resources and reserves at Kalana Gold Mine. The experts included the former SOGEMORK chief geologist. Geoconsult reported that the original interpretation of the veins by SOGEMORK was valid despite minor differences between the Ashanti-JCI and SOGEMORK twinned drill holes. Geoconsult reported a resource that included underground and open-pit resources.

Table 6.2 summarises the historical resource and reserve estimates by SOGEMORK and subsequent workers. Note that these estimates are reported as total resources that may be inclusive of mineralisation that in terms of modern reporting standards (i.e. the JORC Code, 1999 and the CIM Standards, 2000) may classify as Inferred Resources and is tabulated for comparative purposes only.

A resource and reserve review was undertaken by Snowden in May 1997 for the Nelson Gold pre-feasibility study. Snowden concluded that the SOGEMORK geological interpretations are acceptable as providing a reliable framework for geological modelling and gold grade estimation. A Measured and Indicated resource of 2.8 Mt at a grade of 9.0 g/t Au, plus an Inferred Resource of 3.6 Mt at a grade of 4.0 g/t Au, was estimated for the underground and open-pit resources and classified according to the guidelines of the 1996 JORC Code. Table 6.3 summarises the Snowden (1997) resource estimate. The 1997 Snowden resource estimate forms the basis for the current (June 2004) resource estimate.

Table 6.2 Kalana Gold Mine Historical Resource and Reserve Estimates			
Company	Resource/Reserve	Tonnes	Au (g/t)
SOGEMORK, 1985 ¹	Underground Resource, above 150 m depth	1,737,000	15.1
SOGEMORK, 1991 ¹	Underground Resource, above 150 m depth	1,643,800	14.7
SOGEMORK, 1991 ¹	Underground Resource, 150 m to 350 m depth	1,513,000	13.6
Clark, 1997	Underground Reserve	2,200,000	9.9
Geoconsult, 1996	Total Resource	6,957,100	5.7

¹ Reported in Ashanti 1996.

Table 6.3 Kalana Gold Mine Resource – Snowden June 1997			
Category	Tonnes	Au (g/t)	Au (oz 000's)
Measured	115,050	20.8	77
Indicated	2,672,740	8.5	731
Tot Measured plus Indicated	2,787,790	9.0	808
Inferred	3,698,400	4.0	472

7 GEOLOGICAL SETTING

7.1 REGIONAL GEOLOGY

The Kalana Gold Mine lies along the western margin of the Bougouni basin toward the southern extremity of the Yanfolila-Kalana volcano-sedimentary belt. The Bougouni basin is a large sedimentary-rock domain, in south-western Mali, consisting of sedimentary rocks that were deposited in a broad sedimentary trough in Birimian time (2.2 Ga to 1.8 Ga). Volcanic rocks, primarily basalt, are found in small domains in the eastern and western parts of the basin, associated with faulting.

A large felsic intrusion, the Bougouni batholith, occupies the central part of the basin. Small intermediate intrusions, commonly diorite and granodiorite, are mainly found in the eastern part of the basin, as well as in the Kalana area.

The Bougouni basin is bounded by younger, Neo-Proterozoic age (545 Ma to 1,000 Ma), sedimentary rocks to the east and north that lie unconformably on the Birimian stratigraphies.

All the lithologies in the basin are cut by dolerite dykes that are dominated by easterly, north-easterly, and north-north-westerly trends. These dykes are not observed at Kalana Gold Mine.

Gold mineralisation in the southern portion of the Bougouni basin appears to be controlled by basin-margin-parallel faults that are generally oriented with north-westerly to northerly trends. The eastern Bougouni basin margin, in the Sikasso area, is controlled by northerly and north-westerly striking faults and is host to the multi-million ounce gold deposits at Morila and Syama within the 'Morila-Syama Gold Belt' (Figure 7.1) (SOMIKA-SA 2004).

7.2 GEOLOGY OF THE KALANA GOLD MINE

The Kalana gold deposit occurs within metamorphosed sedimentary rocks of the lower part of the Upper Birimian Group that are intruded by syn-tectonic granite and younger dioritic dykes and stocks. The metasediments consist of turbidite sandstone sequences with siltstone intercalations. The sandstone that makes up approximately 90% of the metasediments is fairly massive and medium grained. The siltstone is finely laminated and is locally graphitic.

The mine is situated on the western limb of a regional syncline with steeply north plunging folds. A diorite stock that has been traced to a depth of 600 m intrudes the Birimian rocks and has itself been cut by a series of northeast to southwest trending faults. The intrusion is approximately 180 m by 250 m in size and is surrounded by a contact metamorphic aureole, up to 30 m wide.

The Kalana rocks are reported to have been tightly folded about a steep axial plane and strike north-south with a dip to the east at between 70° and 80° (Ashanti 1996). Although evidence of folding has been reported from diamond drill core by Ashanti no major folding was observed in the underground exposures visited by Snowden.

Steep reverse faults are considered responsible for the tensional, *en-echelon*, stacked veins that host the mineralisation at the mine (Snowden, 1997). Minor reverse faults and shears are probably responsible for the 'pinch and swell' nature of the mineralised quartz veins.

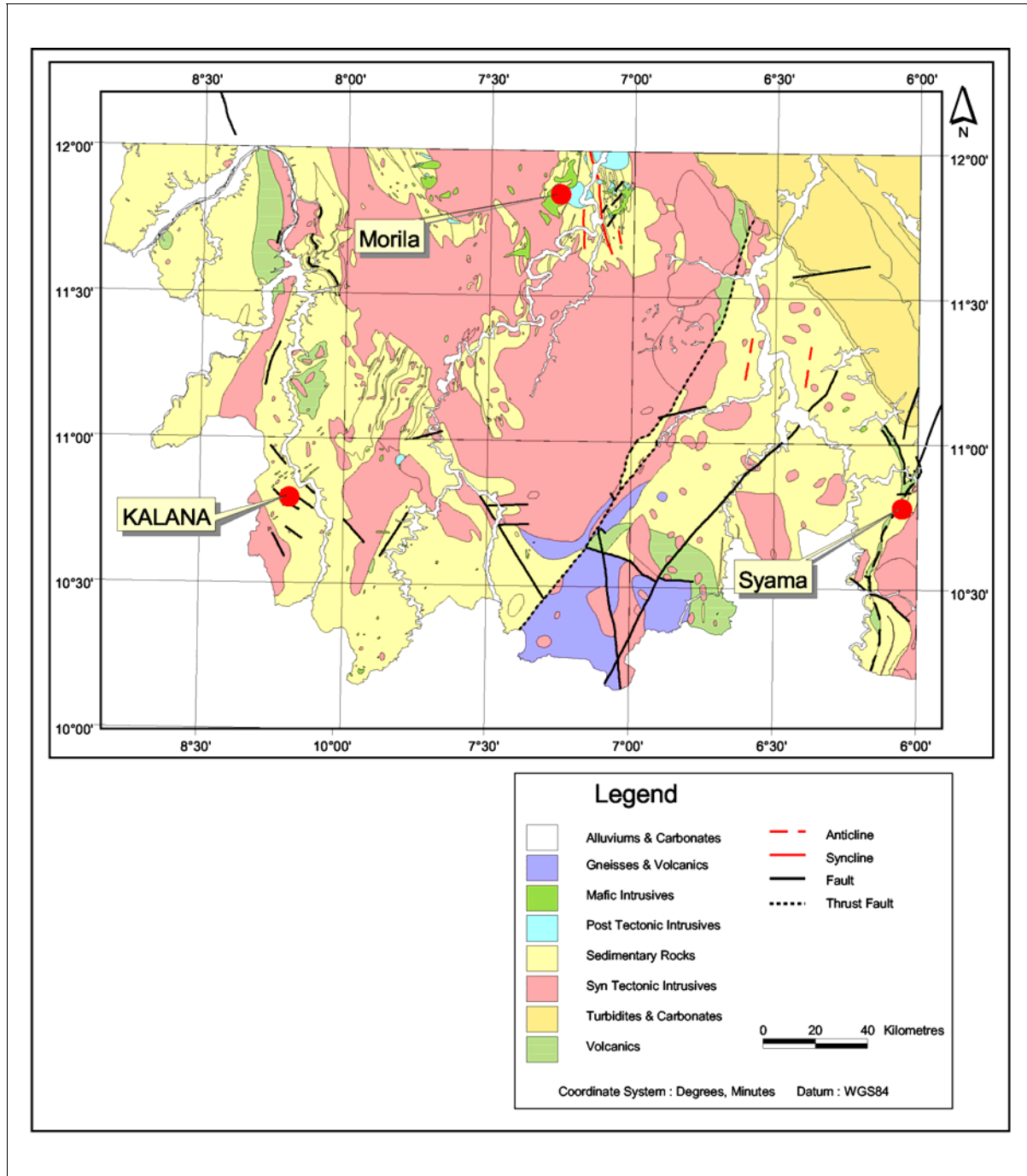


Figure 7.1 Geological map of the Bougouni Basin.

The mine area is entirely covered by an extensive lateritic profile characteristic of the Guinea Savannah climatic zone and the depth of weathering ranges from 30 m to 130 m. This makes traditional mapping of the geology difficult. Geophysical, geochemical and drilling techniques are required to aid in the definition of the bedrock geology.

8 DEPOSIT TYPES

The Kalana Gold Mine mineralisation consists of gold contained within hydro-thermally emplaced quartz veins and stockworks that have been transgressively emplaced into the Birimian age metasediments, centred on a diorite stock.

9 MINERALISATION

The Kalana gold mineralisation occurs within a stacked set of quartz veins and stockworks that have been transgressively emplaced into the Birimian age metasediments, centred on a diorite stock and trend northwest-southeast. The quartz veins occupy openings in both the sediments and the diorite stock. The mineralised vein system extends over an area of about 600 m East by 700 m North and current exploration information shows it to be restricted to a block bound by northwest and northeast trending faults. The area has been transected by a series of northwest-southeast trending fractures. Mineralisation has been identified by diamond drilling from surface down to a depth of 600 m (the limit of the diamond drilling).

The Kalana Gold Mine contains at least 26 mineralised bodies that have been divided into four main ore-body types:

1. Flat dipping (an average dip of less than 25°) quartz veins and vein sets in the metasediments and diorite stock;
2. Steep dipping quartz veins and vein zones;
3. Disseminated ores; and
4. Stockwork mineralisation at the contact of the diorite.

9.1 FLAT DIPPING VEINS

The mineralised flat dipping quartz veins account for approximately 80% of the Mineral Resource at Kalana. Generally these veins are controlled within a system of sub-parallel *en-echelon* fractures that dip predominantly to the north-northeast (Figure 9.2). These quartz veins pinch and swell significantly, probably as a result of tensional features associated with shear zones and rock competency contrasts. The average vein thicknesses range from 0.1 m to more than 3.0 m. Many of the veins subdivide and the connectivity between borehole intersections is not always obvious.

The majority of the gold in the quartz veins is present as coarse, nuggety free gold with the gold occurring as grains and small nuggets (Snowden, 1997). Fine grained gold is also associated with sulphides in the quartz veins, as well as in the metasedimentary and diorite wall rocks immediately adjacent to the quartz veins.

The quartz veins form obvious marker horizons that are easily identified either in diamond drill core, or in underground exposures. However, the footwall and hangingwall of the mining horizon is based on an assayed grade cut-off that is not obvious to the eye underground and not defined by the edge of the vein. Snowden observed the results of underground face sampling that indicated good mineralisation in the footwall and hangingwall of the quartz veins.

Vein 1 is the largest example of the flat dipping veins and is typical of this style. This vein was observed underground by Snowden during the site visit.

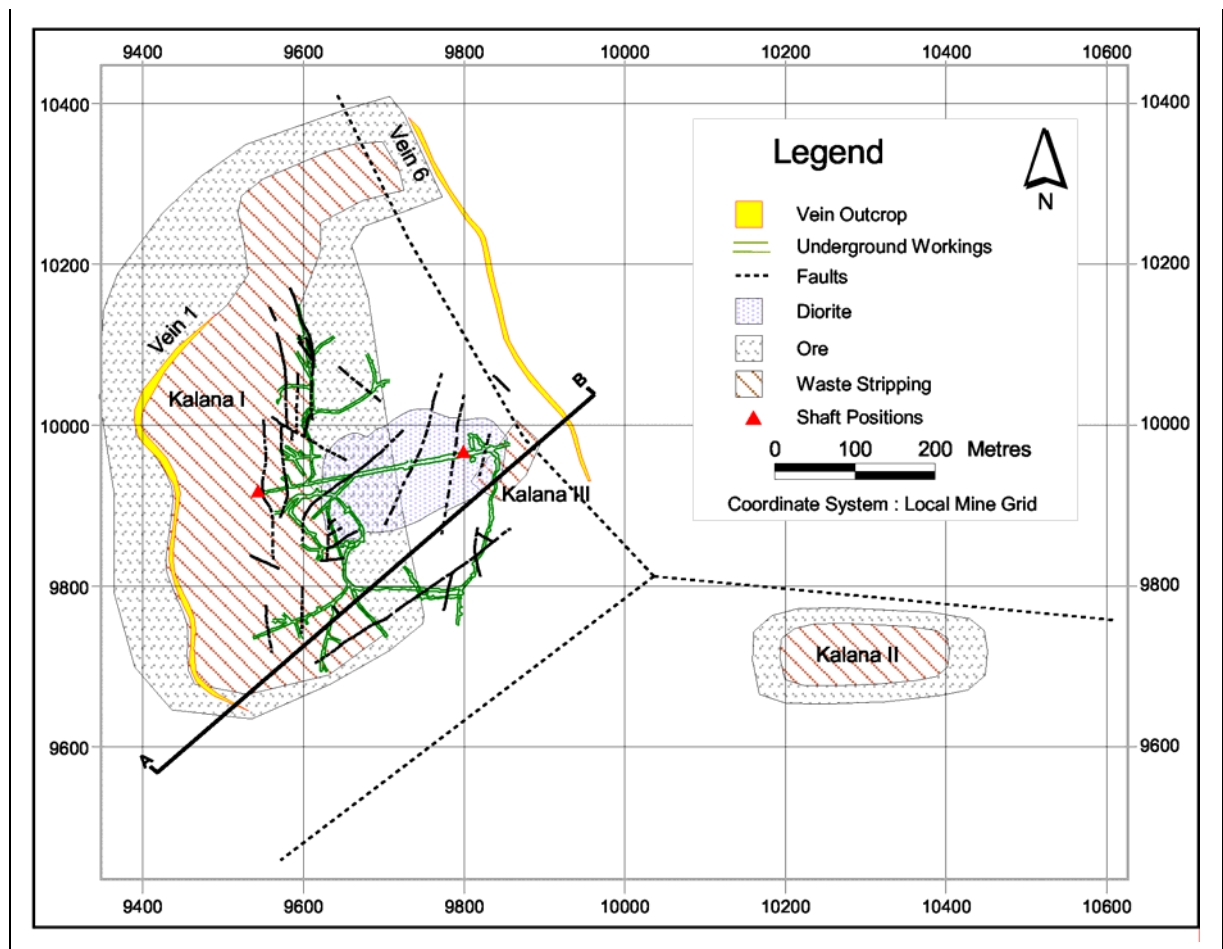


Figure 9.1 Plan of the Kalana Gold Mine.

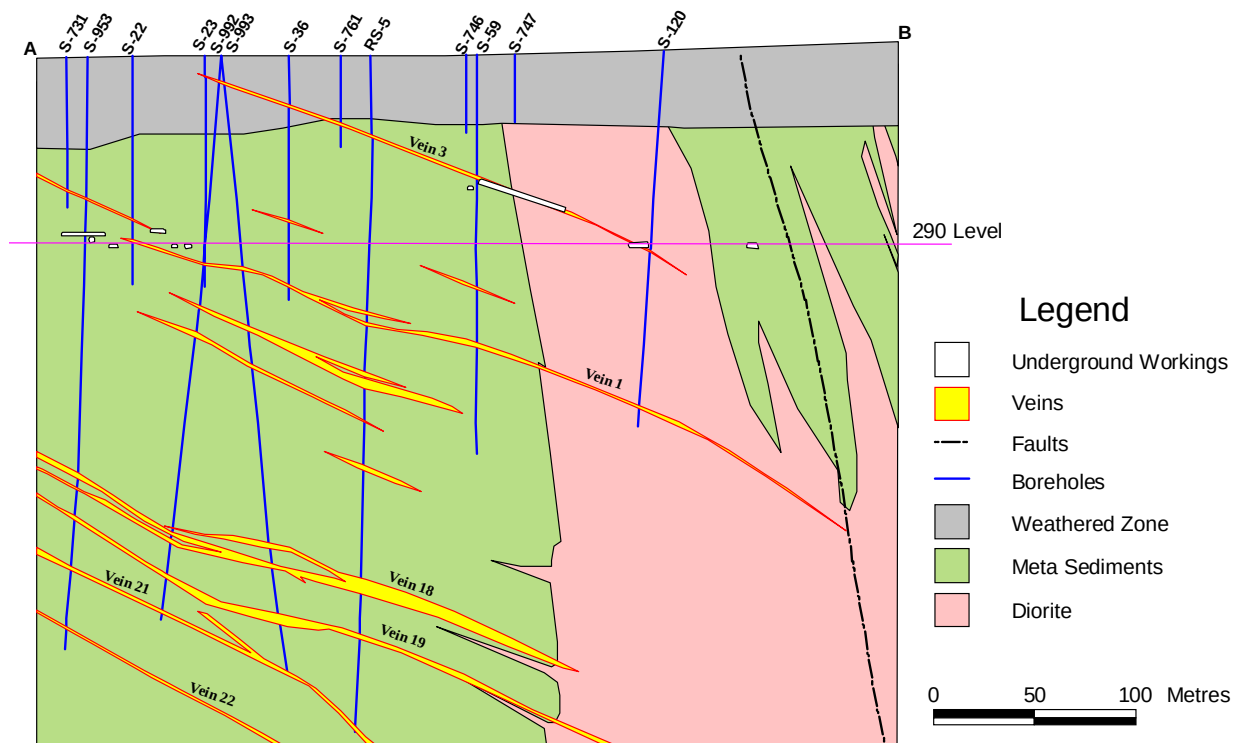


Figure 9.2 Vertical cross-section through the Kalana Gold Mine, along line A-B (Figure 9.1).

9.2 STEEP DIPPING VEINS

The steep dipping veins appear to be related to the main northwest-southeast shear direction. Snowden notes that they are not significant hosts of gold mineralisation, although grades as high as 12 g/t Au over 0.5 m have been intersected, and are not included in the resource. Vein 6 (Figure 9.1) has a dip of 65° to the north-east and is an example of this type of vein.

9.3 DISSEMINATED MINERALISATION

A zone of disseminated gold mineralisation is located to the west and north-west of the diorite stock in the central and northern side of the main Kalana deposit. This zone is related to steeply dipping faults and shears. This type of gold mineralisation is low grade (1 g/t Au) and does not form part of the Kalana Gold Mine resource.

9.4 STOCKWORK MINERALISATION

The best developed stockwork mineralised zones are developed at the contact of the flat vein systems and sediments with the diorite. The stockwork mineralisation accounts for 20% of the resource tonnage and consists of a zone of thin branching veins that cannot be mined individually. The stockwork zones are lower grade (3 to 5 g/t Au) than the flat dipping quartz veins and due to the lower grade are probably less suited to underground mining than an open pit.

10 EXPLORATION

No exploration work has been conducted by SOMIKA-SA within the Kalana Gold Mine area, although SOMIKA-SA are conducting exploration within the Kalana exploitation permit area that is the subject of a separate technical report. Exploration programs conducted prior to the SOMIKA-SA efforts are described in Section 6.

11 DRILLING

Geological data consists of information derived from exploration programs conducted by SOGEMORK and Ashanti/JCI and consists of diamond drilling, reverse circulation percussion drilling ('RC') and underground channel face sampling.

The majority of the diamond drilling was vertical and hence the majority of the sample lengths are vertical and not the true width of the quartz veins. The flat dipping quartz veins dip at less than 25° and the true widths of the mineralised quartz veins will be approximately 10% less than the vertical widths.

SOMIKA-SA has not conducted any exploration drilling within the Kalana Gold Mine area.

12 SAMPLING METHOD AND APPROACH

No information is available related to the sampling methods used for the diamond drilling core or reverse circulation percussion drilling by SOGEMORK or Ashanti/JCI.

Core recovery is documented in the drillhole logs and it was noted that core recovery was quite variable, particularly in the ore zone. This is not surprising given the fractured nature of the mineralised zones and the brittle nature of the quartz veins. The loss of core in the mineralised zone is considered to result in gold being lost during the coring rather than gold being concentrated in the recovered core. It is not uncommon for drilling by diamond drill to under-report gold mineralisation due to core loss. While the evidence for low core recovery may indicate a problem, it is not considered to be a serious flaw in the resource estimation (Snowden, 1997).

SOMIKA-SA conduct face chip sampling on the working faces. The face samples are taken by chipping samples in a 30 cm wide channel perpendicular to the dip of the quartz vein at 10 m intervals and restricted to one lithological type per sample. Samples are taken with a maximum length of 0.5 m, so if the quartz vein is thicker than 0.5 m more than one sample is taken. Samples are also taken in the hangingwall and footwall, from the quartz vein up to the limit of the hangingwall and down to the footwall base of the stope.

Intervals for sampling were selected according to lithology with only selected parts of the core outside the quartz veins (with apparent high gold grades) being sampled for assay by SOGEMORK. Sample lengths varied from 0.1 m where visible gold was observed up to 2 m. In some instances two sides of the core were sampled and the results averaged (Snowden, 1997). No core was available on site for inspection by Snowden.

A list of the sample composites used in the resource estimation are listed in Appendix A, note that the widths are the intersection widths and have not been corrected for true width.

13 SAMPLE PREPARATION, ANALYSES AND SECURITY

Underground face samples are analysed by an on-site laboratory that is sub-contracted to SGS Analabs. The laboratory is not certified, but uses analytical and quality control procedures as prescribed by SGS Analabs. Samples are fire assayed for gold using a 50 g sub-sample and the gold content is determined by dissolving the fire assay bead in a mixture of acids and measuring the gold content by using an atomic absorption spectrometer.

Diamond drilling information from the SOGEMORK drilling programmes (1967 to 1982 and 1989 to 1991) totalling approximately 97,000 m is available in the original hand-written logs and is presented on sections and plans (Snowden, 1997). The logging has been done in detail. No information regarding the sample preparation, analysis and security of the SOGEMORK diamond drilling was available for review. Snowden is also unaware of any independent checks of assays that were carried out on the SOGEMORK exploration data. No diamond drill core is available at Kalana for comparison with the drillhole logs.

The diamond drilling information is used in the resource estimation of the underground and the Kalana I and III open pits.

A total of 4,054 m of RC drilling in 52 drill holes was completed by Ashanti-JCI on the Kalana I and II open pit areas. The RC information was used to estimate the resource for the Kalana II open pit area by Snowden (1997).

Snowden considers that the sampling, sample preparation and data collection by SOGEMORK has been carried out in an acceptable and systematic manner. Due to insufficient documentation Snowden cannot comment on the sampling and sample preparation carried out by Ashanti/JCI.

14 DATA VERIFICATION

Snowden reviewed the underground face sampling at Kalana and has concluded that the method is acceptable for mine planning and estimation of Measured Resources. The face sampling database appears to be well maintained and will prove useful in the future for grade control, production reconciliation and top-cut determination.

Snowden performed a high level review of the on-site laboratory and did not find any fatal flaws in the analytical procedures. The laboratory has procedures for checking for contamination, accuracy and precision of the analytical process. Contamination is checked by introducing one blank sample per day into the sample stream. Accuracy is controlled by performing a duplicate analysis at a ratio of 1:5, i.e. one duplicate sample per five original samples. The precision of the analytical technique is checked by the insertion of a Certified Reference Material (Rocklabs OXH19) at a ratio of 1:5. The QC data is monitored on control charts and if contamination, accuracy or precision deviations are noted the batch is re-assayed.

Snowden notes that the Kalana Gold Mine does not monitor the laboratory for contamination, accuracy or precision and recommends that Kalana Gold Mine staff carry out ongoing independent quality control on the assaying completed at the laboratory to ensure that any assays errors are corrected timeously.

SOGEMORK checked assay results by submitting samples to a Russian laboratory and by re-assaying the core (Clark, 1996). Snowden is unaware of any independent checks of assays that were carried out on the exploration data in the way of quality assurances by Ashanti/JCI. Snowden was not able to verify any of the SOGEMORK or Ashanti assay results as no core or RC drill chips were available at Kalana for Snowden to inspect and re-assay. It is likely that the core and RC drill chips were destroyed.

15 ADJACENT PROPERTIES

There are no commercial mining activities on adjacent properties.

16 MINERAL PROCESSING AND METALLURGICAL TESTING

In mid 1997, various samples were subjected to test work at South West Metallurgical Services in Cornwall. Underground samples were reportedly from three ore types – “stockwork”, “quartz vein” and “wall rock”. Gravity recovery at various grind sizes was investigated. Stockwork gave gold recoveries in the region of 30% to 40%, quartz vein 80% to 90% (at very high head grade) and wall rock 25% to 40%, with varying recovery vs. grind relationships. Cyanidation of the gravity tails showed the material to be easily leached.

Various studies were performed for the development of Kalana, culminating in the current operation. The current plant consists of crushing, single stage milling, 2-stage classification with gravity gold recovery. A 70 tonne feed bin for the crusher and another one for the mill provide feed capacity for the plant. Two tailings streams are produced – coarse sand which is stockpiled at the plant and fine slimes which is pumped to the tailings dam. Some of the plant equipment (jaw crusher and mill) are refurbished units from the original Russian operation.

Information received from the mine indicates that the plant recovery is steadily increasing, with improved operation / optimisation and head grade. Recent plant recovery is reported to be 70-75% from a head grade of more than 13g/t and a feed rate of 5.1-5.5 tonnes per hour. Of these ‘losses’ to the tailings stream, a significant proportion is actually retained within the coarse sand stockpile rather than lost to the tailings dam. Based on these reports and SOMIKA-SA’s 10-year business plan (more than 14 g/t with the same ore type/ blend as treated in August 2004), Mineral Development Services (MDS, SOMIKA-SA’s metallurgical consultants) believes that the predicted recovery of 79% is achievable at current throughput levels.

The planned throughput (7.5 tonnes per hour) is higher than current levels. The initial testwork results, studies and data reported from the Russian and current operations indicate that the major equipment should be capable of handling the planned throughput and work is ongoing on site to prove this. With the planned capital expenditure (US\$ 969,000) MDS believes that a 79% recovery is achievable at the proposed throughput rate, although the optimal way to spend this capital is still to be finalised.

Various testwork programmes have also been undertaken to investigate potential recovery improvements through cyanidation and/or flotation of the current tailings streams– both of which have shown very positive results. Either of these technologies appear to offer substantial recovery improvements (greater than 90%) at the planned throughput.

Interpretation of the Russian operating results previously undertaken also indicates that an overall recovery greater than 80% was achieved with cyanidation of the gravity tails, albeit at a much lower throughput than the current plant.

The testwork undertaken also indicates that significant recovery may be achieved via cyanidation of the old Russian gravity tailings.

17 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

17.1 MINERAL RESOURCE

17.1.1 Mineral resource estimate

In July 2004 Snowden undertook a review of the Kalana resource estimate completed by Snowden in 1997. The resource tonnage was reduced by 1 million tonnes, as a result of removing fault loss zones and a resource block for a deep vein that had insufficient drill-hole information to warrant classification as a resource. However, an additional open-pit area of 95,000 tonnes was added to the resource (Kalana III). The defined resource for Kalana Gold Mine extends from surface down to 400 m below surface over an area of approximately 900 m by 1,000 m. The resource consists of underground, open pit and includes the tailings dam and sand stockpiles.

17.1.2 Geological interpretation – veins and stockwork

Borehole information is presented on northeast-southwest sections that are spaced at intervals of between 45 m and 50 m. In addition there are longitudinal sections aligned northwest-southeast at intervals of approximately 60 m. The staff of SOGEMORK interpreted lithologies, structure and the mineralised features on these sections in great detail. The mineralised features consist of quartz veins and areas of stockworks.

In 2004 SOMIKA-SA developed a 3-dimensional geological model of quartz veins 1, 18, 18A, 19, 19A and 20 using Lynx software. This work using all the captured drill-hole information, plus interpreted faulting, has generally confirmed the SOGEMORK interpretations.

Snowden performed random checks on anomalous borehole information (i.e. very high grades or thick intersections) on the sections and plans against the borehole logs and did not find any major discrepancies. The geological interpretation is also confirmed by the new 3-D model, the underground development and stoping. It is Snowden's opinion that the SOGEMORK geological interpretations are acceptable as providing a reliable framework for geological modelling and gold grade estimation. It is also Snowden's opinion that in general the gold mineralisation identified in stacked quartz veins is reasonably continuous and good connectivity is observed between drill intersections for the majority of the veins.

17.1.3 Underground

Resources have been estimated for 14 individual quartz veins and five areas of stockwork mineralisation from a depth of 50 m down to 400 m. Table 17.1 details the veins for which resources have been defined. No resource has been defined for the steep dipping vein, Vein 6, which occurs to the east of the No 1 Shaft.

Table 17.1		
Kalana Gold Mine resource blocks in flat dipping quartz veins		
Vein	Lowest Level RL (m)	Upper Level RL (m)
1	200	390
3	265	390
14	290	315
15	265	290
16	260	315
17	240	280
18	120	295
18a	140	240
19	130	270
19a	100	240
20	70	230
21	30	220
22	-200	170
23	-50	100

17.1.4 Open pit

Open pit resource block were delineated on material from surface down to a depth of 150 m. The underground resource blocks are delineated on material below the weathering surface that is approximately 150 m below the surface.

Kalana I

Resources have been estimated within three stages of mining at Kalana I pit. Resources within the first stage have been estimated to a depth of 50 m. This has no planned effect on the underground mining. Resources within the second stage have been estimated to a depth of 100 m, within a 100 m buffer of the No. 1 shaft, but which destroys the No. 2 shaft. This stage can only be carried out if a new ventilation shaft is located (to the south of the mine), or when underground mining is completed. Ore from stage 2 pit can be treated at the central plant. Resources within the stage 3 of Kalana I pit have been estimated to 150 m depth, which involves destroying all existing underground mining infrastructure and the central plant and buildings. Ore from this stage would have to be treated at another plant or by heap leaching.

Kalana II

The Kalana II open pit resource has been estimated within one stage of mining down to a depth of 50 m. The Kalana II mineralisation is lower grade (2.6 g/t Au) and may be more suitable for heap leaching than processing at the current gravity process plant.

Kalana III

The Kalana III open pit resource has been estimated within one stage of mining down to a depth of 50 m. The Kalana III occurs immediately to the southeast of the No. 1 shaft and will probably need to be mined in conjunction with the Kalana I stage 3 open pit.

17.1.5 Resource volume estimation

SOGEMORK estimated the tonnage of the underground and open pit resources using polygonal interpretation within a horizontal projection of each vein. No correction of the block area is made due to the dip of the vein. The areal extent of the resource blocks were defined by using a cut-off of 7.0 metre-grams, equivalent to a composite of 3.5 g/t Au over a 2 m thickness, using the drill hole information. This method has been used by subsequent workers (Clark, 1996 and Snowden, 1997).

In Snowden's opinion use of the horizontal projection, and not correcting for dip, for estimating the area will result in an under estimation of the tonnage by about 10% if a dip of 25° is assumed. No correction to resource tonnage has been subsequently made.

Resource blocks are delineated, for individual veins, on plans at a scale of 1:1,000. The plans cross-reference the northeast-southwest and northwest-southeast sections and display borehole information, structure, lithologies and interpreted veins. The vein intersection grades are displayed as composite value i.e. a length weighted average over a defined length. The information on the plans and sections (veins and resource blocks) are from the original interpretations carried out by SOGEMORK and reviewed by Snowden (1997).

During the review, changes were made to the following underground resource blocks by Snowden, in conjunction with SOMIKA-SA:

- Vein 18 1-C2, removed from underground resource and added to the open pit resource as it is shallow mineralisation within the Kalana I Stage 1 open pit;
- Vein 19 1-C2, fault loss zone removed and the block sub-divided into three blocks;
- Vein 19 1-C2(A), removed from underground resource and added to open pit resource as it is shallow mineralisation within the Kalana I Stage 2 open pit (Appendix A);
- Vein 19a 2-C2, fault zone removed with a reduction in area;
- Vein 22 P Deep, size reduced to an area with sufficient spatial information; and
- Vein 23 P Deep, removed from resource as Snowden considers that there is insufficient information to define the block.

The resource block for Vein 3 above Level 290 m has been defined by underground face mapping with the grades and thicknesses being derived from face sampling by SOMIKA-SA.

Whilst Snowden was working through the plans in the Kalana geology office, a series of sections were found that display borehole information and an open pit design for near surface mineralisation for veins '8', '9', '10' and '11' immediately east of No 1 Shaft. This additional resource was added to the resource and called the Kalana III open pit. This resource was not included by Snowden in the 1997 resource estimate, but has been included in the June 2004 resource. Due to the close proximity of the Kalana III open pit resource to the No 1 Shaft infrastructure, this resource is not likely to be mined before the closure of the shaft (Figure 9.1).

17.1.6 Stockwork resource blocks

Snowden in 1997 reported six resource blocks containing stockwork mineralisation, however, no plans were available of these resource blocks at Kalana for review. A plan of underground development indicating the position and results of vertical and horizontal channel sampling, plus the results of assays from one borehole was found in the Kalana geology office. This sampling was carried out by Ashanti/JCI in 1995. Using this plan Snowden was able to verify the sampling results against those tabulated in the Snowden (1997) document that were used to estimate the grade. Resource blocks were re-drawn around the sampled areas to confirm the size of the Snowden (1997) resource blocks. This plan has been left at the mine for future reference.

17.1.7 Comments on the interpretation of resource blocks

The resource blocks define areas that have a reasonable expectation of being economically extractable mineralisation and are an indication of potential mining blocks, rather than indicating the full extent of the quartz veins. Snowden considers that the resource block interpretations are reasonable, but do not allow for likely variations in resource shapes, extreme variations in thickness of veins, deviations of the vein zones due to sub-vertical faulting and the splitting of veins and mineralised structures. They are also based on vein thickness that varies from 0.2 m to more than 3.0 m. This may lead to some parts of the vein zones not being recoverable during mining. However, some additional gold mineralisation in small veins, not outlined by the resource blocks, may be recovered during mining. Only experience with mining up to the limits of the resource blocks will determine if the blocks are realistic.

17.1.8 Estimation of block grades

The grade of the resource blocks is estimated by calculating the length weighted average grades of the intersections (after top-cutting) for the vein within the block. A default density of 2.68 t/m³ is applied to the underground quartz veins and 2.2 t/m³ to the open pit veins. These densities are consistent with dominantly quartz mineral hosted lithologies and in Snowden's opinion are reasonable for this type of deposit.

17.1.9 Top-cutting

The cutting or capping of high assay values is sometimes necessary for positively skewed data prior to linear grade estimations to avoid excessive grade smearing. There is no universally accepted method of treating outlier values. Cutting of grades is generally based on experience and modified as more comparative information becomes available from production. Generally the high grade values are reduced to the chosen top-cut value.

SOGEMORK applied top-cuts to the resource estimations, but no consistent methodology appear to have been applied (Clark, 1996).

The work by Snowden in 1997 recommended the use of a 75 g/t Au top-cut over the composited quartz vein interval for the majority of the veins (as recommended by Ashanti/JCI) and a top-cut of 30 g/t Au be used for the veins that have accumulations below 10 metre-grams. Snowden concluded that it is likely that the top-cut for some of the higher grade zones should be higher than 75 g/t and for the lower grade veins should be lower than 75 g/t but that more data was required to confirm this.

Vein 20 2-C2 has one intersection from borehole S964 of 88.7 g/t Au that if used without cutting raises that block average to what appears to be an unrealistic value compared to the other intersections in the block. Previously this value was cut to 45.98 g/t Au by Clark and this value was used for the June 2004 resource estimate.

Grade cutting/capping is a contentious issue with no absolute rules. A method commonly used to calculate the cutting value is to cut high grades to a value below which 97.5% of the population lies. In this way the sample mean is lowered to a value more likely to represent the population average. Summary statistics on the Kalana borehole information (Figure 17.1) from the resource blocks indicates a 97.5% value for the population of 131.6 g/t Au (Figure 17.2). A top-cut value of 131 g/t Au was subsequently applied to those borehole intersections with values higher than 131 g/t. The top-cut was only applied to ten out of total of 26 flat dipping quartz vein resource blocks.

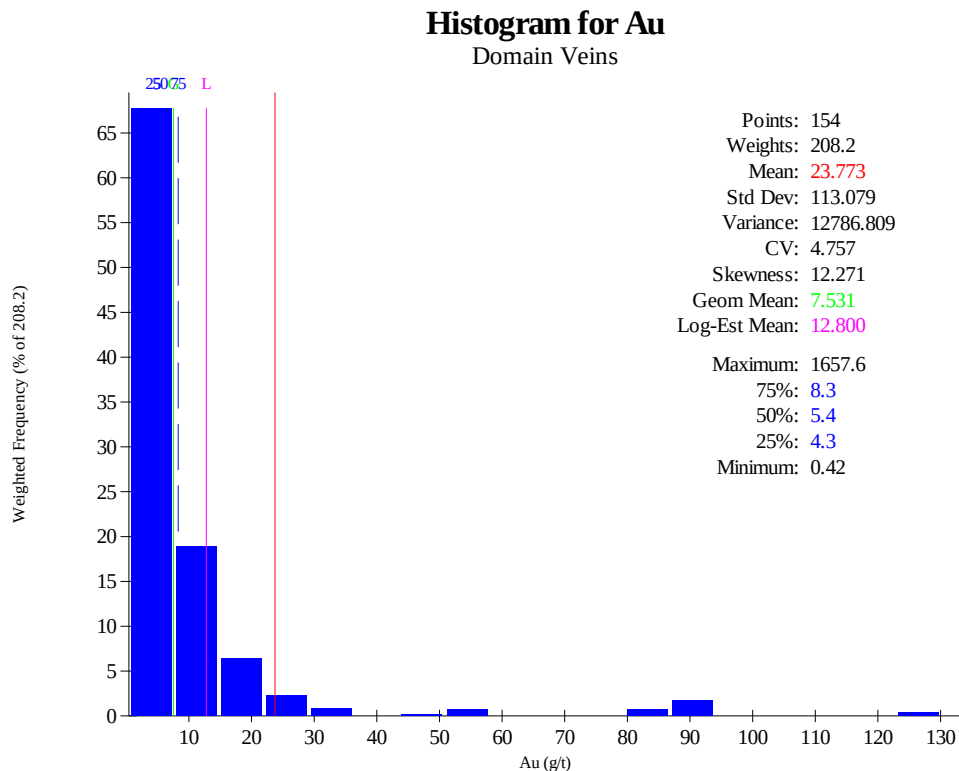


Figure 17.1 Statistics for borehole composites from the resource blocks, no top-cut applied.

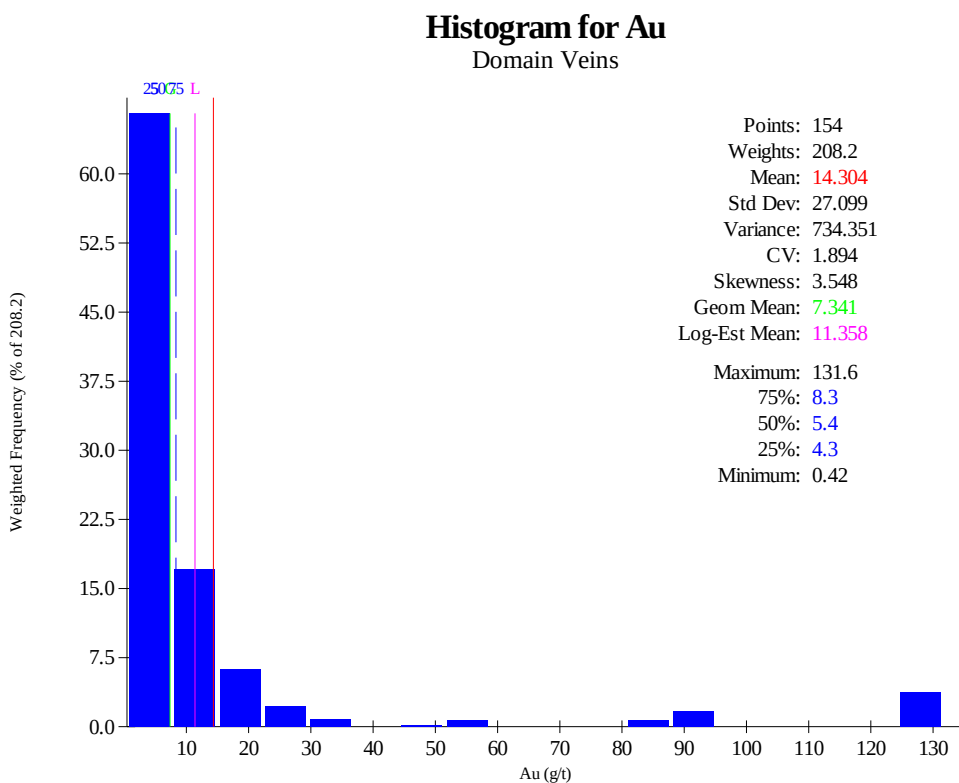


Figure 17.2 Statistics for borehole composites from the resource blocks
with a 97.5% topcut applied.

Snowden has re-estimated the SOGEMORK underground resource estimates based on revised top-cuts. Snowden used a top-cut of 131 g/t Au, but each resource block was reviewed individually and the top-cut adjusted if deemed necessary, i.e. Vein 19 2-C2, top-cut of 30 g/t Au and Vein 20 2-C2, top-cut of 45.98 g/t Au.

As more production and reconciliation data becomes available the top-cut should be reviewed by comparing predicted resource block values, both top-cut and without a top-cut applied, to actual gold grades achieved for that block. The top-cut value can then be adjusted to reflect the actual grades and applied to the resource estimates.

17.1.10 Reconciliation

The use of reconciliation results from mining can be useful in the determination of the robustness of the grade estimations. However, care must be applied when using reconciliation results as other errors may remain undetected such as dilution or processing losses.

SOGEMORK reported that the production reconciliation of the mining from Vein 1 was positive (more gold was recovered than was predicted) (Snowden, 1997). No documentation of this reconciliation was available for review.

As part of this work Snowden reviewed the production reconciliation for the period 1985 to 1991, when SOGEMORK operated the mine. The reconciliation is based on the known total production from the mine for that period versus an estimate of the predicted metal production based on the resource estimate. Details of the production from each vein have not been documented, therefore Snowden used the development shown on the underground plans to estimate the quantity of ore and waste mined from each source. No waste dumps are present at the Kalana Gold Mine and there is no evidence of underground waste dumping. It is therefore surmised that all underground material was hoisted and milled. The estimated number of tonnes and associated grade from each source has been compiled in this study as the basis for the underground reconciliation.

The amount of ore mined from the Kalana I open pit was based on the dimensions of the pit, quartz vein information based on drill hole intersections and interviews with Kalana Gold Mine staff at who were previously employed by SOGEMORK. Snowden and SOMIKA-SA estimated that a total of 10,000 tonnes ore at a grade of approximately 5.0 g/t Au was mined from the open pit.

The reconciliation is presented in Table 17.2. The reconciliation shows that approximately 30% more gold was produced than was predicted and that the resource estimates are likely to have under-estimated the amount of gold by that amount. Information from face sampling indicates that gold mineralisation is present in the hangingwall and footwall of the quartz veins and this may explain the under-prediction of gold.

Snowden is of the opinion that the data used in the reconciliation completed for the period 1985 to 1991 is not sufficiently robust to use as an estimator for a top-cut value as insufficient production detail, as well as insufficient spatial grade detail within the estimate resource blocks, is available. Snowden, however, believes that due to the nature of the Kalana mineralisation with unquantified mineralisation in the hangingwall and footwall of the quartz veins, more gold will be recovered than predicted and the top-cut of 131 g/t Au can be justified.

Table 17.2					
Kalana Gold Mine reconciliation of predicted production versus actual production					
Resource		Predicted	Estimated actual production		Metal
Vein	Block	Au (kg)	Tonnes	Au (kg)	Variance (%)
1	I-B	1,088	70,000	1,807	40
1	III-C1 (20%)	375	23,000	705	47
3		78	13,000	78	0
2		232	28,000	232	0
2	middling 1 & 2	13	13,000	13	0
1	Galerie 4	21	20,000	21	0
14/15		50	10,000	50	0
16	I-C2	30	6,000	30	0
Shortfall	waste trammed	-	15,000	0	-
Misc dev		0	20,000	10	-
Kalana I open pit		50	10,000	50	0
Total		1,937	227,000	2,996 ¹	35

¹ based on a recovery of 86%.

17.1.11 Tailings and sand dumps

The Kalana Gold Mine processing plant reports that the current gravity separation plant has an average recovery of 69%. The gold that is not recovered is contained within sulphides or is too fine to be recovered by the gravity separation plant.

SOGEMORK reported their gold recovery was 86%, however, they had a small cyanide circuit that ran for an unknown time period and this may have resulted in the better recovery than the current plant. At this time, SOMIKA-SA is only planning on gravity separation techniques. Investigations are continuing into potential increased recoveries from alternate processing techniques, but none have been budgeted or planned at this time.

17.1.12 Tailings

SOGEMORK do not appear to have separated sand from tailings material and sent all the reject material to the tailings dam.

17.1.13 Sand stockpiles

SOMIKA-SA has a different process plant flow sheet and have stock-piled the tailings material and sands separately. Two sand stockpiles have been accumulated.

17.1.14 Sampling of tailings and sand stockpiles

The tailings material that has been stock-piled is a resource for when a Carbon in Leach ('CIL') circuit is added to the plant. Snowden notes that SOMIKA-SA intends to reprocess the coarse sand stock-piles in 2005. In May, 2004, a sampling programme was completed on the tailings dam and the two recent sand stockpiles. The sampling was performed by using an auger and taking 1 m vertical samples on a grid of 10 m by 10 m. The tonnage of the tailings dam has been estimated from the historical production records with the addition of the tailings from ore milled in

the period January to June 2004. No survey measure of the tailings dam is possible as there is no survey record of the original topographic base for the dam. The volume of the sand stockpiles was surveyed and the tonnage estimated by the Kalana surveyor. The average sample gold grade for each sand stockpile and the tailings dam was used for the June 2004 resource estimate.

17.1.15 Resource classification

The June 2004 resource estimate is classified according to CIM (2000) definitions and standards. The CIM Resource Definitions required by NI 43-101 read in part as follows:

- A **'Measured Mineral Resource'** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that it can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit.
- An **'Indicated Mineral Resource'** is that part of a Mineral Resource for which quantity and 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.
- 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 Kalana resource was classified as follows:

- Measured Resources. Where the quartz veins have been opened by mining (veins 1 and 3) and face or pit sampling is available for grade and thickness estimation. Grade and tonnage can be estimated with a high level of confidence. Geological and grade continuity is confirmed;
- Indicated Resources. The drill spacing by SOGEMORK is generally about 50 m by 50 m and Snowden considers this close spacing to be adequate to estimate grade, thickness and tonnage with a reasonable level of confidence for this type of deposit (veins 1, 3, and 14 to 21). Continuity of mineralisation, grade and structure is assumed; and
- The two deep veins (22 and 23), plus the stockwork from 240 m to 265 m RL has a drillhole spacing greater than 75 m by 75 m, as the majority of the drilling has stopped short, and are classified as Inferred Resources. The tonnage and grade are estimated at a low level of confidence and, the geological and grade continuity are inferred.

17.1.16 Resource tabulation

The classified Mineral Resource for Measured and Indicated Resources is summarised in Table 17.3.

Table 17.3 Kalana Gold Mine Measured and Indicated Resource - June 2004				
Underground				
Category	Zone	Tonnes	Au (g/t)	Au (x 1000 Oz)
Measured	Veins (1 and 3)	111,800 ¹	19.6	70
Indicated	Veins (1, 3, 14 to 21) and Stockwork	1,828,200	12.7	744
Total	Underground	1,940,000	13.1	814
Open Pit				
Category		Tonnes	Au (g/t)	Au (x 1000 Oz)
Indicated	Veins (1, 2, 3, 18, and 19) /Stockwork	863,600	6.8	190
Total	Open pit	863,600	6.8	190
Tailings and Sand Stockpiles				
Category		Tonnes	Au (g/t)	Au (x 1000 Oz)
Measured	Tailings Dam	234,000 ²	1.9	14
Measured	Sand Stockpile 1	8,200 ³	5.6	1.5
Measured	Sand Stockpile 2	1,600 ³	2.3	0.1
Total	Tailings and sand	243,800	2.0	16
Total	Underground, open pit and tailings	3,047,400	10.4	1,020

¹ Before depletion of 11,650 tonnes due to production from July to December 2004.

² Before additions from production from July to December 2004.

³ Not depleted for production during November and December 2004.

Table 17.4 Kalana Gold Mine Inferred Resource - June 2004				
Underground				
Category	Zone	Tonnes	Au (g/t)	Au (x 1000 Oz)
Inferred	Veins (22 and 23) and Stockwork	429,000	6.2	85
Open Pit				
Inferred	Stockwork / Remnant pillars Veins (1 and 3)	1,832,000	2.8	164
Total		2,261,000	3.4	249

17.1.17 Evaluation of risks associated with the resource estimate

Table 17.5 tabulates the checklist of assessment and reporting criteria and summarises the risk for each of the elements in Table 1 of the CIM (2000) definitions and standards and Snowden's assessment and comment on the resource estimate.

Table 17.5 Kalana Gold Mine check list of assessment and reporting criteria		
Parameter	Risk	Comments
Geology		
Planning of boreholes	Low	Boreholes on a 50 m by 50 m grid
Drilling techniques	Low	Diamond drill core and RC. No core available for review by Snowden.
Borehole collar survey	Likely to be low	Not available to be reviewed by Snowden.
Core recovery	Medium/High	Recoveries well documented in borehole logs. Variable in ore zones, likely to under-report gold grades.
Logging	Low	Done to sufficient detail.
Sampling	Likely to be low	Diamond drill and RC Sampling not reviewed by Snowden.
Geological mapping	Low	Veins exposed in underground development and stoping, and adequate face mapping.
Sampling QA/QC	Medium/High	QA/QC not documented and therefore robustness of samples and assays cannot be demonstrated.
Verification of results	Low	Underground stoping and borehole twinning.
Relative density	Likely to be low	Data not reviewed by Snowden.
Database integrity	Low	Borehole information on resource block plans and sections verified against borehole logs by Snowden.
Resource estimate		
Geological interpretation	Low	Good understanding of geology by current and previous mining staff. Resource blocks delineated around intersections greater than 7.0 metre-grams.
Estimation and modelling techniques	Low	Resource grade estimation by length weighted average of intersections within defined resource block. Top-cuts subjectively applied to high grades.
Model validation	Low	No major problems found during validation.
Reconciliation	Low/Medium	Historically approximately 30% more gold produced than predicted.
Cut-off grades	Low	Not applied as estimated block grade applied to entire resource block.
Metallurgical factors	Low	None applied to resource.
Resource classification	Low	Resource classification method derived from vein exposure in underground development and borehole/sample spacing.
Audits or reviews	Low	Three reviews completed on Kalana and no significant risk identified.

Table 17.6 shows the total resource as tabulated by Snowden (2004).

Table 17.6 Kalana Gold Mine Total Resource - June 2004			
Category	Tonnes	Au (g/t)	Au (Thousand Oz)
Measured	355,600	7.5	86
Indicated	2,691,800	10.8	934
Total Measured plus Indicated	3,047,400	10.4	1,020
Inferred	2,261,000	3.4	249

17.2 MINERAL RESERVES

Mineral Reserve estimates are derived from the Mineral Resources by applying mining, metallurgical, economic, legal, environmental, social and governmental factors. The classification of reserves has been based on the resource category and the level of detail (degree of confidence) that resources have been planned for extraction as part of the mine's business plan, and hence classified as a reserve.

The CIM Reserve Definitions required by NI 43-101 read in part as follows:

- A **'Mineral Reserve'** is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.
- A **'Probable Mineral Reserve'** is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.
- A **'Proven Mineral Reserve'** is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

17.2.1 Inclusion of Reserves within Resources

All reserves reported within the Mineral Reserve statement are included within the quoted Mineral Resource statement (Table 17.6).

17.2.2 Underground Mineral Reserves

Dilution

The resource has been defined as the mineralised high grade zone consisting primarily of quartz veins and secondly, mineralised host rock. Mining of the high grade ore body or channel is

accompanied with waste rock, which is extracted concurrently. The dilution of the ore body occurs from two sources:

- development within the ore body where the size of the ends exceed the width of the channel, i.e. this incorporates the mineralised host rock and waste; and
- production operations result in stope dimensions larger than the channel size, resulting in extraction of mineralised host rock and waste accompanying the high grade ore body.

Kalana has planned for a generic overall development related dilution of 12%. Snowden reviewed Kalana's mining plan and layouts and has determined the expected development dilution for each of the planned resource blocks. This ranges between 5% and 14% based on the planned mining widths and development heights that are greater than the mining width:

- stope width greater than the channel width;
- level development (drives) 3m high, 3m wide;
- raise development (incl. winzes) assume to be 2m high, 1.5m wide;
- strike gullies developed 1.5 m width with a depth of 1.5 m into the stope footwall; and
- an additional allowance is made for construction dilution.

The following mining widths have been assumed based on current mining practice and experience gained:

- channel width <1.0 m, mining width = 1.2 m;
- channel width 1.0 m to 1.25 m, mining width = 1.5 m;
- channel width 1.25 m to 1.75 m, mining width = channel x 1.25; and
- channel width >1.75 m, mining width = channel + 0.2 m.

These generalised factors have been applied to all stopes unless detailed information is available of local conditions that warrant deviations from the above design factors.

The 'waste' rock surrounding the high grade channels usually contains some gold. These grades can vary up to a few grams per tonne. Unfortunately, not all the rock surrounding the high grades channels have been sampled. Based on Snowden's review of that database, an estimated 25% of the drillcore has not been sampled in the hangingwall and footwall of the main mineralised zones. The average grade of the diluting waste was determined to be the average grade of the hangingwall and footwall waste from the drillholes that were used to estimate the resources in each block. These average diluting grades from each block ranged from 0.4 g/t to 1.3 g/t Au.

Pillar losses

Protection pillars have been planned on the level drives within the orebodies. These pillars are planned to be 5 m wide on both the footwall and hangingwall, with holings as part of the raise development and for ventilation purposes. These pillars could be extracted, at least in part, in retreat on completion of the mining of the associated blocks of ground.

In addition to the drive pillars, the mine plan assumes that pillars will be left as part of the mining support system. Although in-stope pillars are not currently in use, a detailed geotechnical investigation was underway at the time of the compilation of this report. The focus of this work is the design of stope support, and in-stope pillars are expected to be a significant part of that study. Until a better understanding of in-stope ground conditions is obtained within new production areas, the mine plan assumes that in-stope pillars will be left, and reported pillar losses discount for the relevant resources.

Pillar losses generally range between 10% and 20% for the various blocks depending on the orebody configurations and access requirements.

Mining losses

SOMIKA-SA indicated to Snowden that an additional loss of 10% should be included to account for:

- potential ground control problems that are anticipated; and
- uncertainty of potential losses due to difficulties in negotiating fault zones.

The extent of new production areas has been limited, so the extent for potential mining related losses is uncertain, hence, the assumed 10% mining loss is only an allowance at this time and will need to be reviewed at a later stage.

Mine call factor

The mine call factor is an account of the variation of the sampled versus actual gold recovery. For planning purposes, the mine call factor (MCF) is applied to the underground grade estimate to determine the mill feed grade. Kalana reports a historic underestimate of the sampled underground grade, resulting in a MCF of 110% during the current year of production (2004).

Snowden cannot comment on the accuracy of the mine's metal accounting but believes that these figures are reasonable based on the planning. MCF is based on the gold (ounces) called for from underground survey and sampling compared to the back calculated gold received by the plant. The back calculated gold is the total of the fine gold produced plus the gold sent to the coarse sand stockpile and the fine tailings to the tailings dam. Kalana has used a 100% MCF to estimate future gold production. It is typical of sampling of high grade, nuggety ore bodies to underestimate the total gold content. This may lead to an underestimation of the mine grade and this may provide upside potential for the mine plan.

Snowden has reviewed Kalana's planned head grade and believes it is based on the following conservative assumptions that lead to an underestimate of the underground grade:

- planned 12% development dilution, which Snowden determined to be less at approximately 9%; and
- assumed that all dilution had no gold content.

Snowden's reserve grade is hence higher than that predicted by Kalana.

Within the mine's current mining areas, these factors account for a MCF of 109%. Hence, with a more detailed resource / reserve conversion process, Snowden has assumed a mine call factor of 100% for the reporting of Mineral Reserves.

Block factor

The comparison between forecast reserve grades (gold content) and that actually achieved is called a Block Factor. Reconciliation of the reserve blocks mined by SOGEMORK between 1985 and 1991 show a Block Factor of approximately 130%. In other words 30% more gold was mined and recovered compared to the reserve calculation based on the drill hole intersections. It is possible that this trend may continue but Snowden did not assume this in the proposed reserve statement. There is insufficient information from mining in 2004 to assess the Block Factor.

Plant recovery

A long-term gold plant recovery of 79% has been assumed. During the course of 2004, continued optimisation of the plant operation has resulted in a steady increase in recovery from 65% to 75% and 81% in October 2004. With the planned capital expenditure, MDS (SOMIKA-SA's

metallurgical consultants) believes that the predicted recovery of 79% is achievable at the proposed throughput rate of 60,000 ROM tonnes annually.

Economic considerations

Kalana has entered a hedge contract for 26,544 ounces. All other production is subject to spot price returns. The hedge prices are set at:

- \$413/oz for 2005;
- \$419/oz for 2006; and
- \$437/oz for 2007.

Kalana has assumed a spot gold price of \$425 per ounce for 2005 and 2006, then a long-term price of \$375 per ounce for the remainder of gold production. The projected long-term gold price quoted by financial institutions in South Africa is closer to \$400/oz. Snowden has reviewed Kalana's current business plan to 2014 and believes the mine plan to be reasonable. Although Snowden is not qualified to comment on the financial position of the operation and has not conducted a detailed audit of costs, the operating costs presented for the cash flow model appear reasonable. The following operating costs have been predicted for the long-term (based on 2004 costs, ROM tonnes):

- underground mining costs - \$31/t;
- milling costs - \$15/t;
- engineering costs - \$11/t; and
- general & administration - \$36/t (includes Avneel offshore costs of \$10/t for services provided to support the Kalana Gold Mine).

The total operating costs are approximately \$93/t ROM. The total mine operating cost including royalties and capital costs, is \$123/t.

Cut-off grade

Based on the mine's cost structure, the following cut-off grades have been determined:

- process cut-off grade: to ensure that the total operating and capital costs are recovered (including local and overseas overhead costs), a cut-off grade for the total mine cost of \$123/t, equates to a 9.6 g/t head-grade. This grade ensures that profits are generated to pay back existing loans;
- an operational cut-off grade: a head-grade of approximately 7.2 g/t is determined for a long-term gold price of \$400/oz, which ensures that all on-mine operating costs are recovered. This implies the viability of accessing and mining from new blocks of ground in order to ensure that the plant remains full; and
- a marginal cut-off grade: covers only the stoping and processing costs and is equivalent to 3.6 g/t Au head grade. If material above the operational cut-off grade is not available, this is the cut-off grade for deciding whether or not to continue mining existing panels.

For reserve reporting, the operational cut-off grade was used as a guideline for the conversion of resource blocks to reserves.

17.2.3 Coarse tailings sands

The mine currently has two coarse tailings dumps from production during the current year: a small, low grade dump and one larger, high grade dump (Table 17.3). Kalana will continue to re-process these dumps during 2005, when a shortfall of underground production is expected due to a shaft deepening programme and ore reserve development.

Kalana's metallurgical consultants confirm that with ongoing optimisations of the plant, a recovery of 50% can be expected from the re-processing of these sands. Since most of the tailings grade resides locked up in the coarse sand, re-processing to a finer grind will assist in the liberation of this additional gold and MDS believe that a 50% recovery is reasonable. As a result, Snowden is confident that the coarse sands can be classified as reserves for reporting purposes. Even the low grade stockpile can be re-processed at a profit, provided that the recovery does not drop significantly below the planned 50%.

17.2.4 Mineral Reserve Statement

The classified Mineral Reserves for Proved and Probable Reserves as of June 2004 for both the sand tailings and underground mineralisation is summarised in Table 17.7 and Table 17.8. The underground Mineral Reserve statement has been depleted to account for the mining that has taken place between the date of the detailed Resource and Reserve statement and the end of 2004. As a result, Snowden has been able to provide a Reserve estimate for December 2004 (also contained in Table 17.7). The details of the conversion from underground resource to reserve (as described above) are provided in Table 17.9.

There are no plans to mine blocks of ground with grades below the operational cut-off grade of 7.2 g/t in the current ten year business plan. Snowden however notes an exception in Vein 3 where the predicted resource block head grade is less than the cut-off grade and this has been included in the reserves for the following reasons:

- mining was taking place in these areas at the time of Snowden's site visit;
- limited face availability in other veins prompted mining in Vein 3 as part of their trial mining and worker training programme;
- sampled grades on the face, after the estimation of the resource, were substantially higher (11.5 g/t for the mining width) than the predicted average block grades. Short-term variations can be expected due to the high nugget effect within the mineralised zones; and
- routine sampling would ensure that ROM grades would remain at payable levels and selective mining would be practiced to accommodate grade variations.

Table 17.7 Underground Mineral Reserves						
Category	Vein	Reserves - June 2004		Reserves (depleted) - December 2004		
		Tonnes	Head grade (g/t)	Tonnes	Head grade (g/t)	Contained Au (oz)
Proved Reserves	Vein 1	76,800	15.2	70,000	15.4	34,620
	Vein 3	9,400	3.7	0	0.0	0
	Sub-total	86,200	13.9	70,000	15.4	34,620
Probable Reserves	Vein 1	71,100	7.9	71,100	7.9	18,090
	Vein 18	252,700	20.6	252,700	20.6	167,620
	Vein 18a	70,100	13.9	70,100	13.9	31,360
	Vein 19	105,100	20.2	105,100	20.2	68,170
	Vein 19a	31,800	11.3	31,800	11.3	11,610
	Vein 20	172,500	8.4	172,500	8.4	46,600
	Vein 21	178,000	9.9	178,000	9.9	56,940
	Sub-total	881,300	14.1	881,300	14.1	400,390
Total Reserves		967,500	14.1	951,300	14.2	435,010

Table 17.8 Coarse sand tailings Reserves - June 2004			
Proved Reserves*	Reserves (tonnes)	Grade (g/t)	Contained Au (oz)
Sand Stockpile 1	8,200	5.6	1,420
Sand Stockpile 2	1,600	2.3	114
	9,800	5.0	1,534

* Before depletion for production during November and December 2004

Table 17.9
Conversion of Underground Mineral Resources into Mineral Reserves - June 2004

Zone	Block	Resource tonnes	Channel grade (g/t)	Channel width (m)	Mining width (m)	Development dilution	Diluting grade (g/t)	Head grade (g/t)	Pillar loss	Mining loss	Reserve tonnes	Contained Au (oz)
		Measured Resources			Proved Reserves							
Vein 1	II- A (C1) ¹	21,000	18.0	1.64	2.05	13.8%	0.40	12.8	18.8%	10%	21,800	8,960
	II-B (C1) ¹	43,530	18.8	1.72	2.15	5.3%	0.56	14.4	10.0%	10%	46,400	21,510
	III - C1 (20%)	10,100	30.4	1.79	1.99	9.0%	0.75	25.2	22.2%	10%	8,600	6,950
Vein 3 ²	High grade	1,000	16.3	0.40	1.20	5.0%	-	5.2	15.0%	10%	2,400	400
	Low grade 1	700	6.3	0.58	1.20	5.0%	-	2.9	15.0%	10%	1,200	110
	Low grade 2	3,350	7.3	0.56	1.20	5.0%	-	3.2	15.0%	10%	5,800	600
Proved Sub-total		79,680	19.4	1.63	2.00	7.9%	0.50	13.9	14.0%	10%	86,100	38,530
		Indicated Resources			Probable Reserves							
Vein 1	V - C2	67,000	10.7	1.17	1.50	9.3%	0.99	7.9	15.9%	10%	71,100	18,090
Vein 18	I - C2	149,600	29.2	1.35	1.69	8.7%	0.94	21.8	10.2%	10%	164,200	114,850
	III - C2	87,800	24.7	1.72	2.15	8.5%	1.30	18.5	17.4%	10%	88,500	52,770
Vein 18a	I - C2	75,700	19.3	1.47	1.84	12.9%	0.92	13.9	27.1%	10%	70,100	31,360
Vein 19	I - C2(B)	95,400	27.3	1.76	2.25	7.0%	0.74	20.2	10.5%	10%	105,100	68,170
Vein 19a	II - C2	30,300	15.2	1.20	1.50	9.8%	0.95	11.3	15.0%	10%	31,800	11,610
Vein 20	I - C2	67,800	10.4	1.20	1.50	12.7%	1.20	7.7	5.5%	10%	81,000	20,120
	II - C2	85,500	11.7	1.70	2.13	6.6%	0.95	9.0	10.7%	10%	91,500	26,480
Vein 21	I - C2	46,400	27.3	0.82	1.50	9.0%	1.06	14.3	15.0%	10%	70,700	32,370
	II - C2	102,900	9.4	1.58	1.98	9.0%	0.74	7.1	15.0%	10%	107,300	24,570
Probable Sub-total		808,400	19.4	1.45	1.84	9.1%	0.96	14.1	13.5%	10%	881,300	400,390
Total Reserves		888,080	19.4	1.47	1.85	9.0%	0.92	14.1	13.6%	10%	967,400	438,920

¹ Before depletion for mining between July and December 2004

² All depleted between July to December 2004

18 OTHER RELEVANT DATA AND INFORMATION

18.1 MINING OPERATIONS

The Kalana Gold Mine recommenced production in January 2004. During 2004, underground operations produced more than 30,000 tonnes of ore, increasing over the next two years as new mining areas are opened up by development. The underground mine will not achieve the 60,000 tpa design capacity of the plant until 2007 when shaft deepening to access new veins planned during 2005 and 2006 is completed.

The revamped gravity plant has been commissioned and is recovering approximately 70% to 75% of gold reporting to the mill. A metallurgical test programme was carried out to establish the optimum gravity recovery circuit and the potential to increase gold recovery by continued upgrade of plant infrastructure. The results indicate that gold recovery can be increased to between 79% and 90% dependent on the process route.

Somika has developed a business plan for the period 2005 to 2014. This demonstrates the development of the underground mine and ability to contribute to the exploration of the Kalana Exploitation Permit and the planned compilation of feasibility studies to exploit additional resources.

The company holds the Kalana Exploitation Permit that enables the company to explore and develop the 387 km² area over 30 years.

18.1.1 Shaft Infrastructure

Access to underground workings is established through two shaft systems (referred to as No 1 Shaft and No 2 Shaft). Both shafts are 3 m in diameter. The mine is currently making use of only No 1 Shaft, developed to 295 Level, a depth of 105 m, with an additional 5 m overrun. Surface is referenced at 400 m. A single drum, licensed winder fitted with a 1.5 tonne capacity kibble is used for the transport of men, material and rock. The total rated hoisting capacity of the shaft system is approximately 9,000 tonnes per month, but level capacity (in terms of personnel and material handling) is reported to be significantly less.

A programme for the deepening of No 2 Shaft is currently in place and will be completed during 2005. The current shaft bottom is 265 m Level (135 m below surface), with the only production level at 295 Level. The ultimate depth of this shaft is planned at 210 Level, with an additional overrun allowance.

Once No 2 Shaft has been established and commissioned, No 1 Shaft will be deepened from the current depth of 295 Level to at least 100 Level. All ore reserves below 210 Level will be accessed via No 1 Shaft only. The hoisting capacity of No 2 Shaft is expected to be the same as for No 1 Shaft.

Level intervals are generally located at 40 m vertical intervals, but this will vary depending on the positioning of the reserve blocks.

The ventilation of the mine workings is currently conducted with No 1 Shaft as a ventilation intake and No 2 Shaft as the exhaust shaft. Underground fans ensure adequate ventilation flow into the relevant workings.

No 1 Shaft is located at the plant and hoisted ore is fed directly to the plant feed bin. Ore hoisted from No 2 Shaft will be transported to the gold plant by truck. A conveyor will be installed to feed

the ore from No 2 Shaft into the existing plant crusher system. This conveyor will also be used to transfer surface ore from the coarse sand tailings and open pit into the plant.

18.1.2 Mine Layout and Design

Level development is established from the shafts to access the orebodies. Drives are developed within the orebody to expose the mineralisation on strike. Raises and winzes are then developed to expose the dip extent of the mining blocks. Each block of ground, delineated by the planned production from a single raiseline, is referred to as a stope. Individual panels are established from the raiseline at no more than 30 m face lengths and mined on strike to the mid point between raiselines.

The mine is fully developed to 295 Level. The majority of ore above 295 Level was planned for extraction during 2004. The upper most extent of the planned underground mining is to 330 Level, above which the ground is considered too unstable for underground mining and has been reserved for open pit mining. To enable mining to continue uninterrupted, a sub incline shaft (SI Shaft No 1) is being developed during 2004 and 2005 to access ore reserves to be mined in 2005 and 2006.

Approximately 60% of the ore reserve to be mined in the current mine plan is located to the north of the existing underground infrastructure and between the 295 and 100 Levels. The ore between 295 and 210 Level will be accessed from No 2 Shaft. The shaft will be deepened and two additional levels (250 and 210) will be established. Shaft sinking commenced towards the end of 2004.

No 1 Shaft will be deepened from 295 Level to 100 Level, commencing in latter part of 2005. Haulages will be developed on the 170, 140 and 100 Levels to access the ore veins in both the north and south of the mine.

18.1.3 Mining Method

Stoping operations are conducted with conventional pneumatic handheld rockdrills with airlegs. Blasted rock is scraped (with a 35 kW face winch) from the working face into strike gullies located at the bottom of each panel. A larger, 55 kW gully winch is then used to scrape the ore along the gullies. This ore is scraped directly into the hoppers via a chute arrangement, referred to as a 'chinaman chute'. The 1.2 tonne hoppers are trammed with 3 tonne battery locomotives to the shaft. Production blasts produce a 0.9 m to 1.0 m face advance.

Level development is conducted with a similar system as the stoping. The planned advance is 1.5 m per blast. Blasted rock is loaded using pneumatic overhead loaders (LM36-type) which load directly into the same hoppers and trammed to the shaft.

All level transport is rail bound. The mine does not currently have a shaft orepass system. The hoppers are guided to the shaft and manually tipped to discharge directly into kibbles (via a chute system) for hoisting to surface.

18.1.4 Geotechnical design

Based on previous and more recent underground observations, the base of oxidation appears to vary between 290 and 315 Level. No underground mining operations are planned above 330 Level. Ground conditions generally appear good below the weathered zones, with competent ground and limited need for systematic support in development ends.

Large exposed spans underground will require systematic support. In-stope support generally consists of wedged timber props and timber packs. The use of in-stope pillars formed part of a detailed geotechnical investigation, following which; Kalana reported that it began implementing such pillars as part of their support system.

Drives developed in the orebody require stability pillars updip and downdip until stoping has been completed. Subsequent extraction of these pillars is possible (at least in part) but has not been planned.

18.1.5 Underground production

Underground production is planned to increase from the current rate of over 30,000 tpa (during 2004) to 60,000 tpa in 2007. During 2005 and 2006 shaft sinking and haulage development is required to access sufficient ore reserves. Until development has opened up sufficient new ore reserves, underground production will be limited to ore mined from the No 1 Sub Incline Shaft in the south.

18.1.6 Other planned production

During the shortfall in underground production between 2004 and 2006, Kalana has planned to source other production from surface sources.

The first target is the re-treatment of the coarse sand dumps that were generated from tailings during 2004. The current dumps have identified reserves of nearly 10,000 tonnes at an average grade of 5 g/t (Table 17.8). These reserves will be exploited during 2004 and 2005 to supplement the underground production.

Due to the lack of additional reserves exposed underground and on surface, the mine will experience a milling short-fall during 2005 and 2006.

18.1.7 Utilities

Power

Power is supplied to the mine via the national grid through a 5 MVA line. The average demand of the mine is currently 1.2 MVA and expected to increase with the commissioning of No 2 Shaft and increased pumping requirements with depth. The supply of power is reported to be generally reliable with interruptions being short. Kalana reports the cost of electricity to be \$0.15 per kWh.

Kalana does have standby power generation capacity via a number of old Russian generators rated at 6.3 kV, 3 phase, 50 hz:

- two 1,000 kVA unit; and
- one 790 kVA unit.

The mine reports that these units are operational and have been used during the course of 2004 during planned power stoppages and outages. These units will be retained as a back-up supply only, as the units have insufficient capacity to supply the entire operation.

Water

The mine itself generates sufficient water from underground for all operations, i.e. mining, plant and personal consumption (potable). Excess water is discharged into water courses. No outside water source is required.

Water is currently being intersected by underground development. Pump stations are planned for No 2 Shaft on the 250 and 210 Levels. Water will either be pumped to surface or to the 295 Level pump station at No 1 Shaft. The No 2 Shaft pumping capacity is reported to be 120 litres per second.

New pump stations will be established at No 1 Shaft on 170, 140 and 100 Levels. Water will be pumped from these pump stations to the 295 Level pump station at No 1 Shaft. The capacity of this system is reported to also be 120 litres per second (l/s).

With the above installations, the mine will have the capacity to pump approximately double the current maximum quantity of water. It is reported by Kalana that the current water inflow is in the order of 45 l/s in the dry season and 90 l/s in the wet season.

Compressed air

Two 200 kW air compressors have been installed on the mine. The total rated capacity of these units is approximately 2,500 cfm. SOMIKA-SA has indicated that currently, only one unit is required, while the other is a standby unit. This capacity is expected to be more than sufficient for the planned underground long-term production requirements of 5,000 tonnes ROM monthly.

18.2 ECONOMIC ANALYSIS

The following economic analysis is based on the 10-year business plan for the extraction of mineral reserves (Table 17.7 and Table 17.8) at a steady state production rate of 60,000 tonnes per annum at an average grade of 17 g/t. SOMIKA-SA will continue to explore in and around the existing mining operation to extend the life of mine beyond the current business plan.

18.2.1 Production Forecast

Table 18.1 summarises the forecast based on the current Kalana 10-year business plan. During 2005 and 2006, shaft and level development will be establishing the necessary infrastructure to facilitate full scale underground production from 2007 onwards at a rate of 60,000 tonnes annually. During this early phase of work, additional mill feed will be sourced from surface sources, namely by the re-treatment of coarse tailing sands.

The corresponding processing requirements for this ten year period are illustrated in Table 18.2. The plant recoveries for the various sources of ore (Section 17.2) are as follows:

- underground ore is 78% for 2005, thereafter 79%; and
- re-treated coarse sand tailings is 50%.

Table 18.1 Planned Production 2005 to 2014											
Mining	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Underground ore (t)	42,003	54,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	576,003
Underground waste (t)	24,040	15,080	12,960	9,240	11,640	5,280	8,520	2,640			89,400
Coarse sands (t)	8,745										8,745

Table 18.2 Planned Processing 2005 to 2014											
Milling	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
U/g ore (t)	42,003	54,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	576,003
grade (g/t)	13.77	16.40	17.40	18.70	18.30	18.50	19.40	19.60	16.00	14.10	17.33
recovery (%)	78	79	79	79	79	79	79	79	79	79	79
Sands (t)	8,745										8,745
grade (g/t)	4.00										4.00
recovery (%)	50										50
Gold produced (oz)	15,043	22,496	26,517	28,498	27,888	28,193	29,565	29,869	24,383	21,488	253,939

18.2.2 Revenue Forecasts

A portion of future gold production from Kalana is hedged using forward sales contracts. As of 31 December 2004, a total of 26,544 ounces of gold were designated against hedge contracts at an average price of \$417 per ounce over the next three years (2005 to 2007). Snowden believes that these contracts are within market parameters and do not represent an economic risk to Kalana. The balance of the gold production will be sold at the prevailing market price at the time of delivery (Table 18.3).

The Kalana business plan has been produced based on an assumed long-term gold price of \$375 per ounce, and although Snowden believes to be conservative, this planned figure will be used as the base case for financial modelling.

Table 18.3 Estimated Revenue for 2005 to 2014											
Revenue	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
<u>Hedge</u>											
ounces	12,014	12,530	2,000								26,544
price (\$/oz)	413	419	437								417
<u>Spot price</u>											
ounces	3,029	9,966	24,517	28,498	27,888	28,193	29,565	29,869	24,383	21,488	227,395
price (\$/oz)	425	425	375	375	375	375	375	375	375	375	378
<u>Total revenue</u> (\$ 000's)	6,249	9,481	10,068	10,687	10,458	10,572	11,087	11,201	9,144	8,058	97,004

18.2.3 Mine Operating Costs

The operating cost are summarised in Table 18.4. These include administrative costs associated with direct mine operations and other overheads.

Electric Power is the largest single component. Power consumption will increase with mining depth as pumping and hoisting requirements increase. Total power cost for 2005 is expected to be \$1.1 million, increasing to \$1.4 million in 2011, approximately 25% of total mine operational cost.

Table 18.4 Mine operating costs for 2005 to 2014											
Costs (\$ 000's)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Mining	2,126	2,032	2,064	2,080	1,961	1,963	1,963	1,917	1,822	1,822	19,750
Milling	943	1,037	967	902	904	906	908	910	912	914	9,303
Engineering	1,145	867	849	668	668	668	668	668	668	668	7,537
Administration	2,238	2,286	2,144	2,097	2,097	2,097	2,055	2,077	2,077	2,077	21,245
Total	6,452	6,222	6,024	5,747	5,630	5,634	5,594	5,572	5,479	5,481	57,835
Unit cost (\$/t milled)	127	115	100	96	94	94	93	93	91	91	99
Unit cost (\$/oz recov'd)	429	277	227	202	202	200	189	187	225	255	228

Expatriate labour cost is planned to reduce from \$1.0 million in 2005 to \$0.35 million from 2009 onwards. Malians will be trained to assume management and technical positions. Malian labour cost is planned to increase as total tonnes (ore and waste) mined increases and as mining activity moves to lower levels of the mine.

The average production cost is \$228 per ounce over the ten year period to 2014. Snowden believes that these costs are reasonable for a labour intensive, small-scale operation requiring a high degree of mining selectivity. No price escalation is included from a base cost of October 2004.

Administrative cost is approximately \$2.1 million per year. Approximately 65% of this cost is associated with on mine services, insurance and overhead costs. Approximately 35% of the cost is for services provided by Avnel Gold and Kalana Mine Services. Mine administrative costs (Table 18.5) include:

- legal and accounting fees;
- communication;
- stores and procurement;
- medical;
- security;
- human resources; and
- camp management.

Table 18.5 Distribution of Administrative Costs for 2005 to 2014											
Costs (\$ 000's)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Mine site	1,523	1,571	1,429	1,382	1,382	1,382	1,366	1,366	1,366	1,366	13,894
Bamako	125	125	125	125	125	125	125	125	125	125	1,255
London	590	590	590	590	590	590	563	585	585	585	5,855
Total admin costs	2,238	2,286	2,144	2,097	2,097	2,097	2,055	2,077	2,077	2,077	21,004

18.2.4 Royalties and Taxes

Mining operations are subject to a fixed cost related to the permit size in accordance with the mining code in Mali and is an annual surface fee based on the sum of the square kilometres. All revenue generated from the sale of gold is subject to a 3% royalty payable to the Government of Mali (Table 18.6).

The Mali corporate taxation rate is 35% on profits. For the duration of the 10-year business plan, Kalana is not expecting to declare profits (after carrying forward of losses incurred prior to the current business plan). If there is no profit for the year, a 0.75% tax is payable to the government on revenue generated.

Table 18.6 Royalties and Taxes Payable for 2005 to 2014											
Costs (\$ 000's)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Royalty on land	70	70	70	70	70	70	70	70	70	70	700
Mineral royalty	187	284	302	321	314	317	333	336	274	242	2,910
Tax on revenue	47	71	76	80	78	79	83	84	69	60	727
Income tax	0	0	0	0	0	0	0	0	0	0	0
Total	304	425	448	471	462	466	486	490	413	372	4,337

Value Added Tax ("VAT") is payable in Mali. Kalana currently has a three year exemption on VAT, effective from the start of commercial production in March 2004. This applies to one or more mines that are developed in the permit area. It is Kalana's intention to expand production in future and this could result in an extension to the exemption. As such, the business plan currently does not consider an increased cost to reflect VAT becoming payable. The VAT rate is 18% and would impact on power costs and consumables purchased in Mali.

Exploration and Research activities are exempt from VAT and customs duty. Customs duties are exonerated for the construction period and for three years after commencement of commercial production for any one or more mines.

18.2.5 Capital Expenditure

Capital expenditure for the ten years is \$11.6 million (including engineering, Table 18.7). The underground mine infrastructure has to be extended to access the ore reserves below the 295 level. The capital cost associated with this development is \$4.54 million. The existing tailings facility will have to be extended in two phases, in 2007 and 2010. A provision of \$2.4 million has been made.

Table 18.7 Mine capital costs for 2005 to 2014											
Costs (\$ 000's)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Shafts	992	820	271	249			222				2,554
Equipment	1,057	337	190	237	70			90			1,981
Electrical	344	271	75	23				93			806
Exploration	34	100	100	100	100	50	50	50			584
Plant & tailing dam	97		1,200			1,200					2,497
Administration	135	170	145	145	120	120	120	120			1,075
Sub-total	2,659	1,698	1,981	754	290	1,370	392	353	0	0	9,497
Engineering fee	95	68	79	30	12	55	16	14			369
Contingency		265	309	118	45	214	61	55			1,067
Feasibility study	100	600									700
Total	2,854	2,631	2,369	902	347	1,639	469	422	0	0	11,633

A provision of \$97,000 has been made (during 2005) for additional equipment in the plant to improve gold recovery to 79% and to install a conveyor as described below. The estimate is based on a preliminary process flow sheet.

From 2006, it will be necessary to convey ore from No 2 Shaft into the plant. A conveyor will be installed to transfer ore from a stockpile into the plant. A truck will transport the ore from 2 Shaft to the stockpile. Provision for a conveyor and mobile equipment (2nd hand) is included.

Underground exploration cost has been included above. Provision has been made for an exploration budget over the period 2005 to 2012 of \$0.58 million.

A preliminary scoping study of Kalana 1 and Kalana 2 is included. It is proposed that infill drilling of these two resources will proceed as part of an overall assessment of the development of a larger mine on the property. Previous estimates show approximately \$500,000 for this programme. A provision of \$600,000 has been made for 2006 for drilling and metallurgical testing.

A contingency of 15% has been allowed for 2006, onwards.

Free cash flow is available to repay interest and loans to Avnel and provide funding for exploration on the Permit.

18.2.6 Cash Flow Analysis

The following assumptions were made by Avnel in developing the cash flow forecasts for Kalana:

- gold price of US\$425 per ounce for 2005 and 2006, thereafter, \$375 per ounce;
- period of analysis is based on the 10-year business plan (between 2005 and 2014) and partially depletes the mineral reserve;
- process plant improvement will be implemented to increase recovery of fresh underground ore to 79% in 2006;

- surface resources have been planned to supplement underground production in 2005, during which time underground infrastructure is expanded. A tonnage shortfall is still expected for 2005 and 2006;
- capital and operating expenditures are provided above; and
- no provision has been made for rehabilitation and closure costs for the cash flow model as the life of mine is expected to extend well beyond the current business plan.

Snowden has not developed an independent cash flow model, separate from that of Avnel. Snowden has reviewed the business plan, mine plan and financial assumptions and is satisfied that the model is reasonable.

The cash flow presented does not include the current financial position (existing debt) or the interest payable on that debt prior to 2005. The projected cash flows for the Kalana 10-year business plan is provided in Table 18.8. Based on this cash flow, the payback on new capital is in less than 4 years, achieved in late 2008.

Table 18.8 Projected Cash Flow										
US\$ millions	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue	6.2	9.5	10.1	10.7	10.5	10.6	11.1	11.2	9.1	8.1
Operating cost	6.5	6.3	6.1	5.8	5.7	5.7	5.7	5.6	5.5	5.6
Avnel fees	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3
Royalties	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Capital cost	2.8	2.6	2.3	0.9	0.3	1.6	0.5	0.4	0.0	0.0
Cash flow	-3.6	-0.1	0.9	3.2	3.6	2.4	4.1	4.3	2.9	1.9
Cumulative cash flow	-3.6	-3.7	-2.8	0.3	3.9	6.4	10.5	14.8	17.6	19.5

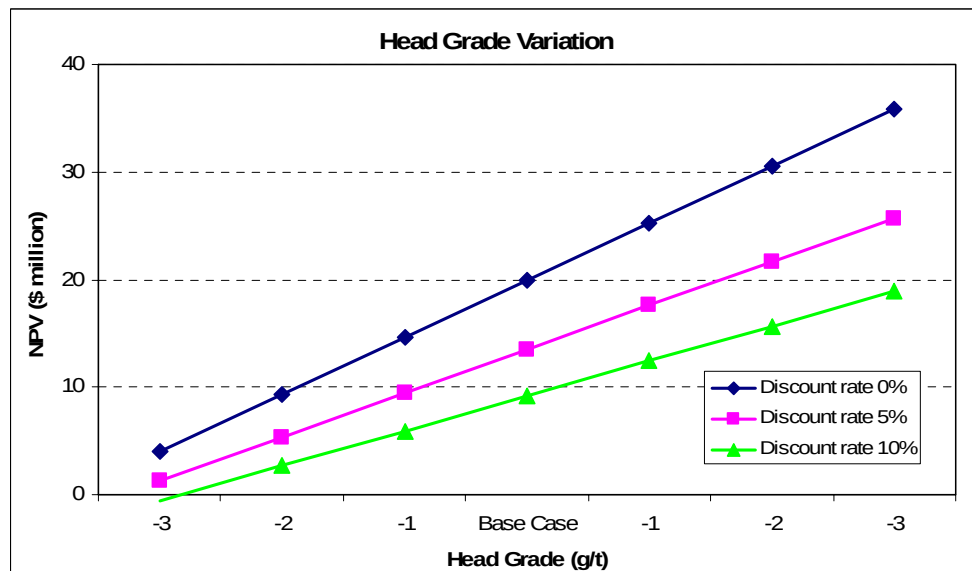
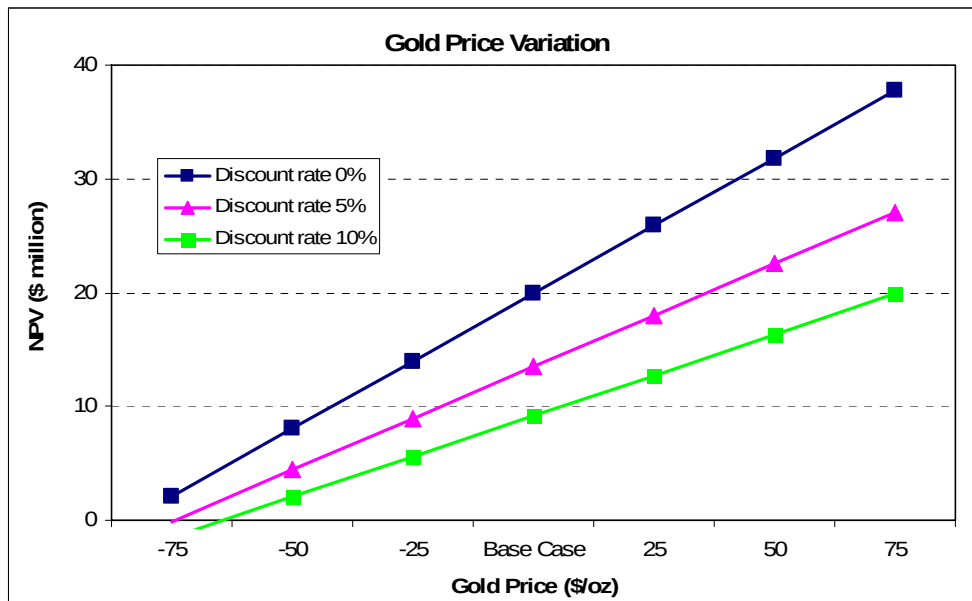
The Malian government, a 20% shareholder in SOMIKA-SA, will receive corporate tax and any dividends paid. The 10-year business plan indicates that free cash is generated and this can be used for payment of interest/loans to Avnel, exploration expenditure on the Kalana Permit and dividend distribution if new project funding is not required.

18.2.7 Sensitivity Analysis

As with any gold mine, the Kalana mine cash flow is particularly sensitive to changes in the gold price and operating costs. The net present value ("NPV") of the above cash flow using discount rates of 0%, 5% and 10% have been analysed for sensitivity in changes to revenue (as a result of gold price or head grade variations), operating costs and capital costs (Figure 18.1).

For the purposes of the sensitivity analysis, the 'base case' is the current ten year business plan as defined above. The sensitivities are applied as described in the graphs below:

- spot gold price variation in increments of \$25/oz from that referred to in Table 18.3;
- head grade variation in increments of 1.0g/t from that referred to in Table 18.2;
- operating costs varied by +/- 10% from that referred to in Table 18.4; and
- capital cost varied by +/- 10% from that referred to in Table 18.7.



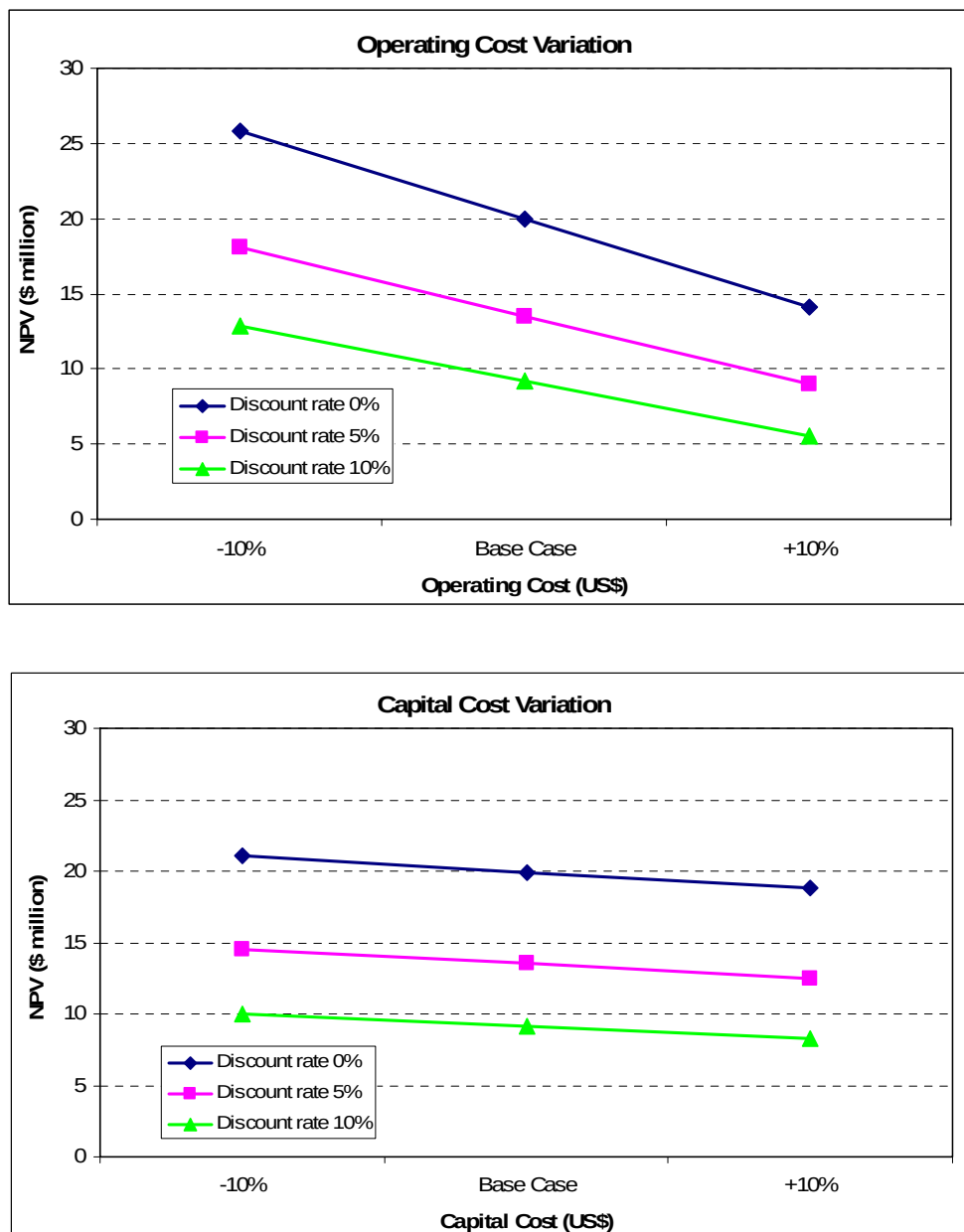


Figure 18.1 Kalana 10-year business plan - NPV sensitivity

18.2.8 Mine Life Beyond the 10-Year Business Plan

Avnel has provided Snowden with a 10-year business plan that has been produced based on the exploitation of the underground ore reserves as determined by Snowden. The mining schedule represents a logical progression in the development of the underground infrastructure required to open up the reserves for extraction. The shaft and level development is sequenced to progressively access the various veins in a systematic manner from the upper levels to the lower extremes of the known mineralisation.

This business plan, however, does not represent the complete life of the underground mine, but details the sequence of exploitation from the uppermost 315 m level down to approximately 140 m level. Beyond the 10-year plan, mining will progress into additional veins and at increased depth

until the identified reserves have been exhausted. From the current reserve base reported in Table 17.7, this represents more than 360,000 tonnes at an average predicted head grade of 9 g/t and will sustain underground production for at least another 6 years at the current planned extraction rate of 60,000 tpa.

The limits of many of the resource blocks (as reported in the resource statement) have not been positively identified but are defined within the limits of the information available from the exploration drilling programme. The resource blocks are thus a conservative estimate of the *in situ* resource as the lack of information does not allow for extrapolation. Hence, future drilling and development into the mining blocks will continue to identify additional resources and could extend the underground life of mine by a number of years.

In addition to the underground resources, Kalana has a substantial near-surface resource that is potentially mineable through open pit methods. A detailed study into the extraction of this resource is recommended. This should be followed by an investigation into a possible integrated mine plan for both open pit and underground reserves with expanded processing capacity.

18.3 ENVIRONMENTAL AND PERMITTING CONSIDERATIONS

The following points summarise the main findings of a technical review conducted by Kalana's environmental consultants, Metago Environmental Engineers (Metago).

The geochemistry and pollution potential of the products of the mining and treatment processes are not yet fully understood. While the quality of water in the mine workings and in the tailings circuit exhibit indications of sulphate and arsenic contamination, the monitoring of the surrounding surface and groundwater environments has provided no evidence of pollution.

The system of collecting, analysing and interpretation of surface and ground water needs to be updated in terms of the frequency and scope of analyses to enable the risk based evaluation of the potential impact of mining and treatment activities on the surrounding environment. The source of hexavalent chrome in water samples is most likely attributable to emissions from the calcining process or cross contamination of laboratory equipment used in the assay laboratory. Hexavalent chrome concentrations in the surface water are below the World Health Organisation guideline value.

The existing tailings storage facility has sufficient capacity to accommodate tailings arising for the next three years at a projected rate of disposal of 60,000 dry tonnes per annum, after which additional capacity will have to be created, either at the existing facility through a raising of the embankment or by the development of an additional facility.

There is sufficient area available in the vicinity of previous waste and overburden dumps to accommodate the anticipated volumes of waste rock arising from the next five years of production.

The mine is engaged in ongoing discussions with the authorities regarding the various permitting requirements. The Government has issued a Mining Permit in 2002 for the project based on a feasibility study and Environmental Impact Study (EIS). The company is reviewing the EIS in the light of new legislation enacted in 2003 and will use new data and details of possible changes in the operating plan to update their Mining Permit.

Based on the review of information, site inspection and discussions referred to above, Metago concluded that the most significant environmental issues related to the mine were:

1. The presence of arsenic in the tailings discharge, which could potentially impact on the health of downstream users. Process modifications envisaged floating off the pyrites and the implementation of a return water system would effectively eliminate the possibility of

- this impact. Currently, the arsenic concentrations in the surface water are below the World Health Organisation guideline value.
2. The potential generation of acid mine drainage from tailings and waste materials associated with the mining and treatment operations. Based on the available information and observations during the site inspection there is as yet no indication of the formation of acid mine drainage products in the 19 years of operations to date, or that such products would arise in future.
 3. The emissions from the calcinations oven stack, which could potentially give rise to unacceptable (as yet unconfirmed) emissions of Cr(VI) and As₂O₃ in particular. This may require the installation of additional precipitators and an associated waste disposal facility.

Metago has, based on the outcome of the review, recommended the implementation of various measures to assist in the quantification and mitigation of the risks associated with the mining and treatment operations. Neither these measures, nor those required to address the issues outlined above, would in Metago's opinion have a material effect on the financial viability of a normal gold mining operation.

19 INTERPRETATION AND CONCLUSIONS

SOMIKA-SA has been operating the Kalana Gold mine since January 2004. Snowden, at the request of Avneel, has reviewed the exploration and production data that support the resource estimates, and the resources estimates, for the Kalana gold deposit.

Gold mineralisation is predominantly within flat dipping quartz veins that make up approximately 80% of the resource tonnage, with the remainder of the resource occurring within stockworks.

The underground face sampling is of an acceptable standard for mine planning and estimating Measured Resources. Face sampling has indicated that gold mineralisation occurs within the metasediments in the hangingwall and footwall of the quartz veins.

A total of 4,000 m from 52 drill holes of reverse circulation percussion drilling is used for resource estimation of the Kalana II open pit area.

The SOGEMORK geological interpretations have been accepted by Snowden as providing a reliable framework for geological modelling and gold grade estimation. Snowden considers that in general the gold mineralisation identified in stacked quartz veins is reasonably continuous and good connectivity is observed between drill intersections for the majority of the veins. This is confirmed by the new 3-D geological model. In Snowden's opinion use of the horizontal projection of the quartz veins, and not correcting for dip when estimating the area, will result in an under estimation of the tonnage by about 10%, if a dip of 25° is assumed. No correction to resource tonnage has been subsequently made.

The resource blocks define areas of potential economically extractable mineralisation and are an indication of potential mining blocks. They do not indicate the full extent of the quartz veins. Snowden considers that the resource block interpretations are reasonable, but do not allow for likely variations in the shape of the mineralisation, variations in thickness of the veins, deviations of the vein zones due to sub-vertical faulting and the splitting of veins and mineralised structures. This may lead to some parts of the vein zones not being recoverable during mining. Some additional gold mineralisation in small veins, not outlined in resources, may be recovered during mining.

Snowden performed a high level review of the Kalana laboratory and did not find any fatal flaws in the analytical procedures. Snowden recommends that Kalana Gold Mine carry out ongoing independent quality control on the assays to ensure that any errors are corrected timeously. Snowden believes that the underground face sampling at Kalana is acceptable for mine planning and estimation of Measured Resources.

A top-cut of 97.5% is applied that will need to be revised as more production and reconciliation data becomes available.

Sampling programmes completed on the tailings dam and reported process plant gold recovery information indicates that the tailings dam and sand stockpiles are resources that can be processed when a carbon in leach circuit (CIL) is added to the plant.

Table 17.5 tabulates the checklist of assessment and reporting criteria and summarises the risk for each of the elements in Table 1 of the CIM (2000) definitions and standards and Snowden's assessment and comment on the resource estimate.

Snowden is of the opinion that the impact on the resource estimation of the two Medium to High risk items, i.e. core recovery and QA/QC, is likely to be low as reconciliation of exploration

resources with mining during 1985 to 1991 is reported as positive (more gold was produced than predicted by the resource estimate).

Snowden believes that Kalana's current 10-year business plan is appropriate for the deposit and that the planned capital expenditure is required to ensure the long-term viability of the operation.

Snowden concludes that the Kalana Gold Mine is an operating gold mine that has the potential to produce gold from the current identified reserves at the planned mining rate for the next 10 years and represents a project with merit. In Snowden's opinion, there remains a reasonable potential to define additional reserves from Inferred and Indicated Resources through continued mine development and exploratory drilling.

20 RECOMMENDATIONS

The Kalana Gold Mine was re-opened in January 2004 but has not completed development of a system of resource inventory management at the mine site that will withstand scrutiny, as required for a publicly listed company. SOMIKA-SA expects to complete development of this system in early 2005. Snowden recommends that SOMIKA-SA continues with this development and maintains such a system so that mining depletion can be monitored and the production reconciliation against the mineral resource is accurately maintained. This will assist in verification of the company's resources and reserves and provide important information to potential investors.

Additional resource potential exists in an area to the north of the mine associated with Vein 6 and an area of disseminated mineralisation between Vein 6 and the Kalana I pit. Further exploration drilling is recommended in these areas, as well as, in the Kalana I and II open pit areas to improve the confidence in the resource classification (i.e. converting Inferred to Indicated Resources) and to determine the production potential of these areas. Kalana II will require infill drilling at a drill spacing of at least 50 m by 50 m, and possibly 25 m spacing in places, to delineate the resource and to help determine the potential of the area for heap leach gold extraction.

SOMIKA-SA have budgeted for underground diamond drilling in years 2005 to 2008 to explore for additional resources and to help improve the delineation of the quartz veins, such as veins 19, 20 and the deeper veins 22/23 that was removed from the resource due to lack of information or reduced in size. Snowden endorses the use of an underground diamond drill-rig to further help delineate the quartz veins and to explore for additional mineralisation that may not have been intersected by the surface diamond drilling.

There exists a significant, near surface resource identified in Kalana 1, which cannot be categorised as a reserve as the design of an open pit has not been conducted. Therefore, this Indicated Resource cannot be converted into a Reserve. Kalana should pursue the design of a potential open pit for this area in order to increase its reserve base.

21 **REFERENCES**

Ashanti Goldfields Company Ltd and Johannesburg Consolidated Investment Ltd 1996. Kalana Project; Kalana I and II Surface Exploration Programme Interim Report. Ashanti Goldfields Company Ltd and Johannesburg Consolidated Investment Ltd. Joint Venture. Report prepared by Buro, Y.A., Harbidge, P.D., Meduri, G., and Paolinelli, R.

Avnel. 2004. 2004 Exploration Program and Budget, Kalana Exploration Permit Area, Southern Mali. Draft report for Avnel prepared by M.Mercier and J.Hamilton.

Clark, G. 1996. Kalana Report. Report for Ashanti Exploration.

CIM, 2000. CIM Standards on Mineral Resources and Reserves. Definitions and Guidelines. Prepared by the CIM Standing Committee on Reserve Definitions

Geoconsult. 1996. Experts conclusion. Report for Ashanti-Mali.

Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC). 1999. Australasian Code of Reporting of Mineral Resources and Ore Reserves (The JORC Code).

Lawrence, Stuart, 2004. Director, MDS, Personnel Communications on metallurgical issues.

Mali Government. 2003. Decree No.03147/PM-RM dated April 7, 2003. Transferring to the benefit of Avnel Gold Limited the exploitation permit for gold and silver issued to Société d'Exploitation des Mines d'Or de Kalana. Republic of Mali.

Meade, 2004, Kalana Mine Business Plan 2005-2011, August 2004. (not distributed)

Meade, 2004, the following MS Excel spreadsheets were provided to Snowden:

- KalanaminedevelopmentOct04.xls
- Somika Budget 2005-1Oct2004.xls
- Somikalong termplanOct04R1.xls
- Somika2005-2014031204.xls
- 18monthplan.xls
- Bus.Plan 150205.xls

Metago Environmental Engineers, 2004. Listing Review of Kalana Gold Mine – Mali. 8 October 2004.

Mineral Development Services, 2004, Process Review, Somika Kalana Gold Mine, October 2004. Report to Somika SA.

Snowden. 1997. Kalana Gold Mine Resource and Reserve Review. June 1997. Report for Nelson Gold.

Snowden. 2004. Kalana Gold Mine Resource Review and Resource Statement. August 2004. Report for Avnel Gold Limited.

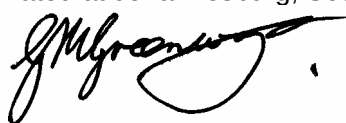
SOMIKA-SA. 2004. 2004 Exploration Program and Budget, Kalana Exploration Permit Area, Southern Mali. Draft report for SOMIKA-SA prepared by M.Mercier and J.Hamilton.

22 **CERTIFICATE OF AUTHORS**

I, Graham Michael Greenway, Pr.Sci.Nat. do hereby certify that:

1. I am currently employed as a Principal Resource Geologist by:
Snowden Mining Industry Consultants
Technology House
Greenacres Office Park
cnr Victory and Rustenburg Roads
Victory Park, Johannesburg, South Africa
2195
2. I graduated with a B.Sc Honours (Geology) from the University of Natal in 1989.
3. I am a registered Geological Scientist with the South African Council for Natural Scientific Professions, member of the South African Institute of Mining and Metallurgy and a member of the Geological Society of South Africa.
4. I have worked as a geologist for a total of 14 years since my graduation from university of which a total of nine years has involved Mineral Resource estimation, in a variety of deposit types.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements of a “qualified person” for the purposes of NI 43-101.
6. I am responsible for the preparation of the technical report titled “Kalana Gold Mine”, dated 20 February, 2005 (the “Technical Report”) relating to the Kalana Gold mine. I have visited the Kalana Gold mine from 15 to 19 July, 2004.
7. I have not had prior involvement with the property that is the subject of the technical report.
8. I am not aware of any material fact or material change with respect to the subject matter of this technical report that is not reflected in the report, the omission to disclose which makes this report misleading.
9. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and any other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated at Johannesburg, South Africa, this 20th day of February, 2005.



G M Greenway
Pr.Sci.Nat, MSAIMM, MGSSA

I, Dag Hellmuth Kullmann, do hereby certify that:

1. I am currently employed as a Principal Consultant Mining by:
Snowden Mining Industry Consultants
Technology House
Greenacres Office Park
cnr Victory and Rustenburg Roads
Victory Park, Johannesburg, South Africa
2195
2. I graduated with an MSc Mining Engineering from the University of Alberta in 1989.
3. I am a member of the South African Institute of Mining and Metallurgy and a member of the South African Nation Institute for Rock Engineering.
4. I have worked as a mining and geotechnical engineer for a total of 16 years since my graduation from university of which a total of seven years has involved mining method review, in a variety of deposit types.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements of a “qualified person” for the purposes of NI 43-101.
6. I am responsible for the preparation of a portion of the technical report titled “Kalana Gold Mine – Technical Report”, Reference No. JR-004-10-2004, 20 February, 2005 (the “Technical Report”) relating to the Kalana Gold mine.
7. I have not had prior involvement with the property that is the subject of the technical report.
8. I am not aware of any material fact or material change with respect to the subject matter of this technical report that is not reflected in the report, the omission to disclose which makes this report misleading.
9. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and any other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated at Johannesburg, South Africa, this 20th day of February, 2005.



D H Kullmann
MSAIMM, MSANIRE

23 CONSENT OF QUALIFIED PERSON

Graham Michael Greenway, Pr.Sci.Nat.
Snowden Mining Industry Consultants
Technology House
Greenacres Office Park
cnr Victory and Rustenburg Roads
Victory Park, Johannesburg, South Africa
2195
Tel: (11) 782-2379
Fax: (11) 782-2396
Email: gggreenway@snowden.co.za

TO: The securities regulatory authorities of each of the provinces and territories of Canada

I, Graham M. Greenway, B.Sc.Honours, Pr.Sci. Nat, do hereby consent to the filing of the report titled Kalana Gold Mine, Technical Report, prepared for Avnel Gold Limited dated 20th February, 2005.



Dated at Johannesburg, South Africa, this 20th day of February, 2005.

APPENDIX A
**COMPOSITED GRADE INTERVALS FOR BOREHOLES USED IN THE MINERAL
RESOURCE ESTIMATION**

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
1	II-C1 (B)	S994	1.4	4.4	6	4.4	6				
		S992	3.1	16.75	52	16.8	52				
		S993	1.8	38.48	69	38.5	69				
		S1006	0.5	6.9	3	6.9	3				
		S36	0.7	56	39	56.0	39				
		RS5	1.65	23	38	23.0	38				
		S976	1.95	3.8	7	3.8	7				
		S14	1.1	54.5	60	46.0	51				
		S949	3.2	7.3	23	7.3	23				
			15.4	19.39	299	18.8	289	15,820	1.7	2.68	72,547

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
1	II-C1 (A) Est.	S16	1.05	36.96	39	21	22				
		S997	2.15	16.55	36	16.55	36				
			3.2	23.25	74	18.0	58	4,895	1.6	2.68	20,990

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
1	III-C1 (20%)	S22	2.3	9.8	23	9.8	23				
		S33	2.2	11.8	26	11.8	26				
		S77	1.3	11	14	11	14				
		RS1	0.3	1115	335	131	39				
		S80	1.25	116.2	145	116.2	145				
		S15a	1.4	56.6	79	56.6	79				
		S960	0.2	15	3	15	3				
		S89	4.4	20.1	88	20.1	88				
		S150a	2.3	8.9	20	8.9	20				
		S996	2.85	11	31	11	31				
		S57	1	148	148	123	123				
			19.5	46.82	913	30.4	593	2,753	1.8	2.68	13,207
Uncut								Excluding mining			13,200

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
1	V-C2	S281	1.7	6.3	10	6.3	10				
		S113	0.5	4.2	2	4.2	2				
		S1007	1	5.4	5	5.4	5				
		S269	0.6	4	2	4	2				
		S270	1.3	64.5	84	39.0	51				
		S27	2	5.4	11	5.4	11				
		S151	1	4.4	4	4.4	4				
			8.05	14.83	119	10.7	86	21,350	1.2	2.68	66,945

Underground

Sample Number	Vein 3 Low grade 1	Thick (m)	Au (g/t)	m.g/t	Area (m ²)	Area Thick (m)	SG	Tonnes
S1863		0.73	1.50	1.10				
S1864		0.63	1.60	1.01				
S1865		0.50	1.30	0.65				
S1866		0.48	2.20	1.06				
S1867		1.00	1.20	1.20				
S1869		0.30	1.40	0.42				
S1870		0.80	2.70	2.16				
S1875		1.10	2.50	2.75				
S1876		0.50	1.20	0.60				
S1877		0.20	2.10	0.42				
S1880		1.00	2.70	2.70				
S1881		0.60	4.60	2.76				
S1882		0.30	1.60	0.48				
S1883		0.15	21.20	3.18				
S1884		0.20	6.40	1.28				
S1885		1.50	5.20	7.80				
S1886		0.48	24.20	11.62				
S1887		0.28	1.50	0.42				
S1888		1.00	14.50	14.50				
S2012		0.65	1.80	1.17				
S2013		0.15	4.40	0.66				
S2108		0.40	75.00	30.00				
S2109		0.50	1.56	0.78				
S2110		0.40	12.50	5.00				
S2111		0.20	12.74	2.55				
S2278		0.50	2.30	1.15				
S2279		0.30	3.00	0.90				
S2280		0.35	3.30	1.16				
S2282		0.27	2.10	0.57				
S2285		0.80	2.30	1.84				
Total		16.27	6.26 g/t	101.87	538	0.58 m	2.68	832

Underground

Sample Number	Vein 3 Low grade 2	Thick (m)	Au (g/t)	m.g/t	Area (m ²)	Area Thick (m)	SG	Tonnes
S2037		0.15	5.90	0.89				
S2040		0.20	5.90	1.18				
S2041		0.25	5.40	1.35				
S2045		1.00	1.70	1.70				
S2046		0.50	2.10	1.05				
S2047		0.25	5.90	1.48				
S2048		0.80	2.20	1.76				
S2049		0.40	10.90	4.36				
S2050		0.10	1.60	0.16				
S2051		0.70	5.30	3.71				
S2052		1.20	17.70	21.24				
S2053		0.35	2.30	0.81				
S2054		1.00	4.30	4.30				
S2055		0.50	5.10	2.55				
S2056		0.25	5.50	1.38				
S1818		0.73	4.80	3.50				
S1819		0.70	9.10	6.37				
S1923		0.50	9.80	4.90				
S1924		0.90	3.20	2.88				
S2002		0.60	12.80	7.68				
S2060		0.30	8.30	2.49				
S2063		0.45	2.80	1.26				
S2064		0.25	9.80	2.45				
S2067		0.17	5.00	0.85				
S2068		0.90	1.70	1.53				
S2070		0.45	6.10	2.75				
S2057		0.70	3.90	2.73				
S2058		0.30	4.70	1.41				
S2059		1.20	2.10	2.52				
S1889		0.80	1.80	1.44				
S1890		0.35	6.40	2.24				
S1891		0.60	3.30	1.98				
S1892		0.50	3.10	1.55				
S1893		0.62	2.40	1.49				
S1894		0.55	1.90	1.05				
S1896		0.83	1.90	1.58				
S1897		0.50	16.20	8.10				
S1900		0.60	2.80	1.68				
S1901		0.30	3.20	0.96				
S1902		0.31	28.20	8.74				
S1903		1.00	12.10	12.10				
S1904		0.51	5.50	2.81				
S1905		0.35	7.70	2.70				
S1906		0.85	11.10	9.44				
S2004		0.31	7.70	2.39				
S2005		0.60	11.10	6.66				
S1998		0.27	3.50	0.95				
S1999		0.50	3.20	1.60				
S2000		0.87	12.70	11.05				
S1920		0.27	2.80	0.76				

S1921		1.80	1.30	2.34				
S1916		0.39	4.80	1.87				
S1917		1.65	1.30	2.15				
S2033		0.90	1.30	1.17				
S2034		0.70	7.40	5.18				
S2035		0.20	7.50	1.50				
S2029		0.60	3.90	2.34				
S2030		0.67	8.80	5.90				
S2031		0.50	1.10	0.55				
S2026		0.63	9.50	5.99				
S2027		0.20	26.90	5.38				
S2028		1.10	1.80	1.98				
S2023		0.50	12.10	6.05				
S2024		0.30	75.00	22.50				
S2020		0.50	4.10	2.05				
S2021		0.35	1.20	0.42				
S2196		0.15	75.00	11.25				
S2197		1.30	2.20	2.86				
S2198		0.27	3.30	0.89				
S2199		1.00	1.20	1.20				
S2202		0.80	24.10	19.28				
S2203		0.45	3.50	1.58				
S2204		0.65	12.50	8.13				
S2209		0.43	3.30	1.42				
S2210		0.18	26.60	4.79				
S2211		0.64	6.90	4.42				
S2213		0.20	75.00	15.00				
S2214		0.60	75.00	45.00				
S2215		1.15	1.40	1.61				
S2216		0.35	3.10	1.09				
S2217		0.30	9.20	2.76				
S2161		0.25	11.20	2.80				
S2162		0.15	3.10	0.47				
S2159		0.27	8.50	2.30				
S2155		0.50	3.30	1.65				
S2156		0.45	29.60	13.32				
S2157		0.45	2.90	1.31				
S2165		0.22	2.20	0.48				
S2166		1.20	2.80	3.36				
S2167		0.30	3.30	0.99				
S2149		0.55	3.60	1.98				
S2150		0.82	1.20	0.98				
S2151		0.51	9.30	4.74				
S2137		0.63	2.00	1.26				
S2138		0.20	9.70	1.94				
S2139		0.60	1.90	1.14				
S2140		0.90	2.50	2.25				
S2142		0.75	2.60	1.95				
S2146		0.60	2.30	1.38				
S2147		0.28	17.50	4.90				
Total		56.38	7.28 g/t	410.27	4,171	0.56 m	2.7	6,205

Underground

Sample Number	Vein 3 High grade	Thick (m)	Au (g/t)	m.g/t	Area (m2)	Area Thick (m)	SG	Tonnes
S2263		0.45	4.70	2.12				
S2264		0.47	2.50	1.18				
S2265		0.30	1.80	0.54				
S2266		0.60	57.30	34.38				
S2267		0.25	36.40	9.10				
S2268		0.40	2.70	1.08				
S2269		0.20	3.00	0.60				
S2270		0.50	3.20	1.60				
S2271		0.30	4.10	1.23				
S2272		0.33	59.00	19.47				
S2273		0.30	3.10	0.93				
S2274		0.15	1.70	0.26				
S2275		0.20	11.70	2.34				
S2276		0.27	71.90	19.41				
S2277		0.30	6.00	1.80				
R0331		0.35	2.00	0.70				
R0332		0.55	3.10	1.71				
R0337		0.53	3.00	1.59				
R0338		0.40	3.80	1.52				
R0588		0.37	3.90	1.44				
R0590		0.60	24.20	14.52				
R0591		0.80	7.50	6.00				
R0592		0.43	6.90	2.97				
R0593		0.23	1.50	0.35				
R0594		0.45	2.30	1.04				
R0596		0.50	5.40	2.70				
R0597		0.30	2.30	0.69				
R0217		0.71	3.00	2.13				
R0218		0.63	1.90	1.20				
R0236		0.25	4.40	1.10				
R0237		0.51	38.90	19.84				
R0238		0.33	1.20	0.40				
R0239		0.57	1.70	0.97				
R0240		0.27	16.20	4.37				
R0241		0.23	10.00	2.30				
R0334		0.43	1.50	0.65				
R0335		0.27	6.70	1.81				
R0336		0.47	3.70	1.74				
R0313		0.25	6.50	1.63				
R0314		0.87	6.70	5.83				
R0315		0.93	1.20	1.12				
R0319		0.47	6.40	3.01				
R0320		0.33	33.60	11.09				
R0321		0.55	3.60	1.98				
R0327		0.50	2.50	1.25				
R0322		0.37	3.10	1.15				
R0323		0.40	6.20	2.48				
R0316		0.37	2.20	0.81				
R0317		0.37	75.00	27.75				
R0318		0.80	2.20	1.76				

R0311		0.25	8.00	2.00				
R0312		0.65	5.60	3.64				
R0292		0.43	50.90	21.89				
R0297		0.35	5.20	1.82				
R0298		0.53	49.10	26.02				
R0303		0.27	45.70	12.34				
R0304		0.66	43.00	28.38				
R0300		0.51	1.20	0.61				
R0301		0.32	7.60	2.43				
R0295		0.27	36.40	9.83				
R0285		0.21	1.40	0.29				
R0286		1.10	1.50	1.65				
R0287		0.13	1.30	0.17				
R0250		0.33	2.90	0.96				
R0251		0.29	31.20	9.05				
R0252		0.93	6.20	5.77				
R0256		0.21	1.70	0.36				
R0257		0.45	17.80	8.01				
R0262		0.11	6.30	0.69				
R0267		0.41	75.00	30.75				
R0268		0.55	1.80	0.99				
R0275		0.35	11.80	4.13				
R0270		1.31	75.00	98.25				
R0271		0.25	2.00	0.50				
R0264		0.53	3.50	1.86				
R0265		0.59	75.00	44.25				
R0266		0.37	2.10	0.78				
R0260		0.27	41.50	11.21				
R0261		0.37	3.30	1.22				
R0253		0.43	1.20	0.52				
R0254		0.65	75.00	48.75				
R0255		0.31	2.60	0.81				
R0247		0.43	2.10	0.90				
R0247		0.33	75.00	24.75				
R0283		0.23	4.30	0.99				
R0284		0.21	5.50	1.16				
R0242		0.35	6.60	2.31				
R0245		0.31	41.50	12.87				
R0223		0.47	4.20	1.97				
R0224		0.51	2.90	1.48				
R0225		0.37	1.20	0.44				
R0230		0.29	8.90	2.58				
S2196		0.15	75.00	11.25				
S2197		1.30	2.20	2.86				
S2198		0.27	3.30	0.89				
S2199		1.00	1.20	1.20				
S2202		0.80	24.10	19.28				
S2203		0.45	3.50	1.58				
S2204		0.65	12.50	8.13				
S2209		0.43	3.30	1.42				
S2210		0.18	26.60	4.79				
S2211		0.64	6.90	4.42				
S2213		0.20	75.00	15.00				

S2214		0.60	75.00	45.00				
S2215		1.15	1.40	1.61				
S2216		0.35	3.10	1.09				
S2217		0.30	9.20	2.76				
		47.77	16.29 g/t	778.20	1,600	0.40 m	2.68	1,707

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
3	I-C1	S701	1.15	6.8		6.8	8				
		S269	0.75	5.6		5.6	4				
			1.9	6.33			12	5,000	0.95	2.68	12,730

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
15	I-C1	S970	0.6	15.2	9	15.2	9				
		S16	0.2	2.5	1	2.5	1				
		S969	0.8	8.4	7	8.4	7				
			1.6	10.2	16	10.2	16	2,310	0.5	2.68	3,302

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
16	I-C2	RS4	0.3	12.6	4	12.6	4				
		S50	1.5	5.3	8	5.3	8				
		S51	3.9	5.5	21	5.5	21				
		S60	1	3.2	3	3.2	3				
		S963	0.65	6.8	4	6.8	4				
		S964	1	4.1	4	4.1	4				
		S967	1.8	3.3	6	3.3	6				
		S969	1.1	5.4	6	5.4	6				
			11.25	5.05	57	5.05	57	18,550	1.41	2.68	69,910

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
17	1-C2	RS3	0.65	6.12	4	6.12	4				
		S60	0.7	3.4	2	3.4	2				
		S75	0.45	315.2	142	131	59				
		S282	2.8	8.5	24	8.5	24				
		S963	0.5	3.2	2	3.2	2				
		S965	3	4.4	13	4.4	13				
		S972	2.45	4.02	10	4.02	10				
		S973	2	9.75	20	9.75	20				
			12.55	17.22	216	10.62	133	13,600	1.57	2.68	57,178

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
18	1A-C2	RS3	0.6	3.5	2	3.5	2				
		RS6	2.1	13.1	28	13.1	28				
		S64	3	5.5	17	5.5	17				
		S232	2.35	5.1	12	5.1	12				
		S890	1	3.4	3	3.4	3				
		S963	1.05	1.43	2	1.43	2				
		S964	1.4	85.1	119	131	183				
		S965	1	17.7	18	17.7	18				
		S967	1.25	458.2	573	131	164				
		S969	1.2	5.7	7	5.7	7				
		S972	0.4	45.6	18	45.6	18				
		S973	1.55	57.6	89	57.6	89				
		S1001C	0.55	3.36	2	3.36	2				
		S1001C	1.45	5.5	8	5.5	8				
			18.9	47.45	897	29.21	552	41,360	1.35	2.68	149,640
	Excluded	S974	0.2	11.6	2	11.6	2				

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
18	2-C2	S32	0.3	25.1	8	25.1	8				
		S845	0.8	10	8	10	8				
		S819	1.6	12.1	19	12.1	19				
			2.7	12.92	35	12.92	35	12,290	0.90	2.2	24,334
Moved to Kalana I Stage1											

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
18	3-C2	RS5	3.45	3.92	14	3.92	14				
		S25	1.3	131.6	171	131	170				
		S976	2.45	4.2	10	4.2	10				
		S991	0.5	4.3	2	4.3	2				
		S1006	1.1	14.1	16	14.1	16				
		S1007	1.5	28.3	42	28.3	42				
			10.3	24.76	255	24.68	254	19,080	1.72	2.68	87,781

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
18a	1-C2	RS5	1.5	3.09	5	3.09	5				
		S14	0.7	360.9	253	131	92				
		S270	1.5	7	11	7	11				
		S976	1.1	4.9	5	4.9	5				
		S991	1.4	31.8	45	31.8	45				
		S992	0.95	5.4	5	5.4	5				
		S993	1.4	5.1	7	5.1	7				
		S1006	3.2	17.9	57	17.9	57				
			11.75	32.96	387	19.26	226	19,240	1.47	2.68	75,733

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19	1-C2(B)	RS3	0.8	1657.6	1326	131	105				
		S963	1.85	6.33	12	6.33	12				
		S965	0.8	127.2	102	127.2	102				
		S972	3.75	3.95	15	3.95	15				
		S973	1.6	4.59	7	4.59	7				
			8.8	166.10	1462	27.32	240	20,231	1.76	2.68	95,426
Excluded in fault		S88	1.1	7.42				less 4000			
		S971	0.7	4.60				for fault			

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19	1-C2(C)	RS6	0.8	7.5	6	7.5	6				
		S969	2.45	4.68	11	4.68	11				
		S970	1.15	4.5	5	4.5	5				
		S974	0.6	4.7	3	4.7	3				
			5	5.09	25	5.09	25	13,671	1.25	2.68	45,798

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19	2-C2	RS5	3.6	8.05	29	8.05	29				
		S9	0.7	5.2	4	5.2	4				
		S727	1	7.6	8	7.6	8				
		S983	0.9	5.9	5	5.9	5				
		S991	0.7	4.7	3	4.7	3				
		S992	1.7	6.3	11	6.3	11				
		S994	1.9	5.1	10	5.1	10				
		S1006	0.85	11.8	10	11.8	10				
			11.35	6.98	79	6.98	79	26,150	1.42	2.68	99,429

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19	3-C2	S977	5	3.4	17	3.4	17				
		S966	1	5.9	6	5.9	6				
		S1000	2.05	4.34	9	4.34	9				
		S986	0.4	7.8	3	7.8	3				
			8.45	4.13	35	4.13	35	11,250	2.11	2.68	63,692

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19a	1-C2	RS6	0.4	6.2	2	6.2	2				
		S957	1.2	9.7	12	9.7	12				
		S964	0.55	12.2	7	12.2	7				
		S975	1.2	4	5	4	5				
		S976	2.35	8.3	20	8.3	20				
		S994	0.9	1.89	2	1.89	2				
		S995	0.25	4.3	1	4.3	1				
		S996	0.75	7.7	6	7.7	6				
			7.6	7.06	54	7.06	54	23,990	0.95	2.68	61,079

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19a	2-C2	RS3	0.7	3.4	2	3.4	2				
		S963	1.4	5.3	7	5.3	7				
		S965	1.5	184.5	277	30	45				
			3.6	79.60	287	15.22	55	9,420	1.20	2.68	30,295
Excluded in fault		S971	2	3.2				less 2000 for fault			

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
20	1-C2	RS3	0.2	200	40	131	26				
		RS4	0.6	27.53	17	27.53	17				
		RS6	1.05	3.9	4	3.9	4				
		S88	3.5	20.1	70	20.1	70				
		S739	0.8	9	7	9	7				
		S962B	0.55	5.2	3	5.2	3				
		S963	0.55	5.1	3	5.1	3				
		S965	1	2.2	2	2.2	2				
		S967	1	3.1	3	3.1	3				
		S968A	1.6	3.27	5	3.27	5				
		S970	3.85	4.96	19	4.96	19				
		S971	1.95	5.1	10	5.1	10				
		S972	1	18.2	18	18.2	18				
		S973	0.2	17.2	3	17.2	3				
		S974	0.7	4	3	4	3				
		S1001C	0.7	7.9	6	7.9	6				
			19.25	11.08	213	10.37	200	52,600	1.20	2.68	169,602

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
20	2-C2	RS1	2.8	6.14	17	6.14	17				
		RS5	1.75	3.9	7	3.9	7				
		S950	0.6	4.7	3	4.7	3				
		S957	0.6	4.4	3	4.4	3				
		S964	3.5	88.7	310	45.98	161				
		S976	2.5	3.2	8	3.2	8				
		S977	1	4.9	5	4.9	5				
		S979	1.2	4.8	6	4.8	6				
		S983	1	3.06	3	3.06	3				
		S992	1.3	4.7	6	4.7	6				
		S993	3.9	8.18	32	8.18	32				
		S994	1	4.1	4	4.1	4				
		S1000	1	4.3	4	4.3	4				
			22.15	18.42	408	11.67	259	53,480	1.70	2.68	244,206

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
21	1-C2	RS3	0.3	15.4	5	15.4	5				
		S962B	0.8	6.7	5	6.7	5				
		S963	0.65	136.6	89	131	85				
		S965	1.65	16.95	28	16.95	28				
		S968A	0.8	25.9	21	25.9	21				
		S971	0.75	9.5	7	9.5	7				
		S973	0.8	7.65	6	7.65	6				
			5.75	27.95	161	27.32	157	21,060	0.82	2.68	46,362

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
21	2-C2	RS2	2.2	6.89	15	6.89	15				
		S964	1.1	15.2	17	15.2	17				
		S966	5.4	6.49	35	6.49	35				
		S967	0.8	23.2	19	23.2	19				
		S986	1	11.5	12	11.5	12				
		S988	0.55	26.3	14	26.3	14				
		S989	0.85	2.6	2	2.6	2				
		S1000	0.75	7.7	6	7.7	6				
			12.65	9.44	119	9.44	119	24,270	1.58	2.68	102,850

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
21	3-C2	S950	1	5.9	6	5.9	6				
		S977	1	3	3	3	3				
		S979	1.05	8.2	9	8.2	9				
		S981	0.35	33.9	12	33.9	12				
		S982	0.65	8.7	6	8.7	6				
		S983	2.4	5.32	13	5.32	13				
		S992	0.95	8	8	8	8				
			7.4	7.49	55	7.49	55	32,240	1.06	2.68	91,341

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
22	1-C2	S986	1.55	8.29	13	8.29	13				
		S987	1	4.7	5	4.7	5				
		S989	1	18.3	18	18.3	18				
			3.55	10.10	36	10.10	36	9,660	1.18	2.68	30,635

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
22	2-C2	RS2	1.5	0.42	1	0.42	1				
		S962B	2.3	3.59	8	3.59	8				
		S968	1	4.6	5	4.6	5				
		S971	1	4.7	5	4.7	5				
		S990	2.3	4.89	11	4.89	11				
			8.1	3.63	29	3.63	29	16,550	1.62	2.68	71,853

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
22	3-C2	S964	0.85	9.5	8	9.5	8				
		S963	0.95	4.3	4	4.3	4				
		RS6	0.75	4.7	4	4.7	4				
		S973	1.2	4.6	6	4.6	6				
		S1001	0.8	5.2	4	5.2	4				
			4.55	5.57	25	5.57	25	24,070	0.91	2.68	58,702

Underground

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
23	1-C2	RS4	0.2	146.7	29	131	26				
		RS6	2.15	6.2	13	6.2	13				
		S962	1.65	3.66	6	3.66	6				
		S964	1.9	12.1	23	12.1	23				
		S966	0.5	6.8	3	6.8	3				
		S986	1.25	4.1	5	4.1	5				
		S987	1	5.27	5	5.27	5				
			8.65	9.88	85	9.52	82	34,850	1.24	2.68	115,413

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
22	Deep	RS5	1.2	6.3	8	6.3	8				
		S953	0.7	7.9	6	7.9	6				
			1.9	6.89	13	6.89	13	20,300	0.95	2.68	51,684

Vein 14 + 15

Kalana Gold Mine			
Vein 14 + 15			
Underground sampling (290 - 315 RL)			
Sample	Thick (m)	Au (g/t)	m.g/t
1	0.95	6.5	6.18
3	0.93	4.6	4.28
4	0.78	3.8	2.96
5	0.55	2.7	1.49
8	1.08	3.5	3.78
9	0.05	3.9	0.20
10	0.5	2.1	1.05
11	0.36	11.2	4.03
12	0.74	31.4	23.24
13	0.59	2.7	1.59
14	0.08	5.1	0.41
15	0.17	29.7	5.05
16	0.41	16.8	6.89
17	0.12	14.7	1.76
18	0.55	5.3	2.92
19	0.3	51.1	15.33
20	0.65	4	2.60
21	0.09	20.1	1.81
22	0.12	5	0.60
23	0.84	4	3.36
24	0.1	33.5	3.35
25	0.54	6.1	3.29
26	1.42	3.9	5.54
27	0.62	18.2	11.28
28	0.79	8.8	6.95
29	0.66	11.8	7.79
30	0.37	17.2	6.36
31	0.34	4.7	1.60
32	0.16	6.9	1.10
33	1.07	3.2	3.42
34	0.38	5.8	2.20
35	0.11	5	0.55
36	0.36	7.3	2.63
37	0.15	29.1	4.37
38	0.47	32.4	15.23
39	0.27	21.2	5.72
40	0.4	4.9	1.96
41	0.44	8.5	3.74
42	0.54	5.6	3.02
43	0.82	19.9	16.32
44	0.32	20.2	6.46
45	0.08	8	0.64
47	0.49	16.6	8.13
	20.8	10.2	211.2
Ave. Thick (m)	0.48		

Indicated Resource				
Area	Thick (m)	S.G.	Tonnes	Au (g/t)
6,300	0.48	2.68	8151.44	10.2

Stockwork

Kalana Gold Mine Stockwork Zone Underground channel sampling (290 Level) Au g/t cut 30 g/t		
---	--	--

Vertical channel		
Area	Thick (m)	Cut Au (g/t)
S1	2.30	2.53
	2.45	3.18
	2.60	3.70
	2.05	2.32
	2.35	4.53
	2.30	3.69
	2.40	3.58
	2.00	4.78
Average	2.31	3.54

Vertical channel		
Area	Thick (m)	Cut Au (g/t)
S3	2.9	2.8
	2.5	7.9
	2.2	2.1
	1.7	5.1
	2.6	9.1
	2.1	6.8
	1.7	2.3
	2.6	7.5
	2.4	3.8
	2	11.6
	3.6	4.1
	2.6	3.5
	2.5	3.2
	2.5	5.3
	2.5	30.9
	2.4	1.5
	2.3	1.5
Average	2.42	6.41

Low grade		
Horizontal Channel		
Area	Thick (m)	Cut Au (g/t)
S9	9.90	1.90
	Vertical Channel	
	6.50	5.07
Average	8.20	2.50

Drill		
Area	Thick (m)	Au (g/t)
S2	0.7	2.8
	0.8	24
	0.6	6.6
	1.25	4.7
	1.25	4.2
	1.25	9
	1.25	6.8
	1.2	6.6
	0.8	3.9
	0.4	2.7
	0.6	3.9
	1	1.5
	0.9	4.1
	0.6	3.7
	1	4.4
Average	0.91	6.0

Horizontal channel		
Area	Thick (m)	Au (g/t)
S4	7.00	3.13
	8.00	1.60
	10.00	0.88
	11.50	4.01
	6.00	3.90
Average	8.50	2.66

Low grade		
Horizontal Channel		
Area	Thick (m)	Cut Au (g/t)
S10	8.50	8.43
	2.2	1.34
Total	10.70	6.97
	12	0.82
Average	11.35	3.72

Stockwork

Stockwork - Indicated Resources 265 to 315 RL							
High grade							
Area	Length (m)	Width (m)	Height (m)	S.G.	Tonnes	Au (g/t)	Mining
S1	30	14	50	2.68	56,280	3.50	
S2	40	15	50	2.68	80,400	6.05	
S3	22	17	50	2.68	50,116	6.41	
S4	25	14	50	2.68	46,900	2.66	
Total					233,696	4.83	
265 - 290RL					116,848	4.83	Underground
290 - 315RL					58,424	4.83	Underground
290 - 315RL					58,424	4.83	Open Pit Kalana I Stage 2
Low grade							
S9	30	12	50	2.68	48,240	2.50	
S10	30	12	50	2.68	48,240	3.72	
					96,480	3.11	
265 - 290RL					48,240	3.11	Underground
290 - 315RL					24,120	3.11	Underground
290 - 315RL					24,120	3.11	Open Pit Kalana I Stage 2

Stockwork, Inferred Resources (low grade)							
	Length (m)	Width (m)	Height (m)	S.G.	Tonnes	Au (g/t)	Mining
315 - 360RL	113	15	45	2.5	190,856	3.0	Open Pit Kalana I Stage 2
240 - 265RL	117	12.7	25	2.68	99,555	3.0	Underground

Underground				
Levels	Grade	Resource	Tonnes	Au (g/t)
290 - 315RL	High grade	Indicated	58,424	4.83
290 - 315RL	Low grade	Indicated	24,120	3.11
265 - 290RL	High grade	Indicated	116,848	4.83
265 - 290RL	Low grade	Indicated	48,240	3.11
240 - 265RL	Low grade	Inferred	99,555	3.00

Kalana I Open Pit Stage 2				
290 - 315RL	High grade	Indicated	58,424	4.83
290 - 315RL	Low grade	Indicated	24,120	3.11
315 - 360RL	Low grade	Inferred	190,856	3.00

Kalana 1 Stage 1

Kalana 1, Open pit Stage 1 Veins 1, 2 and 3							
Section	Hole/Channel	Thick (m)	Au (g/t)	Cut Au (g/t)	Dilution	Diluted	Au (g/t)
6.0	S733	2.0	58.9	31.0	0.5	2.00	31.0
6.0	S1012		0	0.0	0.5	2.00	0.5
6.0	S25			0.0	0.5	2.00	0.5
6.0	Total	2.0				6.00	10.7
6.5	S58	0.2	10.6	10.6	0.5	2.00	1.5
6.5	Total	0.2				2.00	1.5
7.0	S838	1.7	1.4	1.4	0.5	2.00	1.3
7.0	S838	1.0	6	6.0	0.5	2.00	3.3
7.0	S1012	0.5	17.6	17.6	0.5	2.00	4.8
7.0	S727	1.0	2.8	2.8	0.5	2.00	1.7
7.0	S981					2.00	0.0
7.0	Total	1.1				10.00	2.2
7.5	S109K	0.6	6	6.0	0.5	2.00	2.2
7.5	Gallery	1.0	22.3	22.3	0.5	2.00	11.4
7.5	S80	1.3	116.2	31.0	0.5	2.00	19.6
7.5	Total	1.0				6.00	11.0
8.0	S834	1.0	6.2	6.2	0.5	2.00	3.4
8.0	Gallery	0.95	11.2	11.2	0.5	2.00	5.6
8.0	S982	1.0	3.5	3.5	0.5	2.00	2.0
8.0	S779	1.2	4.6	4.6	0.5	2.00	3.0
8.0	S779	0.7	2.4	2.4	0.5	2.00	1.2
8.0	Total	1.0				10.00	3.0
8.5	S821	3.6	3.8	3.8	0.5	3.60	3.8
8.5	S79	0.2	32.4	31.0	0.5	2.00	2.8
8.5	S57	1.0	148	31.0	0.5	2.00	15.8
8.5	Total	1.6				7.60	6.68
9.0	S820	0.6	4	4	0.5	2.00	1.6
9.0	S820	0.7	3.8	3.8	0.5	2.00	1.7
9.0	S986	0.8	11	11	0.5	2.00	4.7
9.0	S820	0.7	7	7	0.5	2.00	2.8
9.0	S40	0.3	6.1	6.1	0.5	2.00	1.3
9.0	S817	1.5	3.1	3.1	0.5	2.00	2.5
9.0	Total	0.8				12.00	2.4
9.5	S989	1.6	12.1	12.1	0.5	2.00	9.8
9.5	S32	0.3	25.1	25.1	0.5	2.00	4.2
9.5	Total	1.0				4.00	7.0
10.0	No data						

Summary –Kalana 1, Open Pit Stage 1								
Section	Horizontal	Vert Thick	Length (m)	Volume	S.G.	Tonnes	Au (g/t)	Metal (g)
6	70	2.00	50	7,000.00	2.00	14,000.00	10.7	149,333
6.5	100	2.00	50	10,000.00	2.00	20,000.00	1.5	30,200
7	100	2.00	50	10,000.00	2.00	20,000.00	2.2	43,760
7.5	100	2.00	50	10,000.00	2.00	20,000.00	11.0	220,750
8	100	2.00	50	10,000.00	2.00	20,000.00	3.0	60,230
8.5	100	2.00	50	10,000.00	2.00	20,000.00	6.7	133,566
9	100	2.00	50	10,000.00	2.00	20,000.00	2.4	48,233
9.5	100	2.00	50	10,000.00	2.00	20,000.00	7.0	139,700
10	100	2.00	50	10,000.00	2.00	20,000.00	2.0	40,000
Total	96.67					174,000.00	4.98	865,772

Kalana 1 Stage 2

Kalana 1, Open pit Stage 2								
Section	Vein	Hole/Channel	Thick (m)	Au (g/t)	Cut Au (g/t)	Dilution	Diluted	Au (g/t)
5.5	9	S270	1.0	2.6	2.6	0.5	2.00	1.55
5.5	9	S724	1.8	4.1	4.1	0.5	2.00	3.74
5.5	9	S690	1.4	36.7	31.0	0.5	2.00	21.85
5.5	9	S275	1.9	5.6	5.6	0.5	2.00	5.35
5.5	9	Total	1.5				8.00	8.12
6.0	3	S26	0.1	125.1	75.0	0.5	2.00	4.23
6.0	3	Total	0.1				2.00	4.23
6.5	1	S729	1.0	2.8	2.8	0.5	2.00	1.65
6.5	1	S58	1.5	0.8	0.8	0.5	2.00	0.73
6.5	1	S22	2.3	9.8	9.8	0.5	2.30	9.80
6.5	1	Total	1.6				6.30	4.33
6.5	2	S22	1.2	11	11.0	0.5	2.00	6.80
6.5	2	Gallery	0.6	4.7	4.7	0.5	2.00	1.78
6.5	2	S23	0.5	5.9	5.9	0.5	2.00	1.85
6.5	2	Total	0.8				6.00	3.48
6.5	3	S761	2.8	7.2	7.2	0.5	2.80	7.20
6.5	3	S36	2.0	0.5	0.5	0.5	2.00	0.50
6.5	3	Total	2.4				4.80	4.41
7.0	1	S77	1.3	11	11.0	0.5	2.00	7.33
7.0	1	Total	1.3				2.00	7.33
7.0	2	S33	0.3	21.3	21.3	0.5	2.00	3.62
7.0	2	Total	0.3				2.00	3.62
7.0	3	S744	0.7	2	2	0.5	2.00	1.03
7.0	3	S744	0.7	4	4	0.5	2.00	1.73
7.0	3	Total	0.7				4.00	1.38
7.5	1	S78	1.7	6.4	6.4	0.5	2.00	5.52
7.5	1	Total	1.7				2.00	5.52
7.5	2	S78	3.6	3.6	4.2	0.5	3.60	4.15
7.5	2	S18a	1.1	24.2	24.2	0.5	2.00	13.54
7.5	2	Total	2.4				5.60	7.50
7.5	3	S742	0.6	11.0	11.0	0.5	2.00	3.65
7.5	3	S4	1.7	9.6	9.6	0.5	2.00	8.24
7.5	3	Total	1.2				4.00	5.94
8.0	1	S89	4.4	20.1	20.1	0.5	4.40	20.10
8.0	1	S960	0.2	15	15.0	0.5	2.00	1.95
8.0	1	Total	2.3				6.40	14.43
8.0	5	S769	0.8	6.6	6.6	0.5	2.00	2.94
8.0	5	Total	0.8				2.00	2.94
8.5	1	S966	2.9	11.0	11.0	0.5	2.85	11.00
8.5	1	S150a	2.3	8.9	8.9	0.5	2.30	8.90
8.5	1	Total	2.6				5.15	10.06
8.5	A	S754	1.0	13.6	13.6	0.5	2.00	7.05
8.5	A	Total	1.0				2.00	7.05
8.5	B	S773	0.1	7.2	7.2	0.5	2.00	0.84
8.5	B	S772	1.0	20	20.0	0.5	2.00	10.25
8.5	B	S795	1.2	4.2	4.2	0.5	2.00	2.72
8.5	B	Total	0.8				6.00	4.60

Kalana 1, Open pit Stage 2								
8.5	C	S16	0.5	15	15.0	0.5	2.00	4.13
8.5	C	Total	0.5				2.00	4.13
8.5	D	S967	0.4	9.2	9.2	0.5	2.00	2.24
8.5	D	Total	0.4				2.00	2.24
9.0	2	RS2	2.9	5.2	5.2	0.5	2.90	5.20
9.0	2	S820	0.4	3.4	3.4	0.5	2.00	1.08
9.0	2	Total	1.7				4.90	3.52
9.0	14	S51	0.2	17.6	17.6	0.5	2.00	2.21
9.0	14	Total	0.2				2.00	2.21
9.0	15	S757	1.0	8	8.0	0.5	2.00	4.25
9.0	15	S756	1.0	3.4	3.4	0.5	2.00	1.95
9.0	15	S60	1.0	4.2	4.2	0.5	2.00	2.35
9.0	15	S963	13.1	2.27	2.3	0.5	13.05	2.27
9.0	15	S51	0.2	17.6	17.6	0.5	2.00	2.21
9.0	15	Total	3.3				21.05	2.43
9.0	15a	S963	1.7	3.29	3.3	0.5	2.00	2.87
9.0	15a	Total	1.7				2.00	2.87
9.5	2	S32	0.3	25.1	25.1	0.5	2.00	4.19
9.5	2	S117	0.2	224	75.0	0.5	2.00	7.95
9.5	2	Total	0.3				4.00	6.07
9.5	14	S752	1.0	8	8.0	0.5	2.00	4.25
9.5	14	Total	1.0				2.00	4.25
9.5	15	S755	1.3	3.1	3.1	0.5	2.00	2.19
9.5	15	Total	1.3				2.00	2.19
9.5	16a	RS3	0.6	6.5	6.5	0.5	2.00	2.30
9.5	16a	RS3	0.7	3.6	3.6	0.5	2.00	1.51
9.5	16a	Total	0.6				4.00	1.90
10.0	No data							
10.5	No data							
11.0	3	S739	0.8	9	9.0	0.5	2.00	3.90
11.0	3		0.8	8.6	8.6	0.5	2.00	3.74
11.0	3	Total	0.8				4.00	3.82
11.0	5	S128	1.8	5.4	5.4	0.5	2.00	4.91
11.0	5	Total	1.8				2.00	4.91

Kalana 1 Stage 2

Summary - Kalana 1, Open pit Stage 2									
Section	Vein	Horizontal	Vert Thick	Length (m)	Volume	S.G.	Tonnes	Au (g/t)	Metal (g)
5.5	9	90	2.00	50	9,000	2.50	22,500	8.12	182,728
6	3	110	2.00	50	11,000	2.50	27,500	4.23	116,188
6.5	1	60	2.10	50	6,300	2.50	15,750	4.33	68,225
6.5	2	60	2.00	50	6,000	2.50	15,000	3.48	52,155
6.5	3	30	2.40	50	3,600	2.50	9,000	4.41	39,675
7	1	50	2.00	50	5,000	2.50	12,500	7.33	91,563
7	2	100	2.00	50	10,000	2.50	25,000	3.62	90,500
7	3	40	2.00	50	4,000	2.50	10,000	1.38	13,750
7.5	1	20	2.00	50	2,000	2.50	5,000	5.52	27,575
7.5	2	90	2.80	50	12,600	2.50	31,500	7.50	236,306
7.5	3	70	2.00	50	7,000	2.50	17,500	5.94	103,994
8	1	70	3.20	50	11,200	2.50	28,000	14.43	403,988
8	5	30	2.00	50	3,000	2.50	7,500	2.94	22,050
8.5	1	70	2.58	50	9,030	2.50	22,575	10.06	227,153
8.5	A	30	2.00	50	3,000	2.50	7,500	7.05	52,875
8.5	B	80	2.00	50	8,000	2.50	20,000	4.60	92,033
8.5	C	30	2.00	50	3,000	2.50	7,500	4.13	30,938
8.5	D	30	2.00	50	3,000	2.50	7,500	2.24	16,800
9	2	40	2.45	50	4,900	2.50	12,250	3.52	43,100
9	14	30	2.00	51	3,060	2.50	7,650	2.21	16,907
9	15	130	4.08	52	27,581	2.50	68,952	2.43	167,527
9	15a	20	2.00	53	2,120	2.50	5,300	2.87	15,219
9.5	2	80	2.00	50	8,000	2.50	20,000	6.07	121,400
9.5	14	50	2.00	50	5,000	2.50	12,500	4.25	53,125
9.5	15	30	2.00	50	3,000	2.50	7,500	2.19	16,425
9.5	16a	30	2.00	50	3,000	2.50	7,500	1.90	14,278
11	3	80	2.00	50	8,000	2.50	20,000	3.82	76,400
11	5	60	2.00	50	6,000	2.50	15,000	4.91	73,650
Total		57.50					468,477	5.26	2,466,525

Vein	Block	Hole	Thick (m)	Au (g/t)	m.g/t	Cut Au (g/t)	m.g/t	Area	Thick (m)	SG	Tonnes
19	1-C2(A)	S854	0.8	4.2	3	4.2	3				
		S968	1.2	9.7	12	9.7	12				
			2	7.50	15	7.50	15	8,568	1.00	2.2	18,850

Kalana 2

Kalana 2 Open Pit Stage 1								
Ashanti/JCI drilling, High grade (>1.0 g/t Au)								
Hole	North	East	From	To	Thick (m)	Au (g/t)	Diluted	Uncut Au (g/t)
RC78	9800	10100	32	34	2.0	6.03	2.0	6.03
RC78	9800	10100	35	38	3.0	5.01	3.0	5.01
RC79	9800	10200	46	47	1.0	5.6	2.0	2.80
RC80	9800	10300	5	6	1.0	2.5	2.0	1.25
RC85	9700	10200	49	51	2.0	3.92	2.0	3.92
RC86	9700	10300	17	18	1.0	2.8	2.0	1.40
RC87.3	9700	10450	18	24	6.0	3.4	6.0	3.40
RC87.3	9700	10450	43	44	1.0	3.8	2.0	1.90
RC91	9600	10200	17	18	1.0	4.4	2.0	2.20
RC91	9600	10200	29	31	2.0	1.62	2.0	1.62
RC92	9600	10300	9	11	2.0	1.3	2.0	1.30
RC92	9600	10300	14	23	9.0	4.19	9.0	4.19
Total							36.0	3.28

Inferred Resource	Thick	Area	S.G.	Tonnes	Au (g/t)
	36.0	10,000	2.0	720,000	3.28

Ashanti/JCI drilling, Low grade (0.7 to 1.0 g/t Au)								
Hole	North	East	From	To	Thick (m)	Au (g/t)	Diluted	Uncut Au (g/t)
RC78	9800	10100	30	31	1.0	0.71	1.0	0.71
RC78	9800	10100	34	35	1.0	0.91	1.0	0.91
RC80	9800	10300	18	19	2.0	0.88	2.0	0.88
RC86	9700	10300	24	25	1.0	1.95	2.0	0.98
RC86	9700	10300	25	26	1.0	0.82	1.0	0.82
RC86	9700	10300	34	35	1.0	1.41	2.0	0.71
RC87.3	9700	10450	10	11	1.0	0.9	1.0	0.90
RC87.3	9700	10450	24	25	1.0	0.68	1.0	0.68
RC91	9600	10200	42	43	1.0	1.21	1.0	1.21
RC91	9600	10200	48	49	1.0	1.35	2.0	0.68
Total							14.0	0.84

Inferred Resource	Thick	Area	S.G.	Tonnes	Au (g/t)
	1.5	10,000	2.0	280,000	0.84

APPENDIX B
RESOURCE TABULATION FOR UNDERGROUND AND OPEN PIT

Kalana Gold Mine Underground Resources - June 2004 MEASURED RESOURCES						
Zone	Block	Level RL	Tonnes	Au g/t	Thick (m)	Au (kg)
Vein 1	II- A (C1)	250 to 290	21,000	18.0	1.6	378
	II-B (C1)	265 to 290	72,550	18.8	1.7	1,364
Vein 3	III - C1 (20%)	290 to 315	13,200	30.4	1.8	401
	High grade	290 to 315	1,000	16.3	0.4	16
	Low grade 1	290 to 315	700	6.3	0.6	4
	Low grade 2	290 to 315	3,350	7.3	0.6	24
TOTAL MEASURED			111,800	19.6	1.1	2,188
INDICATED RESOURCES						
Vein 1	V - C2	250-200	67,000	10.7	1.2	717
Vein 3	I - C1	265 to 290	12,700	6.3	0.95	80
Vein 14/15	Channel	290 to 315	8,000	10.2	0.5	82
Vein 15	I - C1	265 to 290	3,300	10.2	0.5	34
Vein 16	I - C2	260 to 315	69,900	5.0	1.4	350
Vein 17	I - C2	240 to 280	57,000	10.6	1.6	605
Vein 18	I - C2	190 to 295	149,600	29.2	1.4	4,370
	III - C2	120 to 250	87,800	24.7	1.7	2,167
Vein 18a	I - C2	140 to 240	75,700	19.3	1.5	1,458
Vein 19	I - C2(B)	170 to 230	95,400	27.3	1.8	2,606
	I - C2(C)	140 to 170	45,800	5.1	1.3	233
	II - C2	130 to 270	99,400	7.0	1.4	694
	III - C2	130 to 270	63,700	4.1	2.1	263
Vein 19a	I - C2	100 to 240	61,000	7.1	1.0	431
	II - C2	150 to 220	30,300	15.2	1.2	461
Vein 20	I - C2	70 to 230	169,600	10.4	1.2	1,758
	II - C2	70 to 230	244,200	11.7	1.7	2,850
Vein 21	I - C2	30 to 220	46,400	27.3	0.8	1,267
	II - C2	30 to 220	102,900	9.4	1.6	972
	III - C2	30 to 220	91,300	7.5	1.1	683
TOTAL VEINS INDICATED			1,581,000	14.0	1.3	22,082
Stockwork	High grade	290 to 315	58,300	4.8	15.0	282
Stockwork	Low grade	290 to 315	24,100	3.1	10.0	75
Stockwork	High grade	265 to 290	116,600	4.8	15.0	563
Stockwork	Low grade	265 to 290	48,200	3.1	10.0	150
TOTAL STOCKWORK			247,200	4.3	11.6	1,070
TOTAL INDICATED			1,828,200	12.7		23,152
MEASURED+INDICATED			1,940,000	13.1		25,340
INFERRED RESOURCES						
Zone	Block	Level	Tonnes	Au g/t	Thick (m)	Au (kg)
Vein 22	I - C2	0 to 170	31,000	10.1	1.2	313
	II - C2	0 to 170	72,000	3.6	1.6	262
	III - C2	0 to 170	59,000	5.6	0.9	329
Vein 23	I - C2	-50 to 100	115,000	9.5	1.2	1,095
Stockwork		240 to 265	100,000	3.0		300
Vein 22 - Deep	P	-200 to -140	52,000	6.9	1.0	358
TOTAL INFERRED			429,000	6.2		2,657

KALANA GOLD MINE						
Open Pit Resources - June 2004						
INDICATED RESOURCES						
Zone	Block	Level RL	Tonnes	Au g/t	Thick (m)	Au (kg)
KALANA I Stage 1 (50 m depth)						
Veins 1, 2 & 3		340 to 390	174,000	5.0	2.0	870
Vein 18		315 to 375	24,300	12.9	0.9	313
Total			198,300	6.0		1,183
KALANA I Stage 2 (100 m depth)						
Veins 1, 2 & 3		315 to 340	468,500	5.3	2.2	2,474
Vein 19 I - C2(A)		290 to 320	18,900	7.5	1.0	142
Stockwork High Grade		290 to 315	58,300	4.8		282
Stockwork Low Grade		290 to 315	24,100	3.1		75
			569,800	5.2		2,972
KALANA III (50 m depth)						
Vein 8			35,200	23.5	2.9	827
Vein 9			44,600	12.2	3.3	546
Vein 10			2,800	32.9	0.5	92
Vein 11			12,900	21.4	1.0	276
Total			95,500	18.2		1,741
Total Indicated			863,600	6.8		5,896
INFERRED RESOURCES						
KALANA I Stage 2 (100 m depth)						
Stockwork		315 to 340	190,000	3.0		570
Remnant pillars Vein 1		290 to 315	7,000	30.0		210
Remnant pillars Vein 3		290 to 315	5,000	20.0		100
Total			202,000	4.4		880
KALANA I Stage 3 (150 m depth)						
Other veins		290 to 390	100,000	0.5	5.0	50
Stockwork zones		240 to 390	500,000	2.5		1,250
Remnant pillars veins 1 & 2		240 to 390	30,000	10.0	10.0	300
Total			630,000	2.5		1,600
KALANA 2 Stage 1 (50 m depth)						
Veins (Plant)			720,000	3.3	3.0	2,376
Halo (Heap Leach)			280,000	0.8	1.5	232
Total			1,000,000	2.6		2,608
TOTAL INFERRED			1,832,000	2.8		5,088