FORM 6-K

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Report of Foreign Private Issuer

Pursuant to Rule 13a-16 or 15d-16
of the Securities Exchange Act of 1934

Date: March 9, 2009
Commission File Number 001-31528

IAMGOLD Corporation

(Translation of registrant's name into English)

401 Bay Street Suite 3200, PO Box 153
Toronto, Ontario, Canada M5H 2Y4
Tel: (416) 360-4710
(Address of principal executive offices)

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

Form 20-F ☐ Form 40-F ☒

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

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

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

Note: Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's "home country"), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

Description of Exhibit

Exhibit	Description of Exhibit
99.1	Technical Report on Tarkwa Gold Mine dated July 1, 2004

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

IAMGOLD CORPORATION

Date: March 9, 2009

By: /s/ Paul B. Olmsted

Paul B. Olmsted
Senior Vice-President, Corporate Development

Exhibit 99.1

An Independent Technical Report on the Tarkwa Gold Mine, Ghana

Report Prepared for

Gold Fields Limited and IAMGold Corporation

Effective Date:	**July 1, 2004**
Issue Date:	**October 25, 2004**

Prepared under the Guidelines of National Instrument 43-101 and accompanying documents 43-101.F1 and 43-101.CP

Report Prepared by
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ISSUED OCTOBER 2004

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Issued: October 25, 2004

An Independent Technical Report on the Tarkwa Gold Mine, Ghana

1 EXECUTIVE SUMMARY

The Tarkwa gold mine ("Tarkwa") is operated by Gold Fields Limited ("Gold Fields") the majority share holder, with 71.1% of the issued shares of the owner Gold Fields Ghana Limited ("GFGL"). The proposed transaction means the acquisition by IAMGold Corporation ("IAMGold") of the Acquired Interests from Gold Fields and its affiliates and the issue by IAMGold of the Consideration Shares to Gold Fields and its affiliates as consideration thereof, resulting in the acquisition by IAMGold of all of the interests of Gold Fields in certain of its subsidiaries which collectively hold all of the mining assets of Gold Fields located outside of Southern African Development Community ("SADC").

Tarkwa is located in south western Ghana approximately 300 km by road west of Accra, the capital, at a latitude 5°15'N and longitude 2°00'W. Tarkwa is located 4 km east of the town of Tarkwa with good access roads and an established infrastructure. The mine is served by a main road connecting to the port of Takoradi, some 140 km to the southeast on the Atlantic coast.

Tarkwa operates under mining leases with a total area of 20,700 hectares ("ha"). Five leases relate to the Tarkwa property and are dated April 18, 1997 (expiring April 17, 2027) and two to the Teberebie property dated February 2, 1988 and June 18, 1992 (expiring 2018).

Since 1999 all mining has been from open pit extraction, following the closure of uneconomic underground operations. Operations were expanded after August 2000 with the acquisition of Teberebie, increasing the total mining rate from 15.3 million tonnes per annum ("Mtpa") to 36 Mtpa and the heap leach production capacity from 7.2 Mtpa to 12.6 Mtpa. Until 2004 mining was carried out by a contractor. Following feasibility studies, mining is now on an owner operated basis and processing utilises a conventional Carbon-in-Leach ("CIL") (4.2 Mtpa capacity) as well as a heap leach (14.4 Mtpa capacity) operation.

Steffen, Robertson and Kirsten (UK) Ltd.

Registered in England and Wales
Reg. No. 1575403

Registered Address:
21 Gold Tops,
Newport,
Gwent.
NP9 4PG

Offices in:
Australia
North America
Southern Africa
South America
United Kingdom

Production is from a series of surface pits exploiting narrow auriferous conglomerates with a total output in the 2004 financial year of 16 million tonnes ("Mt") of ore and gold production of 550,000 ounces. The orebody comprises a series of sedimentary Banket quartz reef units similar to those mined in the Witwatersrand Basin of South Africa. There is the potential also for future underground production.

The Tarkwa Mineral Resource and Mineral Reserve Statement as at June 30, 2004 is given in Table 1.1 below:

Table 1.1: Tarkwa Mineral Resource and Mineral Reserve Statement June 30, 2004

Mineral Resources

	Mt	g/t	Koz
Proved			
o/p	199.8	1.3	8,560
s/p	4.1	0.9	120
Total Proved	**203.9**	**1.3**	**8,680**
Probable			
o/p	147.7	1.3	6,050
u/g			
Total Probable	**147.7**	**1.3**	**6,050**
Total Mineral Reserves	**351.5**	**1.3**	**14,730**

Mineral Resources

	Mt	g/t	Koz
Measured			
	200.5	1.5	9,610
	4.3	0.9	120
Total Measured	**204.8**	**1.5**	**9,730**
Indicated			
	187.3	1.4	8,210
Total Indicated	**187.3**	**1.4**	**8,210**
Total Measured & Indicated	**392.1**	**1.4**	**17,940**
Inferred			
o/p	3.3	1.5	160
u/g	16.3	4.0	2,070
Total Inferred	**19.5**	**3.6**	**2,230**

The open-pit Mineral Resource estimate is derived from an open-pit optimization carried out using a gold price of USD 400 per ounce. Mineral Resources and Mineral Reserves are reported after inclusion of a 10% tonnage factor for the volume of ore material in a block and a corresponding reduction is applied to the waste tonnage. The underground Mineral Resource estimate is also based on a gold price of USD 400 per ounce which equates to a cut-off grade of 3.7 g/t for Akontansi and 2.7 g/t for Kotraverchy.

The Mineral Reserve estimate is derived from an open-pit optimization carried out using a gold price of USD 350 per ounce. The Mineral Reserve is based on heap leach, CIL Plant and owner mining cost. The current mine life on which the Mineral Reserves are based continues for 24 years until 2028.

Tarkwa has been assessed and is operated in accordance with Ghanaian environmental requirements, administered by the Environmental Protection Agency, and holds the required current Environmental Permit and Environmental Certificates. The Environmental Certificate covers all activities including the CIL Plant and the tailings facility. The total cost for reclamation was updated in March 2004 and includes the new CIL Plant. Environmental provisions have been included in the operating costs as they are confirmed as necessary contributions to fund ongoing environmental cost and closure provisions.

2 INTRODUCTION AND TERMS OF REFERENCE

2.1 Terms of Reference

Steffen, Robertson and Kirsten (UK) Limited ("SRK") is a subsidiary of the International group holding company, SRK Global Limited (the "SRK Group"). SRK has been commissioned by the directors of Gold Fields prepare an Independent Technical Report ("ITR") on Tarkwa in support of the proposed transaction between Gold Fields and IAMGold.

This ITR has been prepared in accordance with the rules and companion policies of the Ontario Securities Commission ("OSC") enacted by Section 143 of the Securities Act, specifically:

- National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101");
- Form 43-101F1 (the "Form"); and
- Companion Policy 43-101 CP (the "Companion Policy").

In accordance with the applicable Rules and Companion Policies, this ITR has been prepared under the direction of the Qualified Persons ("QPs") who assume overall professional responsibility for this ITR. The ITR however, is published by SRK, the commissioned entity, and accordingly SRK assumes responsibility for the views expressed herein. Consequently with respect to all references to QPs and SRK: 'all references to SRK mean the QP and vice-versa'.

The ITR principally comprises a technical-economic appraisal of Tarkwa and has been prepared in accordance with the rules and companion policies stated above, which cover the standards of disclosure for mineral projects under the OSC guidelines which came into effect on 1 February, 2001. It is the recognised format for reporting on the Toronto Stock Exchange.

2.2 Purpose of the ITR

Tarkwa is operated by GFGL and Gold Fields is the majority share holder, with 71.1% of the issued shares of GFGL. The proposed transaction means the acquisition by IAMGold of the Acquired Interests from Gold Fields and its affiliates and the issue by IAMGold of the Consideration Shares to Gold Fields and its affiliates as consideration thereof, resulting in the acquisition by IAMGold of all of the interests of Gold Fields in certain of its subsidiaries which collectively hold all of the mining assets of Gold Fields located outside of Southern African Development Community ("SADC").

In this regard Gold Fields will transfer to IAMGold ownership of its interests in:

- Orogen Holding (BVI) Limited ("Orogen"): Orogen holds Gold Fields indirect interests of: 100% of St. Ives Gold Mine in Western Australia ("St. Ives"); 100% of Agnew Gold Mine in Western Australia (Agnew); 80.7% of Cerro Corona development property in Peru (currently under option); 100% of Arctic Platinum Project in Finland; and a portfolio of other exploration properties and investments;

- Gold Fields Ghana Holdings Limited ("GF Ghana Holdings"): GF Ghana Holdings holds Gold Fields indirect interests of a 71.1% interest in and claim on loan account against GFGL, which owns and operates Tarkwa and a 71.1% interest in Abosso Goldfields Limited ("AGL"), which owns and operates the Damang Gold Mine ("Damang") in Ghana; and
- Gold Fields Guernsey Limited, which include a portfolio of exploration properties and investments.

For the transfer of ownership Gold Fields will be issued with 351,690,218 IAMGold Shares in addition to a number of IAMGold Shares equivalent to the net cash contributions made by Gold Fields into the Acquired Companies between 24 June 2004 and the Completion Date.

SRK has been informed that Gold Fields and IAMGold have signed definitive agreements to implement the Transaction on 29 September 2004 subject to satisfaction of certain conditions precedent.

2.3 Scope of Work

The scope of work undertaken by SRK comprised a technical and economic review of Tarkwa's Life of Mine ("LoM") Plan dated June 30, 2004 and covering the period 2005 — 2028. The review covered the following technical disciplines:

- Geology;
- Mineral Resource Estimation;
- Mineral Reserve Estimation;
- Planning and Production Scheduling;
- Mining Engineering and Open-Pit Design;
- Geotechnical Engineering;
- Mineral Processing and Metallurgy;
- Tailings Engineering and Waste Disposal;
- Environmental and Water Management;
- Capital Expenditure and Operating Costs; and
- Technical Economic Modelling.

2.4 Sources of Information and Site Inspection

The ITR has been prepared based on information provided to and taken in good faith by SRK by the management of Gold Fields and, specifically, Tarkwa. SRK has not independently verified by means of re-calculation the underlying data, however SRK has:

- undertaken inspection visits to surface, processing facilities, surface structures and associated infrastructure at Tarkwa during August and September 2004;
- held discussion and enquiry following access to key personnel based at the individual site operations and at head office;
- reviewed and, where considered appropriate by SRK, modified the Tarkwa Mineral Resources and Mineral Reserve estimates dated June 30, 2004;

- reviewed the Tarkwa LoM plan, supporting documentation and the associated technical-economic projections ("TePs"), including assumptions regarding future operating costs, capital expenditures and gold production; and where considered appropriate by SRK modified these; and
- examined historical information and results provided by GFGL in support of, in particular, the forecasts contained in the LoM plan and two year budgets.

Key documentation provided to SRK in support of this ITR and as generated by Gold Fields is:

- the Competent Persons Report for Mineral Resources and Mineral Reserves, June 2004; and
- a Technical Report on Tarkwa Gold Mine, Ghana, May 2003.

SRK has satisfied itself that such information is both appropriate and valid for valuation as reported herein. SRK considers that with respect to all material technical-economic matters it has undertaken all necessary investigations to ensure compliance, both in terms of level of investigation and level of disclosure. In doing so, SRK has not reproduced the information provided to it by Gold Fields without due consideration or appropriate modification.

Where fundamental base data has been provided (LoM plans, capital expenditures, operating budgets etc) for the purposes of review, SRK recognises the requirements of 43-101F1 Item 25 and accordingly states that SRK has performed all necessary validation and verification procedures deemed appropriate in order to place an appropriate level of reliance on such information.

Dr John Arthur, a QP and Principal Geologist with SRK, and Mr. Rick Skelton, a QP and Principal Mining Engineer with SRK, visited Tarkwa during August 2004. In addition site visits have been undertaken by other SRK team members, qualified in disciplines other than geology and mining, during the period of September 2004. SRK representatives have held discussions with Gold Fields personnel and examined the geology, mineral resources, laboratory facilities, exploration methodology and potential, processing facilities, mining operations, slope stability, groundwater issues, infrastructure, terrain, tailings facilities and environment.

2.5 Qualifications of Consultant and Qualified Persons

The SRK Group comprises 500 staff, offering expertise in a wide range of resource engineering disciplines. The SRK Group's independence is ensured by the fact that it holds no equity in any project and that its ownership rests solely with its staff. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgment issues. The SRK Group has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, technical reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and on their projects, providing mining industry consultancy service inputs.

This report has been prepared based on a technical and economic review by a team of consultants principally sourced from the SRK Group's office in the United Kingdom. These consultants are specialists in the fields of gold geology, mineral resource and mineral reserve estimation and classification; mine engineering and pit modelling, geotechnical engineering; gold processing, hydrogeology and hydrology, tailings management, infrastructure, environmental management and mineral economics.

Neither SRK nor any of its employees and associates employed in the preparation of this report has any beneficial interest in Gold Fields or its assets. SRK will be paid a fee for this work in accordance with normal professional consulting practice.

The individuals who have provided input to this ITR, who are listed below, have extensive experience in the mining industry and are members in good standing of appropriate professional institutions.

Dr John Arthur:	Ph.D, C.Eng, CGeol, MIMMM;
Mr Rick Skelton:	MSc, C.Eng, MSAIMM, MIMMM;
Dr Neil Holloway:	Ph.D, C.Eng, FIMMM;
Dr Ian Brackley:	Ph.D, C.Eng, FSAIMM, MIMMM;
Mr Keith Philpott:	MSc, BSc, C.Geol, Eur Geol, FGS;
Mr Lee Barnes:	MSc, C.Eng, MIMMM.

In compliance 43-101F1 Part 5 subsection 5.1 this ITR has been prepared by following Qualified Persons:

- the Qualified Person with overall responsibility for this independent technical report and the reported Mineral Reserve is Mr Rick Skelton who is an employee of SRK. Mr Skelton is a mining engineer with 35 years' experience in the mining industry and has supervised numerous due-diligence reviews and various technical studies on similar gold mining assets; and
- the Qualified Person with overall responsibility for reported Mineral Resource is Dr John Arthur who is an employee of SRK. Dr Arthur is a resource geologist with 16 years experience in the mining industry and has been responsible for the reporting of Mineral Resources on various gold mining properties, specifically specialising in resource estimation and classification.

SRK has previously carried out a number of consultancy commissions for Gold Fields at Tarkwa and these are listed in Appendix B to this report.

2.6 Monetary Rates and Units

All monetary units, unless otherwise stated, are quoted in US dollars ("USD").

All units conform to metric usage except where otherwise stated. Where gold weight is not expressed in metric units it is expressed in troy ounces ("oz") where one troy ounce equals 31.10348 grammes ("g").

2.7 Technical Reliance

SRK places reliance on Tarkwa's QPs that all technical information provided to SRK as at July 1, 2004, is both valid and accurate for the purpose of compiling this ITR. The Tarkwa Mineral Resource and Mineral Reserve estimates have been prepared under the direction of Mr. G. S. G. Chapman, Mineral Resource Manager at Tarkwa who is a full time employee of Gold Fields and has 28 years experience in the gold mining industry and is registered with the South African Council for Natural Scientific Professions ("SACNASP").

2.8 Legal Reliance

SRK has placed reliance on representatives of Gold Fields that the following legal aspects pertaining to Tarkwa are correct as at July 1, 2004:

- that "a statement by the Directors of any legal proceedings that may have an influence on the rights to explore for minerals, or an appropriate negative statement" has been included in the body of the various circulars relating to the proposed transaction;
- that the legal ownership and title of all mineral and surface rights has been verified; and
- that no significant legal issue exists which would affect the likely viability of a project and / or the estimation and classification of the Mineral Resources and Mineral Reserves as reported herein.

2.9 Accounting and Financial Reliance

In consideration of all financial aspects relating to the valuation of Tarkwa, SRK has placed reliance of the Financial Officers of Tarkwa that the following information is accurate as at July 1, 2004:

- unredeemed capital balances;
- assessed losses;
- opening balances for debtors, creditors and stores; and
- working capital and taxation logic.

In generating the valuation of Tarkwa, SRK has relied upon the commodity price and macro economic forecasts as included in Section 17, which have been generated by NM Rothschild & Sons (New York) ("Rothschild"), Financial Advisors to Gold Fields.

2.10 Warranties and Limitations

SRK's opinion is effective July 1, 2004 and is based on information provided by Tarkwa and Gold Fields throughout the course of SRK's investigations, which in turn reflect various technical-economic conditions prevailing at the time of writing. These conditions can change significantly over relatively short periods of time and as such the information and opinions contained in this report may be subject to change.

The achievability of LoM plan, budgets and forecasts are neither warranted nor guaranteed by SRK. The forecasts as presented and discussed herein have been proposed by Tarkwa's management and cannot be assured; they are necessarily based on economic assumptions, some of which are beyond the control of Tarkwa. Future cash flows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider them to be material.

2.11 Disclaimers and Contingency Statements for US Investors

The United States Securities and Exchange Commission (the “SEC”) permits mining companies, in their filings with the SEC, to disclose only those mineral deposits that a company can economically and legally extract or produce from. Certain terms are used in this report, such as “resources”, that the SEC guidelines strictly prohibit companies from including in filings.

Mineral Reserve estimates are based on many factors, including, in this case, data with respect to drilling and sampling. Mineral Reserves are derived from estimates of future technical factors, future production costs, future capital expenditure and future gold price. The Mineral Reserve estimates contained in this report should not be interpreted as assurances of the economic life of Tarkwa or its future profitability. As Mineral Reserves are only estimates based on the factors and assumptions described herein, future Mineral Reserve estimates may need to be revised. For example, if production costs increase or product prices decrease, a portion of the current Mineral Resources, from which the Mineral Reserves are derived, may become uneconomical to recover and would therefore result in Mineral Reserve estimates with lower tonnages and contained gold.

The LoM plans, the TePs and the Financial Model (“FM”) include forward-looking statements in compliance with the requirements of NI 43-101. These forward-looking statements are necessarily estimates and involve a number of risks and uncertainties that could cause actual results to differ materially.

3 PROPERTY DESCRIPTION AND LOCATION

3.1 Location and Access

Tarkwa is located in south western Ghana approximately 300 km by road west of Accra, the capital, at a latitude 5°15'N and longitude 2°00'W. Tarkwa is located 4 km east of the town of Tarkwa with good access roads and an established infrastructure. The mine is served by a main road connecting to the port of Takoradi, some 140 km to the southeast on the Atlantic coast (Figure 3.1).

3.2 Mining Leases

Tarkwa operates under mining leases with a total area of 208.28 km ^{2} . Five leases relating to the Tarkwa property are dated April 18, 1997, expiring on April 17, 2027. Two mining leases dated February 2, 1988 and June 18, 1992 and expiring in 2018, relate to the Teberebie property. There are no additional reconnaissance or prospecting licences held by Tarkwa.

SRK notes that the current LoM Plan envisages extraction from Teberebie until the end of 2022. SRK does not envisage a problem with the extension of the lease to cover continued operations in this area if required, however this cannot be guaranteed.

There is an area of overlap between the Tarkwa and Damang licenses, in that over one area Damang has rights to a depth of 30 m and Tarkwa rights below this depth (Figure 4.2). Damang is the adjacent property to the north that is owned and operated by AGL, which Gold Fields has a 71.1% interest in (Section 9).

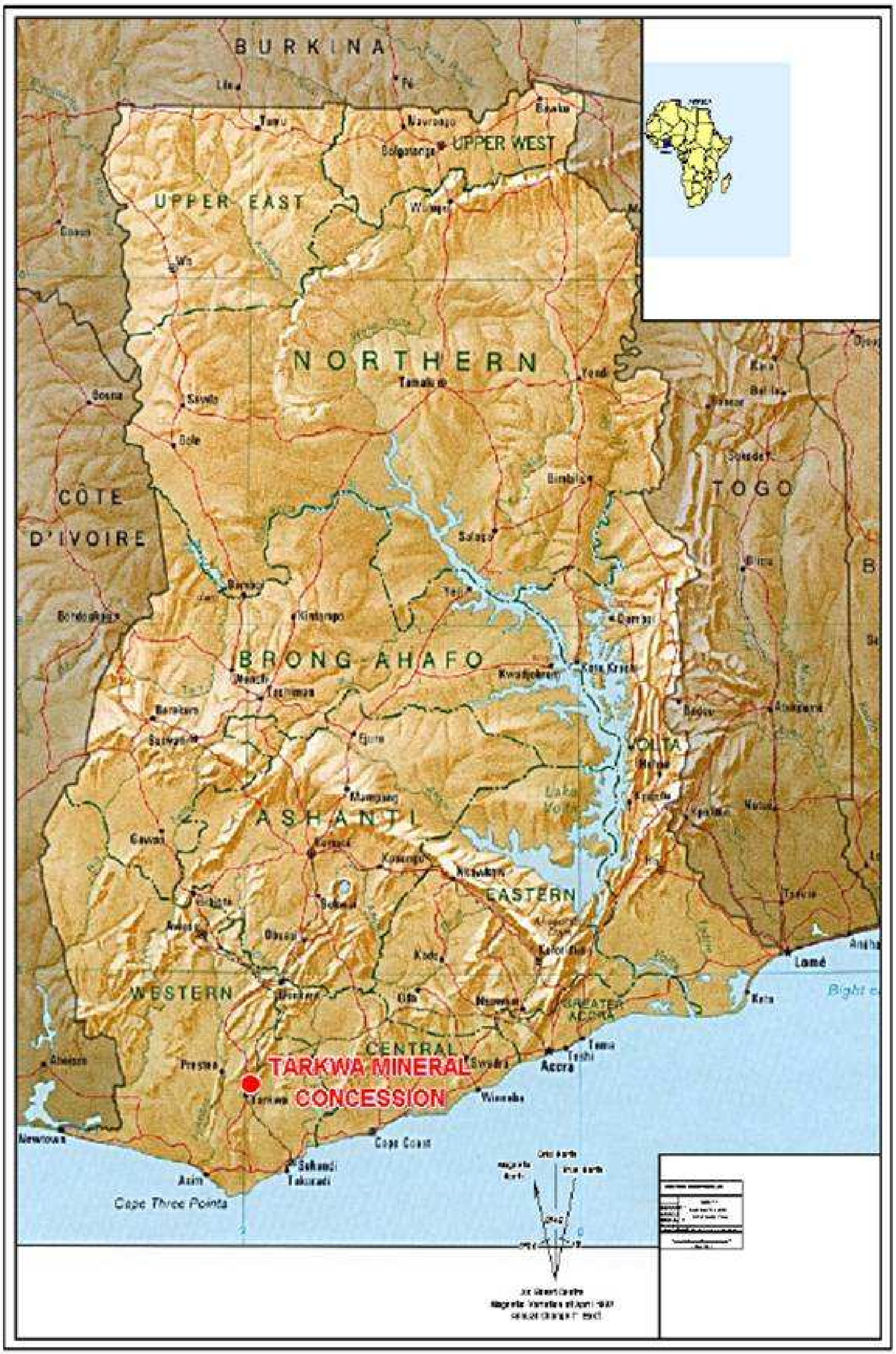
Table 3.1: Mining Leases

Location	Lease Number	Date Granted	Expiry Date	Area (km ^{2})
Tarkwa	WR 637/97	April 18, 1997	April 18, 2027	22.27
Tarkwa	WR 640/97	April 18, 1997	April 18, 2027	34.19
Tarkwa	WR 639/97	April 18, 1997	April 18, 2027	49.51
Tarkwa	WR 638/97	April 18, 1997	April 18, 2027	43.00
Tarkwa	WR 641/97	April 18, 1997	April 18, 2027	43.34
Teberebie	WR 1518/96	February 2, 1988	February 1, 2018	15.97 (includes 1518/96)
Teberebie	WR 1520/96	June 18, 1992	June 17, 2018	See above
Total				**208.28**

3.3 Information on Equity

GFGL was incorporated in Ghana in 1993 as the legal entity holding the Tarkwa concession mining rights and opencast operations commenced early in 1997 with the winding down and closure of the original underground operations. Gold Fields is the operator of the mine and majority share holder with 71.1% of the issued shares of GFGL. IAMGold, through its wholly owned subsidiary Repadre Capital Corporation, holds 18.9%, and the Ghanaian Government a 10% free carried interest, as required under the Mining Law of Ghana.

Figure 3.1: Locality Map



The Government of Ghana has a 10% non-participating interest in all exploration and mining ventures with the right to purchase an additional 20% equity interest in the mining venture at a fair market price.

Royalties of 3% - 12% of mineral revenue are paid to the Government of Ghana. The current 3% royalty rate is based on a 30% operating ratio. Where the operating ratio is below 30% the rate is still 3% but the unused margin can be carried forward to reduce the operating ratio in subsequent years. Where the operating ratio is over 30% but less than 70%, the rate of royalty is 3% plus 0.225% of every one percent by which the operating ratio exceeds 30%. Where the operating ratio is 70% or more, the rate is 12%. The formula for calculating the operating ratio is revenue versus operating costs and capital cost allowances (royalty payments, and taxes imposed on income are not allowable operating costs).

Companies may export gold to any foreign refiner upon approval of the Government. The Government has a pre-emptive right to purchase the gold production at fair market value, although this right has never been exercised. Offshore foreign currency retention accounts for the receipt of foreign currency, including the proceeds from gold production, are permitted.

3.4 Environmental Liabilities

Environmental issues and liabilities are discussed in Section 14.

4 ACCESSIBILITY, CLIMATE AND INFRASTRUCTURE

4.1 Topography, Climate and Vegetation

The topography of the area comprises a series of prominent ridges and valleys (to approximately 200 m height) within a generally low lying plain. A large low lying flood plain lies to the northwest. No major rivers traverse the mining area, the nearest one being the Huni River some 8 km to the northwest which flows along the concession boundary. The area is drained by minor streams towards the west.

A tropical climate at Tarkwa is characterized by two wet seasons (March-July and September-November) with a mean annual rainfall of approximately 2000 mm. Evaporation averages approximately 130 mm per month. Mean monthly temperatures range from 21-32°C. Although there may be minor disruptions to operations during the wet season there is no long term constraint on production due to climate at particular times of the year.

The vegetation comprises a mixture of tropical rain forest and semi-deciduous forest. Deforestation due to subsistence farming by the local population has degraded the natural vegetation in the environs of the mines to secondary forest, scrub and cleared land. No primary forest is found on the concession.

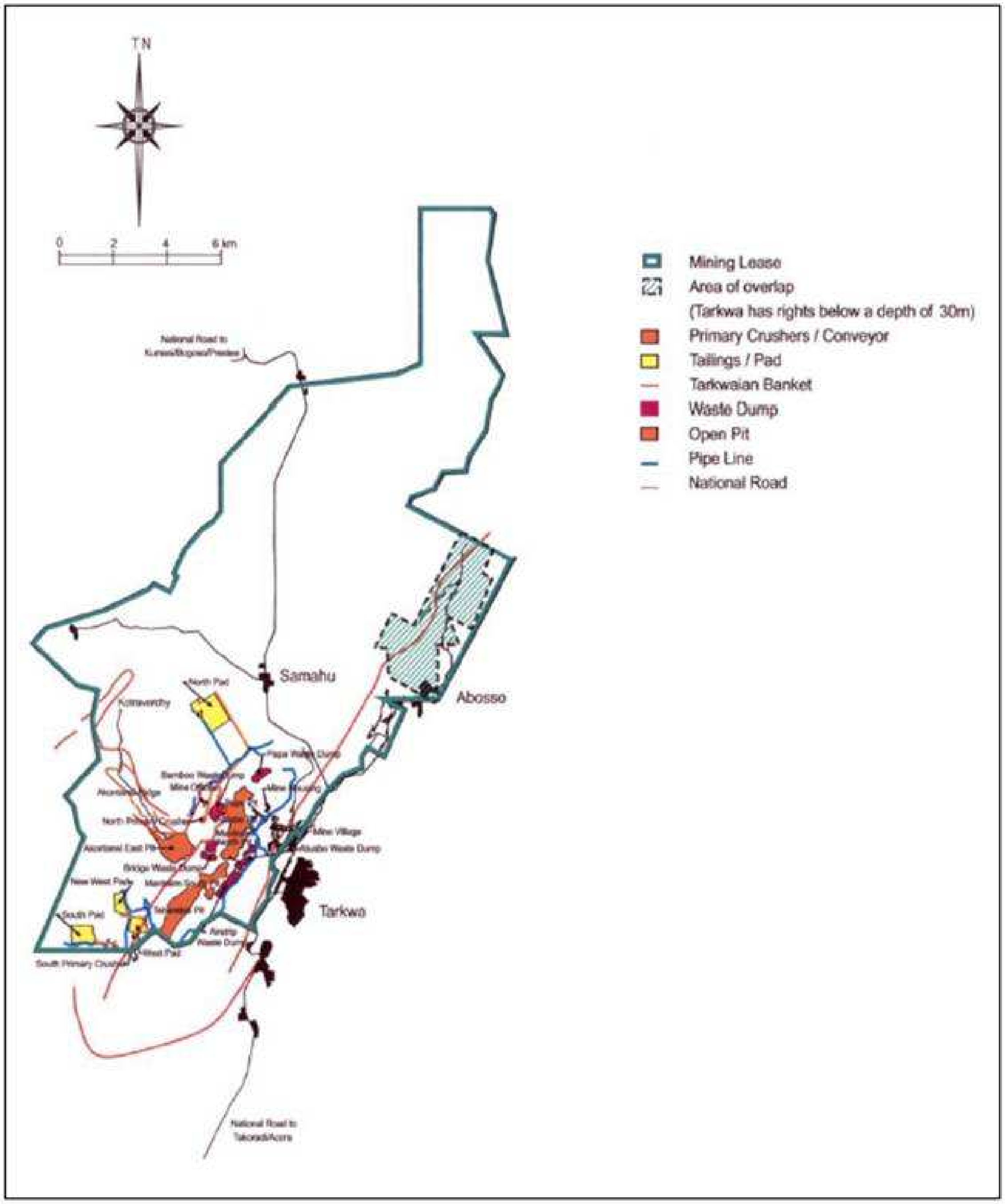
4.2 Local Infrastructure and Economy

The industries of the Tarkwa region are mining (gold, manganese) and subsistence farming which occurs throughout the area with cocoa, plantain, pineapple, cassava, maize, yam and some oil palm, rubber and coffee being the principal crops.

The mine has access to the national electricity grid from the Volta River Authority ("VRA"). The electricity supply to Tarkwa is sourced from the VRA Tarkwa substation via a 34.5 kilovolts ("kV") line. The Tarkwa substation is part of the 161 kV ring network, located between the Takoradi and Prestea substations. The substation is well situated, having total capacity of 550 megawatts ("MW") in close proximity and with Prestea being connected to the Cote d'Ivoire power line, which has a capacity of 240 MW. In addition, Tarkwa is connected to the hydro-electric generating stations at Akasombo via the transmission grid on a ring feed arrangement. The installed capacity at Tarkwa is about 91 megavolt ampere ("MVA"), consisting of one 25 MVA at 11 kV and two 33 MVA at 34.5 kV. The current maximum demand is a 42 MVA.

A main asphalt road that connects the mine to the port of Takoradi services the Tarkwa area. From Takoradi an easterly coastal road connects with the capital Accra. Domestic communications are provided by way of a microwave link and landlines. International communications are provided by a direct satellite system and land lines.

Figure 4.1: Mine Infrastructure



5 HISTORY

5.1 Ownership and Operations

Mining activities around the town of Tarkwa date back to the late 19th century when several small mining companies operated an area then known as the Abontiakoon Concession. In 1935, the property was taken over by the Amalgamated Banket Area Limited ("ABA"), which also acquired the old Tarkwa mine and the properties of Mantraim, Pepe, Akontansi, Kotraverchy, Patet-Sommahoo and Teberebie, and Awunaben-Ahoonabe areas.

The amalgamation resulted in an expansion programme including the sinking of the Abontiakoon Vertical Shaft ("AVS"), the construction of new residential buildings and workers compounds, the construction of a workshop and store at AVS from 1936 to 1938 and the completion of a new 30,000 tonnes per month ("tpm") central mill in 1940. The Tarkwa South Mine was dewatered in 1940 and development undertaken to link with Mantraim Vertical Shaft, also being sunk at that time. Prior to the takeover by ABA, eight vertical shafts and numerous pits had been excavated. Operations at Akontansi had resumed in 1937 but ceased at the end of 1943. The Pepe workings were established in 1940 and mined as open cuts.

In 1943, as a result of World War II, the mine was closed and only essential plant equipment maintained. Operations were resumed in 1946, with a temporary suspension of activities for three months during 1947 due to a general strike.

In 1950, the amalgamation of ABA, Gold Coast Banket Areas Ltd (Fanti Mines) and South Banket Areas (Tamso / Effuanta Mines) became effective with the administrative and mining operations being directed by ABA.

Operations were again suspended toward the end of 1955 because of general strike action. After the strike in February 1956, ABA was given a financial grant by the Government of Ghana to assist with the long term planning and operation. In 1956, the working of the Pepe opencast mine was stopped and in 1958 the Mantraim incline shaft was closed. In 1960 the Fanti Main shaft was closed and allowed to flood. In 1960, owing to the refusal of the Ghanaian Government to grant further subsides to ABA, all workings were abandoned and allowed to flood.

Realizing the effect this would have on the livelihood of the mine employees in the Tarkwa district, the government purchased the entire site from ABA. In May 1961, the property was commissioned as one of the properties of the State Gold Mining Corporation ("SGMC"). The Tarkwa mines were renamed Tarkwa Goldfields Limited in 1963.

The Apinto Shaft was sunk between 1973 and 1976 to access additional sources of ore. In 1986, a rehabilitation programme financed by the World Bank helped sustain the Tarkwa Goldfields Limited operations. In June 1993, the Government of Ghana entered into an agreement with GFGL under which GFGL would operate the mine under a management contract.

In 1996, a pre-feasibility study into an open pit / heap leach operation, undertaken on behalf of GFGL by SRK concluded that such a project was economic. This study was followed up with a feasibility study and the subsequent approval to proceed with the project.

The initial development, known as Tarkwa Phase I, was completed in April 1998 at a cost of USD149 million ("M") and entailed a total mining rate of 14.5 Mtpa comprising 9.8 Mtpa waste and 4.7 Mtpa heap leach feed ore.

An expansion, known as Tarkwa Phase II was completed in July 1999 at a cost of USD10M. This increased the mining rate to 20.7 Mtpa and ore feed to the heap leach pads to 7.2 Mtpa.

In August 1999, GFGL suspended all underground mining operations at the Apinto shaft and AVS sections for economic reasons. The milling plant continued to process the remaining ore and clean-up material until shutdown in December 1999. At that stage, GFGL withdrew totally from the underground operations resulting in the flooding of the underground workings.

In August 2000, following the acquisition by Ghanaian Australian Goldfields Limited ("GAG") of the Teberebie lease and operations, GFGL acquired the northern part of the Teberebie lease from GAG. The facilities, comprising the Teberebie open pit and heap leach pads and associated equipment were re-commissioned at a cost of USD11 M and placed into production. This expansion, known as Tarkwa Phase III, increased the mining rate by 15.3 Mtpa to 36 Mtpa and the heap leach production capacity from 7.2 Mtpa to 12.6 Mtpa.

Until 2004, open pit operations were carried out by a contractor African Mining Services (Ghana) Pty Ltd. ("AMS") a joint venture between two Australian contractors; Henry Walker Eltin and Ausdrill. Following a bankable feasibility study ("BFS") of utilizing a conventional CIL plant (completed in December 2002 by Lycopodium Pty Limited "Lycopodium") and a study into owner mining operations, projected output targets were increased to a 16 Mtpa heap leach operation and a 4.2 Mtpa CIL operation and owner mining operation with effect from mid 2004.

The existing surface operation exploits narrow auriferous conglomerates from various pits: namely (from west to east) Kotraverchy, Akontansi Ridge, Akontansi East, Pepe, Mantraim, West Hill and Teberebie.

5.2 Historical Production

Production for the past eight years is as shown in Table 5.1 below:

Table 5.1: Historical Production from Tarkwa

Financial Year (July to June)	Ore Processed (Mt)	Metal Production (oz Au)
2004	16.0	550,000
2003	15.2	540,000
2002	14.9	544,000
2001	11.7	440,000
2000	8.0	296,000
1999	5.0	206,200
1998	0.2	55,235
1997	0.2	48,845

5.3 Historical Exploration

Historical exploration is outlined in Section 7.

5.4 Historical Mineral Resource and Mineral Reserve Statements

As an operating mine, the Mineral Resource and Mineral Reserve estimates at Tarkwa are updated annually as at June 30. Reconciliations are carried out systematically at Tarkwa between actual production and the Mineral Resource and Mineral Reserve estimates on a monthly and annual basis. These are described further in Section 10.

6 GEOLOGY

6.1 R egional Geology

The Tarkwa orebodies are located within the Tarkwaian System which forms a significant portion of the stratigraphy of the Ashanti Belt in southwest Ghana. The Ashanti Belt is a north-easterly striking, broadly synclinal structure made up of Lower Proterozoic sediments and volcanics underlain by the metavolcanics and metasediments of the Birimian System. The contact between the Birimian and the Tarkwaian is commonly marked by zones of intense shearing and is host to a number of significant shear hosted gold deposits including Prestea, Bogoso and Obuasi.

The Tarkwaian unconformably overlies the Birimian and is characterized by lower intensity metamorphism and the predominance of coarse grained, immature sedimentary units which from oldest to youngest are:

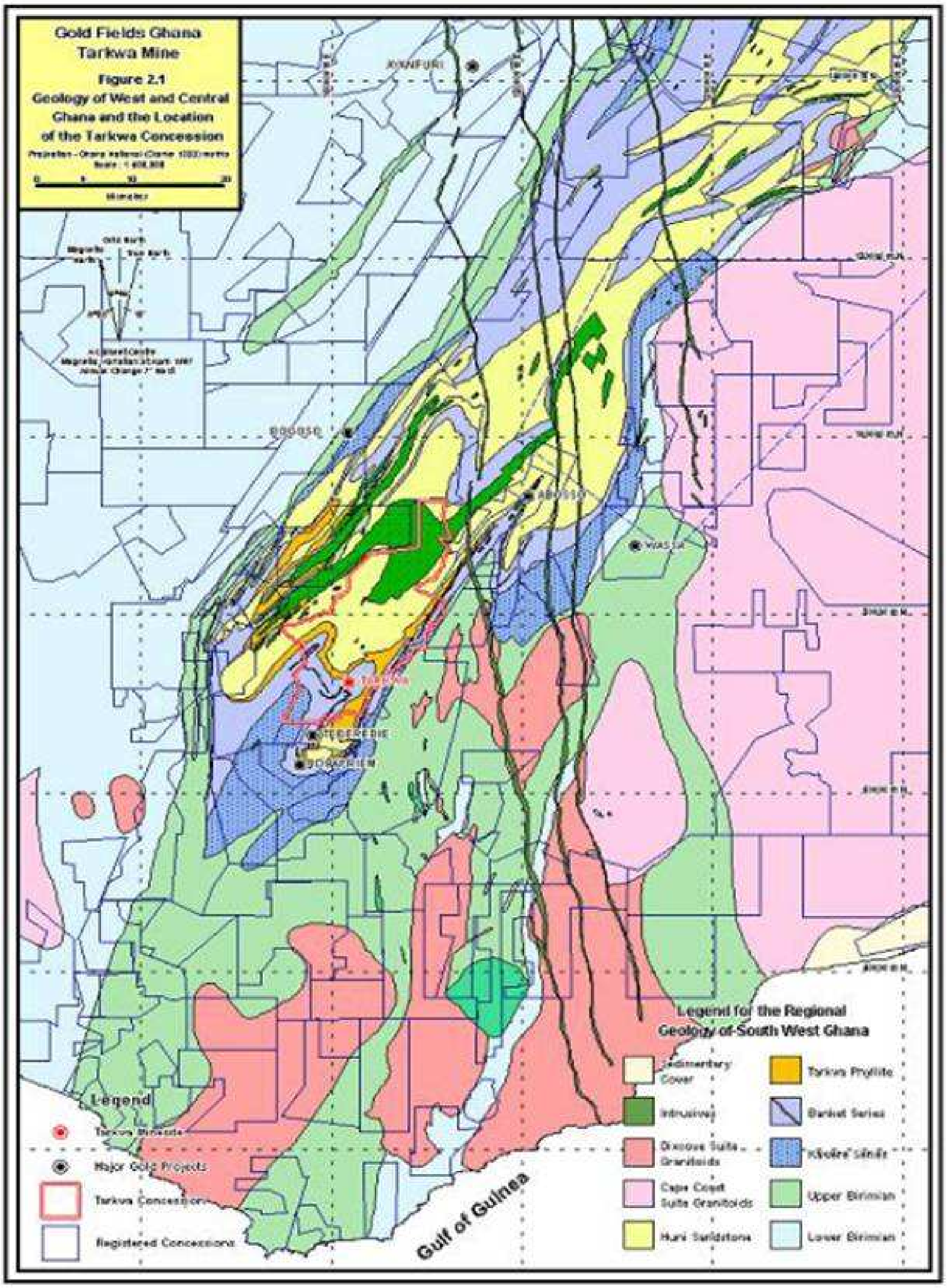
- Kawere Series (250 — 700 m) — poorly sorted, polymictic conglomerates and quartzites with no significant mineralization;
- Banket Series — well sorted conglomerates and quartzites with clasts generally considered to be Birimian in origin and containing significant gold mineralization, hosting the Tarkwa orebody. In the Pepe area the Banket Series is approximately 32 m thick and at Kotraverchy up to 270 m thick;
- Tarkwa Phyllite Series (120 — 140 m) — fine grained chloritic siltstones, mudstones and schists with no significant mineralization; and
- Huni Series (1370 m) — fine grained massive quartzites with no significant mineralization.

6.2 Local Geology

The local geology is dominated by the Banket Series which can be further sub-divided into a footwall and hangingwall barren quartzite separated by a sequence of mineralized conglomerates and pebbly quartzites. The stratigraphy of the individual quartzite units is well established with auriferous reefs interbedded with barren immature quartzites. The units thicken to the west and current flow parameters indicate a flow from the east and north-east. Tarkwa's geological location is shown in Figure 6.1.

Sedimentological studies of the detailed stratigraphy within individual reef units have led to the recognition of both lateral and vertical facies variations. The modelling of these has resulted in the recognition of a cycle of events from initial channel formation and rapid downcutting of the central channel (basin downwarp time units T1 and T2) through a period of uplift and reworking (T3) and finally a period of meandering channel bars and flow reduction leading to the development of low grade silty interbeds. This sequence has been recognised in each of the main reef units with the T3 sequence recognised as the principal episode of gold deposition and concentration.

Figure 6.1: Regional Geology of Southwest Ghana and Location of Tarkwa



6.3 Structure

Structurally, the Tarkwaian belt has been subject to moderate folding and at least five episodes of deformation are thought to be represented at Tarkwa. Thrust faults occur between Pepe and Akontansi and between Akontansi Ridge and Kotraverchy. The original deposition occurred in a listric basin environment with associated low to steep angle normal faulting. Subsequent compression and folding led to development of thrust faults and reversing of previous normal faults. The final stages involved further thrusting in a southwest direction.

This has led to the individual deposits at Tarkwa having significantly different structural controls and differing degrees of structural complexity. At Pepe, the orebody forms on a gentle anticline with limb dips from horizontal to a maximum of 35°. The area is cut by north-east trending normal faults but no significant fault losses are reported. At Akontansi East, the strata dip north-west at 18° and are cut by north-east trending normal and reverse faults with low angle thrusts occurring at the east and west margins. The area is also intruded by numerous dykes and sills and is considered to be structurally complex. Throughout Akontansi, numerous small scale structures occur which are only identified either during grade control or mining with reverse faulting leading to duplication of the reef adjacent to fault planes. At Kotraverchy, the north-east plunging anticline is cut obliquely by a number of shallow angle thrusts and cross cut by numerous strike slip faults. The Kotraverchy area is recognised as being structurally complex and as a result the grade control drill spacing will be reduced to 12.5 x 25 m in the next phases of grade control drilling.

The geological model at Tarkwa has been refined considerably since mining commenced and the large amount of grade control and mining data has allowed much more detail to be introduced to the model. This has, in turn, led to the development of the domaining models described in a following section. There is still a considerable amount of small scale faulting which is only identified through grade control drilling and it is likely that this is having an influence on the reconciliation between the diamond drilling and grade control resource models, although the primary cause is probably un-modelled strike changes.

6.4 Deposit Types

The orebody at Tarkwa consists of a series of sedimentary Banket quartz reef units similar to those mined in the Witwatersrand Basin of South Africa. The operation is currently mining multiple reef horizons from seven open pits and there is further potential for mining underground in the future.

6.5 Mineralization

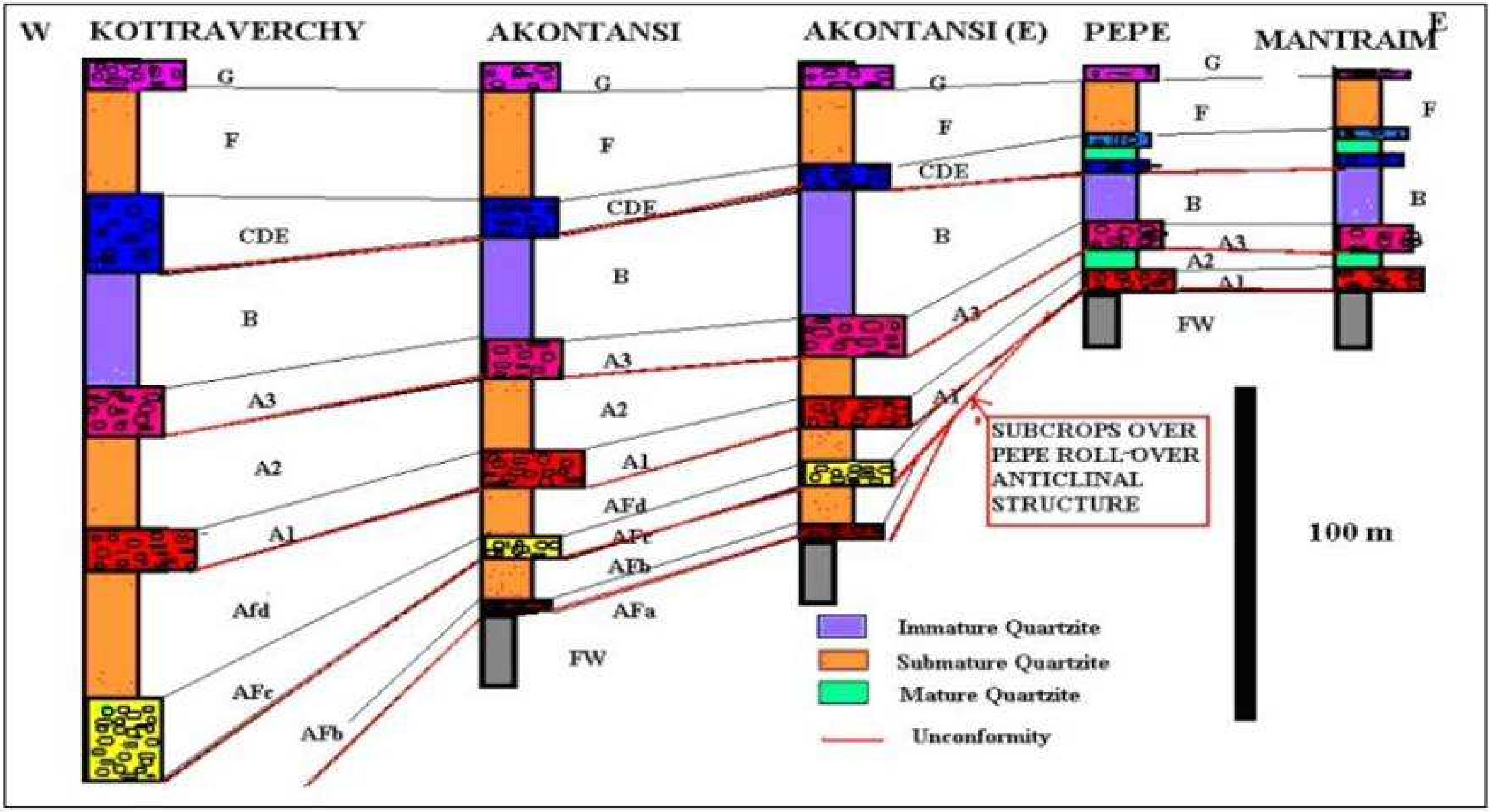
Mineralogically, the gold occurs as free particles with an average size of between 50-150 µm and is mostly entrained within the silicified interstitial matrix between conglomerate clasts. Gold is generally found native with only minor electrum and with only 3-7% silver.Accessory oxides present in the ore include magnetite, goethite, ilmenite and rutile.

The principal orebodies are shown in Figure 6.2.

The mineralized reefs are identified below from the base upwards (younging):

- AFc — 0.2-3.0 m thick, only occurs in the west and is scoured by the A1 in the east. Well sorted with rounded clasts of quartzite and visible gold;
- A1 — between 2-7 m thick, moderately to poorly sorted conglomerate and thin quartzites with occasional visible gold;
- A3 — occurs up to 7 m thick, moderately sorted, the conglomerate forms as thin discontinuous lenses within a package of cross bedded quartzites, visible gold is rare;
- B2 (or B) — up to 3 m thick, very coarse quartzites with thin lags of sub-rounded pebble conglomerate;
- CDE — up to 8 m thick and can be subdivided into the lower C reef and upper E reef both of which are conglomeratic and are separated by the D reef quartzite; and
- G — varies from 2-6 m thick poorly sorted conglomerate with clasts of quartzite and phyllite.

Figure 6.2: Schematic cross section from west to east through the principal orebodies



7 EXPLORATION AND DRILLING

7.1 Exploration History

Initial exploration commenced in June 1993 at Pepe. To date, the vast majority of drilling has targeted the open pit potential although a number of deeper holes have investigated the underground potential at Akontansi and Pepe/Mantraim. Prior to GFGL's involvement, SGMC carried out selected drilling mostly along the Pepe Anticline targeting shallow underground potential. However, these holes are not used owing to data quality issues. Data from GAG at Kotraverchy and from Pioneer Goldfields at Teberebie is included in the GFGL database.

7.2 Exploration Methodology

Exploration is initially carried out using diamond drilling to produce continuous core sampling through the sequence of mineralized reefs. Core is logged and halved with one half retained for quality control and validation purposes. The remaining core is sent to Transworld laboratories in Tarkwa for assay. Check assaying is carried out at SGS laboratory which is also based in Tarkwa. Core drilling is initially carried out on a wide spaced grid of 200 m along strike and 100 m in the dip direction (400 x 200 m in some cases). This grid is then in filled to a final spacing of 100 x 100 m. Core logging and sampling is carried out based on the recognition of geological boundaries and marker horizons.

Grade control is carried out by close spaced infill drilling of the exploration grid using reserve circulation ("RC") drilling on 25 x 25 m grid spacing. In some areas of known structural complexity this spacing is reduced to either 25 x 12.5 m or 12.5 x 25 m. The Kotraverchy pit area is planned to be drilled using this closer spaced grade control.

7.3 Drilling

Currently, a total of 1,770 exploration holes have been drilled of which 1,358 have been drilled by GFGL. The GFGL drilling has primarily been carried out using diamond coring methods; however, the total includes 211 RC drillholes. Total exploration drilling to date amounts to some 230,000 m.

The following list summarizes the data available for completion of the 2004 model:

• Diamond Drilling:	1,274 holes	(123,960 m)
• PQ Holes:	8 holes	(547 m)
• RC on a 100 m grid:	227 holes	(11,780m)
• RC on a 50 m grid:	56 holes	(4,483 m)
• RC on a 25 x 50 m grid:	175 holes	(2,074 m)
• Grade control holes (RC):	13,873 holes	(454,543 m)

All grade control drill holes have also been captured in the geological database. The primary database captures the following:

(1) The collar positions of all RC and diamond cored holes.
(2) Down-the-hole survey data.
(3) Lithological data.
(4) Assay data.
(5) The final stratigraphic zoning of all boreholes.

Mining software geological databases are used for final data storage and data manipulation. During import of raw data into the Surpac database, validation routines are carried out.

8 SAMPLING

8.1 Sampling Method and Approach

Initial exploration drilling is carried out using diamond coring with sampling at 25 to 50 cm intervals from the hangingwall contact to the footwall. Samples are also taken in the footwall and hangingwall to test for low grade dilution.

Sampling during RC drilling and grade control is carried out on the basis of vertical 1 m composites with sampling starting at the hangingwall of the uppermost reef horizon and continuing below the footwall of the lowermost package. An initial split is carried out at the drill rig using a 3-tier riffle splitter and a 3.5 kg sample is bagged for analysis. Representative rock chips are collected during the drilling and logged on site by a geologist to establish the stratigraphic context of the sampling and to provide a geological description of each sample.

Belt sampling is carried out at both processing facilities, referred to as the North and South plants, with a sample taken every five minutes and composited to four hours to produce a 4 kg sample. This procedure has been in place since March 2002 and prior to this belt samples were undertaken at 15 minute intervals. This sample is then pulverized and assayed in triplicate. The average of the three assays is reported as the final belt assay.

8.2 Sample Preparation, Analysis, Security and Data Verification

All original assaying for grade control samples is carried out at the SGS laboratory in Tarkwa, while for core samples Transworld is the primary laboratory and SGS the secondary. Both GFGL and SGS have comprehensive quality control procedures and protocols in place which involve duplicate and repeat assays, blanks, standards and external laboratory checks. The following checks are carried out:

- GFGL produce a duplicate sample for 5% of all samples taken (1 in 20) which involves the production of two samples from the same sample interval during the initial sample collection at the drill site, and provides information on sample repeatability and sampling error;

- the laboratory produces a repeat sample for 5% of all samples (1 in 20) from the initial coarse reject to check for laboratory preparation errors;
- 10% of all sample pulps are re-assayed as a check on analytical error;
- all samples which assay >3.0 g/t are re-assayed;
- each batch of 50 fire assays includes one standard and one blank as well as, on average, two duplicates and two repeats; and
- 5% (1 in 20) sample pulps are re-assayed by an external laboratory to check analytical precision. Currently the external laboratory is Transworld laboratory in Tarkwa.

The SGS laboratory is ISO 9001 and 9002 compliant and is aiming for ISO 17025 compliance by the end of 2005. Transworld has not yet achieved ISO compliance but is reported to be aiming to achieve this in the near future.

A recent study carried out by D F Bongarcon of Agoratech International has indicated that the 3-tier splitter should be replaced with a single pass system and that a larger sample size should be initially collected. SRK has not reviewed the results of this study in detail and the changes to the sampling protocol have only recently been implemented so no reconciliation results are available as yet.

The sampling and assay methodologies employed at Tarkwa are standard within the mining industry for mineralization of the type associated with the Tarkwa deposit and in SRK's opinion are carried out to a high standard and are adequate for the intended purposes. Tarkwa carries out ongoing grade and tonnage reconciliation studies which are discussed in further detail in Section 10.3. Data are compared between the exploration drilling, grade control and belt sampling results. The underlying data supporting the resource estimate is considered by SRK to be generated and input in the corresponding resource models in satisfactory manner. Given the operating history of Tarkwa and the ongoing reconciliation studies SRK considers the sampling and assay information to be reliable and has therefore not carried out any check sampling or assays. Reliance is therefore placed on the information provided by GFGL in this respect.

9 ADJACENT PROPERTIES

The mining leases held by GFGL are adjacent to the mining lease held by AGL approximately 35 km to the north. Ownership of AGL mirrors that of GFGL, and AGL conducts operations at the Damang gold mine to the north of Tarkwa.

Bogoso / Prestea Gold Mine (“Bogoso”) is an open pit mining operation owned and operated by Bogoso Gold Limited which is 90% owned by Golden Star Resources Limited (“Golden Star”) and 10% by the Government of Ghana, and lies south of Bogoso Township in the west of Ghana approximately 120 km from the port of Takoradi.

Iduapriem Gold Mine (“Iduapriem”) lies 6 km south of Tarkwa and is an open pit mining operation owned and operated by AngloGold Ashanti Limited (“AngloGold”), with 10% held by the Government of Ghana.

Technical information on Bogoso and Iduapriem is available in public domain documents published by Golden Star and AngloGold respectively that are available on these companies’ websites.

Akoon Gold Mine is situated to the north of Tarkwa and was an underground operation from 1912 to 1999. Gold Coast Resources Inc. currently owns an option on this closed facility.

10 MINERAL RESOURCES

10.1 Introduction

The process of estimating the Mineral Resource at Tarkwa involves the use of a number of factors based on historical results and planned dilution. Both exploration and grade control drill results are used for geological modelling and grade interpolation. Currently, Mineral Resources are classified according to the guidelines set out in the South African Code for Reporting Mineral Resources and Mineral Reserves (the "SAMREC Code"). SRK considers that the derivation of the Tarkwa Mineral Resource and Mineral Reserve also conform to the definitions and guidelines prepared by the CIM Standing Committee on Mineral Resources and Mineral Reserves and approved by the CIM Council of the Canadian Institute of Mining, Metallurgy and Petroleum in August 2000 (the "CIM Standards").

Historically, the Mineral Resource model derived from exploration drilling, has consistently underestimated the tonnage when compared to the production results. This has led GFGL to carry out a comprehensive study of the historical results comparing the original wide spaced exploration drilling (diamond cored), the grade control (RC) drilling and the production data from individual pits.

The current 2004 model replaces the previous model (2001) and has been produced using the data and assumptions which have resulted from a two year study. The methods used for geological modelling, calculation of dilution, and grade interpolation have not been changed since the 2001 model. The inclusion of sedimentologically based domains is, however, new. In addition, a tonnage factor has been introduced to the Mineral Resource estimates in an attempt to better reconcile the actual production tonnage with that estimated from the exploration model.

10.2 Geological Modelling

10.2.1 Modelling Procedures

The process for creating the geological model used as the basis for the Mineral Resource has changed recently. Previously, the orebodies were modeled as a series of three dimensional ("3-D") footwall and hangingwall digital terrain model ("DTM") (triangulation) surfaces using the results from the available drilling. GFGL has now switched to producing a 3-D wireframe solid model for each reef based on block modelling of the reef thickness which produces a more realistic estimate of volume.

The first stage of modelling the exploration areas is to create a footwall triangulation surface using the intersection point in each borehole. The vertical thickness ("VT") of the reef is then calculated for each borehole and this variable is interpolated into a 25 x 25 m block model using an inverse distance squared model. The interpolated VT value is added to the footwall triangulation surface to create a series of 25 x 25 m spaced points which are triangulated to create a physical hangingwall surface.

Currently, the Kotraverchy, Akontansi and Teberebie orebodies have not been re-modelled in this way (86% of Mineral Resource). The Pepe and Mantraim North areas are currently using the new 3-D surface method for geological modelling. Plans are in place to convert the remaining areas over to the new method although the timeframe for this is not in place.

Wireframe modelling is carried out using a set of guidelines which have been drawn up on site. The purpose of this is to standardize the modelling procedure and provide GFGL geologists with a standard protocol for the following:

- risk area identification;
- database checks;
- wireframe checks; and
- statistical checks of validity.

The geological modelling is initially based on the exploration diamond core drilling. However, where closer spaced (25 m) RC drilling has been carried out for grade control, the assay results and drill logs from the RC data are combined with the results from the diamond drilling. The inclusion of grade control drilling in the modelling procedure has led to significant changes in the position of the orebodies in some areas of the operation, when compared to the initial model based on wide spaced (100-200 m) exploration drilling. In some cases these changes are manifested as changes in the elevation of the individual reefs by up to 20 m in places due to revised interpretations. This will influence the stripping ratio in the immediate area and therefore will affect the pit optimization.

The inclusion of the closer spaced drilling also allows better definition of variations in orebody thickness. However, there does not appear to be a significant difference between the original modelled thickness and that produced using the grade control data.

The orebodies at Tarkwa are cut by numerous faults which generally run perpendicular to the strike and are predominantly reverse faults. Movement on the faults is in both dip and strike directions, although vertical displacements are generally less than 20 m. The faults have been modelled as 3-D planes and the orebody reef models have been clipped against these faults to prevent duplication of reef volumes.

A number of igneous intrusions also cross cut the reef orebodies and can cause areas to be sterilized. However, the major intrusions have been identified during the exploration drilling, modelled as 3-D wireframes and taken into account in the resource estimation process. Minor intrusions do occur which are not picked up by the initial exploration drilling at the 100 m spacing. However, these are usually picked up by the grade control drilling.

SRK has reviewed the geological modelling procedure and protocols and is in general agreement with the methodology employed. It is obvious that the exploration drilling is not accurately defining the location and shape of the orebody on a local scale and the updated model is still underestimating tonnage. However, the grade control drilling appears to be adequate and is currently running approximately 18-24 months ahead of mining which allows the changes to the geological model between exploration and grade control to be incorporated in the annual mine planning.

10.2.2 Domaining

A major new aspect to the Mineral Resource estimation procedure for the 2004 model is the modelling of specific sedimentological domains within individual deposits. The domaining procedure uses a number of sedimentological characteristics to define the domain boundaries for each individual reef. These characteristics are listed here in order of decreasing significance:

- Palaeocurrent direction has been mapped throughout the mine and indicates a radial pattern with the primary flow direction from the northeast and east. Locally, the current direction can be directly linked to gold mineralization in the proximal (up stream) areas of the deposit such as Pepe, Mantraim and Teberebie. The domains for these areas are defined as a series of narrow strips striking from north-east in Pepe/Mantraim through to east in the Teberebie area.

- Footwall control plays a more significant part in delineating domains as the distance from the source increases in the more distal areas of the mine such as Akontansi. The footwall control occurs as a result of sub cropping footwall beds normal to the flow direction which has disrupted the flow and formed a series of ridges. The footwall control domains tend to strike perpendicular to the flow current direction and the majority of the domains at Akontansi strike to the north-west.

- Reef thickness increases to the west with a corresponding decrease in grade and it is essential to take the thickness into account so as to restrict the interpolation of grade into areas of increased thickness. T3 time units are identified from diamond drilling and used to help outline the individual domains.

- Gold grade and accumulation are used in the local estimation to delineate pay shoots within individual domains. In the distal areas at Kotraverchy, the grade plays a more significant role in the delineation of the domains used for local grade interpolation.

SRK considers the development of a detailed sedimentological model for a deposit such as Tarkwa to be appropriate and the application of these domains during the grade interpolation procedure is providing increased confidence in the local grade estimation. It is obvious from the work carried out both at Tarkwa and at South African Witwatersrand Basin gold mines that an understanding of sedimentological controls on gold mineralization are essential for the production of enhanced local grade estimates. As additional drilling is completed, it is essential that the current models are updated as there are large areas of the current domains with only wide spaced drilling informing the model. In addition, the newer areas of the mine such as Kotraverchy require drilling over a wider area in order to improve the resolution of the current domains and in certain areas it may be necessary to further sub-domain based on structural complexity.

10.3 Tonnage and Grade Reconciliation

10.3.1 Application of Tonnage Factor

Detailed reconciliation studies have been carried out since the commencement of mining in the mid 1990s. It has been apparent, since that time, that the Mineral Resource estimated from the exploration data is significantly underestimating the tonnage of ore, when compared to the results from the belt weightometers, by some 10% on average, although this figure varies up to 30% in areas of high structural complexity. The grade reconciliation with the exploration model is generally good and the result is an increase in contained metal in the grade control/production data when compared to the exploration model.

Since 2002, a detailed programme of reconciliation studies and re-modelling has been instigated by GFGL in an attempt to identify where the discrepancy is occurring in the resource estimation process. This process has included re-modelling of specific areas, as well as detailed checking of the equipment used for calculating tonnages, and the drilling and sampling protocols used for both exploration and grade control drilling.

The results of this study have resulted in a tonnage factor being applied to that portion of the Mineral Resource model which is informed by diamond drilling only, with a minimum spacing of 100 x 100 m.

Figure 10.1 summarizes the results of the monthly tonnage reconciliation between the original and the current exploration models and the belt weightometer for the two year period between July 2002 and May 2004.

The monthly variation plot shows that the old model produced a consistent underestimation of tonnage within a range of between 4% and 30% underestimation by the resource model and at an average of 9%. The new resource model shows a similar range between the minimum and maximum variation of between 4% overestimation and 19% underestimation when compared to the belt tonnage. However, it should be noted that the new model includes a 10% tonnage factor which was not included in the old model and when this factor is excluded, the two models show very similar values (6-29% underestimation). The period since October 2003 has shown a consistent underestimation of tonnage by the new model including the 10% factor, at an average of some 8% while for the initial period between July 2002 and September 2003 the average variation was only 2%.

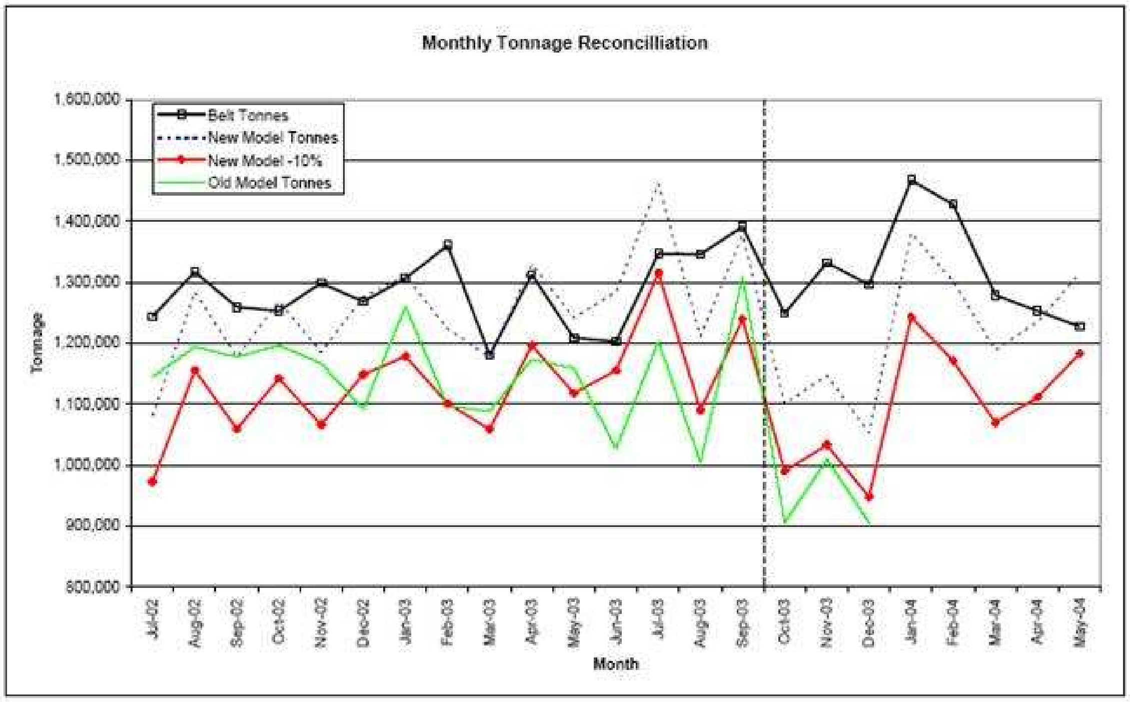
Additional factors which may be having an effect on the exploration tonnage estimate are:

- the density estimate;
- the duplication of reefs adjacent to reverse faults and thrusts, and areas of increased structural complexity which would not be picked up at the resolution of exploration drilling;
- conservative calculation of reef thickness during core logging when compared to RC estimates and visual grade control during mining;

- inaccurate modelling of the reef footwall which is then used as the basis for calculation of the exploration model thickness; and

- variations in topography due to use of aerial topographic surveys during exploration drilling and detailed surveys carried out during grade control drilling.

Figure 10.1: Monthly Tonnage Reconciliations July 2002 — May 2004



The results indicate that the new model, while providing a better reconciliation with the belt tonnage than the previous model, is still not providing a consistent reconciliation. It is likely that additional factors are influencing the tonnage distribution. Although SRK considers the factor to be appropriate given the current information SRK recommends that domaining exercises to delineate areas of higher and lower tonnage factors continue to be investigated.

10.3.2 Grade Reconciliation

Grade reconciliations of the new model and the old model when compared to the monthly average from the belt sampling indicate that the grade has not changed significantly between the two models and that both are providing a good reconciliation with the actual Run-of-Mine (“RoM”) grade.

Grade reconciliation for the RC drilling is indicating an underestimation of the grade. A recent study by D F Bongarcon has indicated that current sample size is insufficient and an updated RC sample protocol has been initiated. However, it is too early to state whether this has had any effect on the RC grade estimate.

10.4 Dilution Parameters

The dilution model was changed in 2001 after a reconciliation study suggested that the previous 40 cm skin at 0.0 g/t Au (80 cm total dilution) was overly conservative. The current model applies a 30 cm hangingwall and 20 cm footwall (true thickness) skin to the reef wireframe at a grade of 0.15 g/t. In some cases where reefs lie very close together and are mined together, the dilution skin between the two is given an average grade of the adjacent reef. Dilution is applied to the resource model separately from application of the tonnage factors described previously.

10.5 Data Analysis

All assay data is captured electronically and in hard copy format from SGS laboratories. Basic statistics are produced after completion of wireframe modelling to check the validity of samples which lie within the geological model as well as the stationarity of the domains. 1 m composites are produced from the hangingwall intersection with a minimum of 40 cm allowed at the base to allow for shorter composite lengths. Statistics are calculated for vertical thickness, grade, and metal accumulation.

High grade cuts are performed based on a visual examination of the data distribution on QQ plots. In most cases, the number of high grade values is less than 1% and these are cut only for the purpose of semi-variogram modelling and are included in the sample population used for the final grade interpolation. Diamond core exploration data is combined with RC grade control data where available to provide as much information as possible for semi-variogram modelling. The modelling is carried out within individual domains and the domain boundaries are regarded as hard boundaries with no influence allowed from adjoining domains. In some cases, insufficient data is available to produce down hole semivariograms.

SRK considers the approach taken by GFGL to be appropriate, given the size of the database available. The process for dealing with high grade samples is acceptable given the relatively small number which could be classified as outliers. Furthermore, by excluding a small number of samples from the experimental semi-variograms the noise is significantly reduced and structural details are enhanced allowing more confidence in the final model.

10.6 Grade Interpolation

Grade is interpolated into 50 x 50 x 3 m blocks using a simple kriging (“SK”) algorithm. Local mean values are calculated for each individual reef domain using a 400 x 400 m moving window and a minimum of 20 composites. The boundary of the domain is treated as a hard boundary for calculation of the local mean. Search parameters are based on the individual semi-variograms produced for each reef in each of the domains. A dip domain model is created for each domain based on the strike and dip of the triangulation surfaces which make up that particular reef model within the domain.

SK is carried out using all available data within the search radius, but the algorithm treats the domain boundary as a soft boundary and for blocks near the edge of the domain the search can include composites within a 50 m skin of the adjoining domain. This has the result of reducing the edge effect and therefore reduces any conditional bias for blocks around the edge of the domain. High grades are included in the kriging population used for grade interpolation. The data uses a combination of both RC and exploration composites. Post processing is carried out for calculation of recoverable resources using a Selective Mining Unit ("SMU") of 10 x 5 x 3 m and based on an assumption of a 25 x 25 m grade control drill spacing and a log normal grade distribution for a number of cut-offs ranging from 0.5- 2.0 g/t.

Block proportions are calculated using Datamine software and are cross checked against the physical wireframe volume and also against a block model produced using the Surpac software system. The results are within 0.01% of each other and are considered accurate. Each block is given a proportion of ore and waste to which a tonnage factor is then applied. The factor is also applied to the proportion of waste to take into account the increased tonnage of ore within the block.

10.7 Mineral Resource Statement

The Mineral Resource Statement in Table 10.3 represents the Mineral Resource at Tarkwa estimated by GFGL as at June 30, 2004. In SRK's opinion the tonnage and grade estimates and classification are appropriate according to the SAMREC Code and CIM Standards.

Table 10.1: Tarkwa Mineral Resource Statement, June 30, 2004

Mineral Resource Classification	Mt	g/t	Koz
Measured			
open-pit	200.5	1.5	9,610
surface stockpile	4.3	0.9	120
Measured sub-total	**204.8**	**1.5**	**9,730**
Indicated			
open-pit	187.3	1.4	8,210
Indicated sub-total	**187.3**	**1.4**	**8,210**
Total Measured and Indicated	**392.1**	**1.4**	**17,940**

	Mt	g/t	Moz
Inferred			
open-pit	3.3	1.5	160
underground	16.3	4.0	2,070
Inferred Total	**19.5**	**3.6**	**2,230**

Mineral Resources are reported after inclusion of a 10% tonnage factor for the volume of ore material in a block and a corresponding reduction is applied to the waste tonnage. Dilution is applied to the blocks and a pit optimization is carried out using a USD 400 per ounce gold price. After calculation of the pit shell the dilution is subtracted from the blocks and the Mineral Resource quoted is essentially the tonnage of the undiluted ore blocks which lie within the outline of the un-engineered pit shell.

The underground Mineral Resource estimate is also based on a gold price of USD 400 per ounce which equates to a cut-off grade of 3.7 g/t for Akontansi and 2.7 g/t for Kotraverchy.

The Measured and Indicated Mineral Resources are quoted inclusive of those Mineral Resources modified to produce the Mineral Reserves.

Measured Mineral Resources are classified as those where the lower 90% confidence limit is within 11% of the mean. Indicated Resources are classified as those where the lower 90% confidence limit lies between 11 and 22% of the mean. Inferred Resources are classified as those where the lower 90% confidence limit is greater than 22% of the mean.

SRK considers that the use of the current 10% tonnage factor is acceptable given the detailed reconciliation studies which indicate that 10% is the minimum and therefore is providing a conservative estimate.

SRK has not recalculated the base information supporting the Mineral Resource estimates as derived from bore-hole and assay data, this given the extensive history of Tarkwa and geological investigations undertaken by GFGL and previous owners. However, SRK has undertaken sufficient checks through the course of its investigations to enable an appropriate level of reliance to be placed on such data, as provided.

11 MINING AND MINERAL RESERVES

11.1 Mining Operations

Mining operations at Tarkwa since July 2004 have been carried out on an owner operated basis. Prior to that, for four years, operations were carried out by a contractor AMS. This followed an owner operated cost assessment completed by GFGL, including a review of the capital and operating costs to be used for a base line comparison with contract mining. The review indicated that the most productive and cost efficient mining fleet was a combination of Liebherr R 994 excavators and CAT 785C dump trucks. Mining production requirements are now significantly higher than the previous throughput rate of 14.4 Mtpa in order to prepare for the increased material movement anticipated in January 2005 when the CIL plant is planned to be commissioned.

11.2 Mining Method

The mining at Tarkwa exploits seven distinctive areas, namely from west to east: Kotraverchy, Akontansi Ridge, Akontansi East, Pepe, Mantraim, West Hill, and Teberebie. The location of the mining areas is defined through the long term planning process. The boundaries of the pits are pegged out by survey. The area is cleared of bush and topsoil with a bulldozer. This material is later relocated for rehabilitation purposes. After clearing, RC grade control drilling is carried out, and the grade control geological models constructed. The short term plans and forecasts are updated with this information prior to the commencement of mining. From the highest point in the pit, material is free-dug or blasted to the first blasting reference level (“RL”). Fresh rock and transitional zones are drilled and blasted in 6 m lifts with excavation in 3 m flitches. Less weathered material is excavated without the requirement of blasting. Ore and waste is currently loaded by 8 hydraulic excavators (four Liebherr 994 and three Liebherr 984 and one Liebherr 994C). The current truck fleet consists of 24 rear-dump CAT 785C with a payload capacity of around 90 t and 2 CAT 773 rear dump trucks.

Mining is highly selective. Backhoe excavators are used to select off waste from the ore, and vice versa, to an estimated accuracy of approximately 30 cm. Pit geologists supervise all digging. Ore material is either RoM, delivered to one of two primary crushers, or low grade, which is stockpiled close to the north primary crusher, dependent on grade. Waste material is hauled to the nearest waste dump.

Blasting currently utilizes, and will continue to utilize, relatively close patterns and small diameter holes, typically a 3.2 x 3.6 m grid with a hole diameter of 102 mm. Slightly larger diameter holes and an increased grid size will be utilized in the partially weathered material while a decreased grid size will be utilized in harder material. The small diameter holes are used to preserve, as far as possible, the integrity of the ore/waste contacts, and allow for visual identification of the zones by the pit geologists.

Currently, approximately 1.5 million bank cubic metres (“bcm”) of material is mined monthly (3.8 Mt). Total current RoM is approximately 1.2 million tonnes per month

(“Mtpm”), which is expected to increase to roughly 1.6 Mtpm after the commissioning of the CIL Plant.

The primary objective of the scheduling is to maximize production from the lowest cost per ounce pits, without neglecting the development of subsequent mining areas.

11.3 Optimization

An optimization was conducted that formed the basis for all mine planning requirements. The following parameters were used:

- owner operator mining, July 2004 to end of mine life;
- Heap Leach North (9.7 Mtpa) to end of mine life and Heap Leach South (6.3 Mtpa) to 2010;
- CIL milling (4.2 Mtpa) from January 2005 to end of mine life;
- gold price USD 350 per ounce; and
- starting projected topography and mining face positions at July 2004.

Tarkwa has recently introduced a mine scheduling software package (Xpac) together with a financial evaluation package (Xeras) that have improved the methodology and the detail whereby Tarkwa estimates the Mineral Reserves.

Tarkwa has derived updated cost and project parameters for the optimization of the Tarkwa Mineral Resources, generally based on the 2004/5 budgets. SRK has reviewed the updated unit costs for mining, processing and administration with those used for the 2003 Mineral Reserves and considers that these are appropriate.

Tarkwa has been consistent in the methodology for excluding certain capital costs from the optimization process, specifically the costs for extending the heap leach pads and for the replacement of mining equipment. This approach would satisfy a corporate objective to maximise the development of the Mineral Resources and the total gold produced and revenue.

11.4 Mining Operating and Capital Costs

The mining costs that have been used for optimization have been derived on the same basis as the 2004/05 operating budget was prepared. There has been a material change from the average mining costs for 2003, due to the implementation of owner mining with significantly lower mining costs than for contract mining. There has been a significant increase in the cost of fuel (USD0.52/l for 2004 compared with USD0.35/l in 2003), however this has been offset by a reduced cost for the Maintenance and Repair Contract (“MARC”) prices that were negotiated by GFGL.

Whilst the owner mining has demonstrated significantly lower unit mining costs than the contractor mining, the cost adjustment factors (“CAFs”) that have been derived for the owner mining are higher than those that have been derived from previous studies. This has had the impact of reducing the quantity of deeper Mineral Reserves in certain areas.

The mining operating costs prepared for the 2004/05 operating budget were developed using the best available estimates of unit costs and rates for the new owner mining operation. As this is the first year of owner mining there is no operating history to compare with. The mining operating costs can be compared with those developed for the BFS in December 2002. Differences are explained by the unit costs that were finally contracted with Caterpillar Inc. for the MARC, and for the increased costs for fuel. The changes in operating costs as each unit of mining equipment ages, have been reflected in the projected annual operating costs.

The mining capital costs were developed in accordance with the mining equipment life as contracted for the MARC, and from the estimated annual usage of each unit of equipment. Additional mining capital cost has been provided for relocation of infrastructure as these are impacted by the expansion of the pits.

Table 11.1 illustrates the historical production for the past three fiscal years (July to June) at Tarkwa. Note that historical costs are based on contractor mining.

Table 11.1: Tarkwa Historical Production and Cash Costs

Production History	Year ended June Units	2004	2003	2002
Production				
Ore Mined	(kt)	17,164	16,067	14,630
Head Grade	(g/t)	1.43	1.46	1.58
Waste Mined	(kt)	43,987	27,521	28,986
Strip Ratio	(koz)	2.6	1.7	2.0
Tonnes treated	(kt)	16,000	15,210	14,914
Yield	(g/t)	1.1	1.1	1.1
Gold Produced	(koz)	550	540	544
Total Cash Costs	(USD/oz)	230	194	171

11.5 Stockpiles

The stockpiles as included in the Mineral Reserve comprise surface low grade mineralization accumulated from the mining operations since the start of mining at Tarkwa. The opening balance of Mineral Resource for this mineralised material (4.3 Mt at an average grade of 0.88 g/t) is based on the truck count for tonnage and grade control data for the grade of stockpile material placed.

SRK notes that a modifying factor of 95% tonnage recovery has been applied to the stockpile to convert it to a Mineral Reserve. SRK considers that this factor is appropriate.

11.6 Cut-off Grade

The heap leach cut-off grade and the CIL milling cut-over grades that have been applied to each of the deposits, have been based on the operating costs assumptions as used for the optimization. These include provision for royalty and head office management fees, operating costs for mining, processing and overheads / sundries, but have excluded any provision for extending the heap leach pads and for replacing mining equipment, that GFGL has considered to be capital costs. Further optimization of the cut-off / cut-over grades to improve cash flows is carried out during the production scheduling as per the planning methodology used at Tarkwa.

11.7 Engineered Pit Designs

The optimization has been constrained in certain locations due to infrastructure constraints on the development of the open cuts. Where infrastructure can be relocated, the capital cost for this has been considered during the scheduling process. The CIL plant has been considered to be a fixture, and the optimization has been constrained to preclude relocation of this plant.

Engineering the pit cutbacks and thereby considering and including access ramps has reduced the average slope angles in certain of the deposits, from those average angles used for the optimization. With the benefit of the designs for the 2004 strategic plan, the average slope angles could be modified to more closely represent the influence of access ramps.

11.8 Geotechnical Constraints

SRK has previously recommended a range of geotechnical measures including the adoption of mapping and monitoring and the reduction of all slope angles by 5°. Tarkwa has now implemented these proposals, following training by SRK GFGL now carries out ongoing geotechnical assessment.

Generally, for long term slopes, there is a 12 m batter height and 8 m berm width, with overall slopes of 36-45° in the upper, weathered strata and 55-65° in the lower, fresh strata. If a ramp exists in the wall, the overall slope angle is effectively reduced. LoM plans are considered achievable with the above slope configurations.

Geotechnical staff has been assigned to collect geotechnical data for analysis and to advise on mine design. Wall monitoring has become routine and a preliminary series of piezometric boreholes have been drilled in order to monitor water movements. Appropriate software has been purchased to analyse wall failure potential and on-site users have been trained to use it in order to advise the mine planners. The data is regularly reviewed on-site (at least twice a year) by external geotechnical engineers in order to ensure that designs meet accepted standards. The maximum pit for the selected gold price as defined by the Whittle optimization, including mining dilution, forms the basis of the LoM pit design.

11.9 Scheduling

The schedule for the LoM has been determined for the following assumptions / constraints:

- limiting the total mining capacity to 100 Mtpa;
- closing the South Plant with effect from 2011; and
- during the cut-off optimization, limiting the tonnage of low grade stockpile being accumulated.

GFGL acknowledges that these specific constraints could be further optimized. GFGL has also identified a number of other strategic options that have the potential to further improve the project returns and these are planned to be investigated by GFGL during 2004 and 2005.

11.10 **Mineral Reserve Statement**

The Mineral Reserve Statement in Table 11.2 represents the Mineral Reserve at Tarkwa estimated by GFGL as at June 30, 2004. In SRK's opinion the tonnage and grade estimates and classification are appropriate according to the SAMREC Code and CIM Standards.

Table 11.2: Tarkwa Mineral Reserve Statement, June 30, 2004

		Mt	g/t	Koz
Proved				
	open-pit	**199.8**	**1.3**	**8,560**
	surface stockpile	**4.1**	**0.9**	**120**
	Proved sub-total	**203.9**	**1.3**	**8,680**
Probable				
	open-pit	**147.7**	**1.3**	**6,050**
	Probable sub-total	**147.7**	**1.3**	**6,050**
	Total Proved and Probable	**351.5**	**1.3**	**14,730**

The Mineral Reserve estimates are based on a gold price of US D350 per ounce. The Mineral Reserve is based on heap leach, CIL and owner mining cost. Proved Mineral Reserves are derived from Measured Mineral Resources and Probable Mineral Reserves from Indicated Mineral Resources.

SRK has reviewed the methodology used by GFGL at Tarkwa for the estimation of the 2004 Mineral Reserve. The generally low grade for the Tarkwa deposits makes the Mineral Reserve particularly sensitive to changes in the resource models, operating costs and the gold price. The increase in the Mineral Reserve between 2003 and 2004 is consistent with changes in the resource models and the gold price. For the planning methodology applied by GFGL, and for the operating cost assumptions as stated by GFGL, SRK considers that the derivation of the Mineral Reserve at Tarkwa to be appropriate and conform with the guidelines and definitions of the SAMREC Code and CIM Standards.

Table 11.3: Tarkwa Mineral Reserve Sensitivities

Gold Price	(USD/oz)	315	333	350	368	385	400
Proved and Probable Reserve	(Mt)	297.2	330.6	351.5	382.9	398.1	417.2
Average Grade	(g/t)	1.3	1.3	1.3	1.3	1.3	1.3
Contained Gold	(Moz)	12.5	13.8	14.7	16.0	16.6	17.4

GFGL has produced a series of Mineral Reserve sensitivities (Table 11.3) that provide an indicative estimate of the Mineral Reserves at a range of gold prices. These estimates are derived by factorising pit shells optimized at each gold price.

12 METALLURGY AND MINERAL PROCESSING

12.1 Metallurgy

12.1.1 Weathering, density, porosity

The degree of weathering of the gold-bearing conglomerates at Tarkwa is critical to the viability of the mine due to its effect on the gold extraction. The weathering has affected rocks near the surface by oxidation with consequent clay alteration, which in turn affects porosity, density and metallurgical characteristics of the deposit. From the outset the mine has sought to model the weathering alteration characteristics of the deposit. Initially, a qualitative visual estimate was used to gauge porosity, which was subsequently updated to a wetting test where the quantity and rate of water absorption was measured. The procedure currently in use is a direct measurement of the porosity percentage, or void space, through an immersion technique. 6,000 porosity and bulk density determinations have been made on 5 cm core samples taken every 50 cm in the various reef units and in some of the intervening quartzite beds from 1,070 drill holes at Pepe, Mantraim, Akontansi and Kotraverchy.

The weathering profile, hence porosity, of the ore varies from surface as this relates to the fluctuations in ground water levels, which generally vary from 1 to 40 m. Faulting, fracturing and primary lithologic permeabilities modify the depth to porosity relationship. The mine uses a manual method of contouring the different porosity values (P Codes). The weathering zones are shown in Table 12.1.

Table 12.1: Ore Weathering Characteristics

		%			Range (%)
Highly Weathered	Beta-1	>5	5	<2.57	>90
		4-5	4	2.57-2.59	86-90
Weathered	Beta-2	3-4	3	2.59-2.62	82-86
		2-3	2	2.62-2.65	75-82
	Gamma	1-2	1	2.65-2.67	60-75
Highly Competent	Delta	0-1	0	2.67-2.70	<60

The ore is a free milling conglomerate with negligible sulphide content. In terms of the less heap leach amenable ore types, the gravity concentration recoverable gold component varies from 30% to 70%. The optimum grind size for stirred tank leaching corresponds to a P_{80} of 75 µm. The ore contains a mild preg-borrowing component necessitating the use of a CIL type of circuit. In this configuration, based on laboratory tests and modelling, a recovery in excess of 95% in a leach residence time of 24 hours is believed to be readily achievable.

12.1.2 Methodology for quantitative prediction of metallurgical recovery

Using the P Codes and the geological block model reef zones, the gold dissolution may be accurately predicted for the heap leach operation. The average relative density values of the zones, together with the predicted gold dissolutions, for the Pepe, Mantraim/Teberebie and Akontansi/Kotraverchy deposits are shown in Table 12.2 below.

Table 12.2: Heap Leach Dissolution Predictions

P Code	Pepe Average Relative Density	Pepe Gold Dissolution %	Mantraim/Teberebie Average Relative Density	Mantraim/Teberebie Gold Dissolution %	Akontansi/Kottraverchy Average Relative Density	Akontansi/Kottraverchy Gold Dissolution %
0	2.68	60	2.68	50	2.67	50
1	2.65	67	2.65	60	2.65	60
2	2.6	79	2.61	75	2.61	75
3	2.59	85	2.59	82.5	2.60	82.5
4	2.58	88	2.58	86	2.59	86
5	2.44	91	2.45	91	2.47	91

12.2 Mineral Processing

12.2.1 Introduction

Tarkwa currently utilizes conventional heap leach techniques to recover gold. Operations consist of two separate heap leach circuits, the Tarkwa plant (North Plant) and the Teberebie plant (South Plant). The North Plant was commissioned by GFGL in 1998, while the South Plant was originally commissioned in 1992 by Teberebie Goldfields Limited and, subsequent to GFGL's purchase in August 2000, was re-commissioned at a cost of USD1 M. The two plants each have multiple stage crushing processes combined with agglomeration and a combined capacity of approximately 1.2-1.3 Mtpm.

The BFS was based on incorporating the then current 14.4 Mtpa heap leach operation, with a newly constructed 4.2 Mtpa CIL Plant and owner mining. The addition of the CIL Plant complements the existing heap leach operation by providing processing flexibility and with a means to target those ores with a much lower P Code that are less amenable to heap leaching.

12.2.2 Heap Leach Process

For LoM planning, heap leach production is now based on 815,000 tpm at the North Plant and 530,000 tpm at the South Plant. This is similar to the 12 month average achieved in F2004.

Crushing & Agglomeration

The crushing facilities at the North Plant were commissioned by GFGL in March 1998 at an original design throughput of 1,350 tonnes per hour ("tph"). The plant is currently operating at a mean rate of 1,400 tph with surge rates up to 1,700 tph and an overall availability of 85%. The 3-stage plant currently crushes to a P_{80} of 12.5 mm. The crushing facilities at the South Plant currently operate at a mean rate of 800-850 tph. The 4-stage plant crushes to a finer product than the North Plant with a product P_{80} of 9 mm.

Agglomeration at the North Plant is carried out in three agglomeration drums with a feedrate of approximately 800,000 tpm (436 tph per drum). Agglomeration at the South Plant is carried out through a single agglomeration drum which has a nominal rate of 480,000 tpm (784 tph) but is operating above this. The South Plant drum is currently operating towards the upper limits of its capacity. Cement consumption is similar to that at the South Plant.

The original project design criteria specified cement consumption of 6 kg/t for less competent ore and 4 kg/t for the balance of the ore. Early operations started at significantly higher cement consumption rates of up to 12 kg/t, but this has been progressively reduced to the current level of 4 kg/t. Cement addition may reduce further if the proportion of more competent ore in the feed increases.

Pad and Ponds

The design philosophy for the leach pads has been by means of a modularized approach using predefined cells to accept the stacked ore. At the North Plant, cells have been laid out in six phases with detailed design done for the first five.

Table 12.3: Leach pad capacities

Phase	Capacity remaining Mt	Approximate Life (months)	Construction period
1 – 2	9.5	12	
3	17.3	21	
4	31.5	39	August 2004 - March 2006
5	42.8	53	August 2008 - March 2010
Total	**101.1**	**125**	

The figures in Table 12.3 above are based on the base date of July 1, 2004 and production rate of 815,000 tpm.

Prior to GFGL’s acquisition of the South Plant, Teberebie Goldfields Limited had placed approximately 34 Mt on a series of heap leach pads. Subsequent to the acquisition, GFGL completed extensive remediation and repair work at the leach pads and ponds prior to the initiation of leaching activities.

For the LoM, it is proposed that pad expansions at the North Plant be conducted in two phases: phase 4 with module widths of 75 m and lengths of 800 m, and phase 5 with module widths of 75 m and lengths of about 1,100 m. The heap geometry allows for lift heights of 10 m and 6 lifts for a maximum height of 60 m. Production rate design is 815,000 tpm.

For the LoM, the requirement at the South Plant is expected to be met through existing pad space and pad expansions (12.5 Mt) and two new valley leach areas (49 Mt). The life is 116 months based on 530,000 tpm. The heap geometry at the South Plant leach pads is similar to the North Plant leach pads, except the lift height is 6 m.

At both the North and South Plant heap leach cells are formed by first adjusting the topography to form a well-graded modular heap leach pad followed by a compacted 450 mm low permeability clay liner and then by a 1.5 mm thick high-density polyethylene (“HDPE”) plastic liner. A layer of geofabric is placed over the HDPE liner to protect it from the pad gravel drainage layer that is placed prior to the stacking of ore. The pad gravel consists of 600 mm of +6 mm to 19 mm screened ore product from the open pit with 150 mm diameter slotted drainage pipes placed under the gravel at 6 m centres.

At the North Plant, the process ponds consist of five ponds, namely the barren pond, the pregnant pond, the intermediate pond, the excess solution pond, and the detoxification/treatment pond. All of the ponds are double HDPE lined with leak detection systems. The solution treatment system was originally designed by Kappes, Cassidy & Associates Australia Pty Ltd. ("KCA") to handle 600,000 tpm and operational spray rates of 660 m^3 per hour nominal. Since start up, treatment rates have been expanded to the current rate of 1140 m^3/h. A new excess solution pond has been constructed in conjunction with the construction of the third phase (cells 16 to 22) and a further expansion of excess pond capacity is required for the phase 4 expansion. Additionally, a solution overflow containment dam is in use to collect clean storm water from the pads and/or solution from the detoxification plant.

While the original construction of the process ponds at South Plant was to a lower standard than the ponds at the North Plant, GFGL completed extensive repair and remediation work that has provided facilities that will not likely require any further upgrades. In addition to repairing pond liners, leak detections systems and reconstruction of lined structures and embankments, GFGL also constructed additional solution and storm water management structures.

A schematic of the heap leach process is shown in Figure 12.1.

Leaching and Adsorption

The basic design parameters for the leach cycle in the feasibility study includes a 240 day period for a solution application ratio of 3.4 m^3/t at the North Plant and up to 5.3 m^3/t with the more competent ore. These parameters are based on both laboratory data and historical leach performance at Tarkwa. Further upgrades to the solution reticulation system to meet the additional requirements (increase by some 60%) over the LoM are planned or are currently underway.

Three adsorption column types currently operate at the site. The North Plant is currently equipped with three trains of sealed-top column absorbers and five 5-stage tower columns. The South Plant is served by two trains of cascade type columns and two 5-stage tower columns. The current adsorption systems have adsorption efficiencies for the North Plant averaging 93% and 90% for the closed-top and tower column respectively while the South Plant averages 94% and 90% for cascade and tower columns respectively.

It is expected that over the LoM, cyanide consumption will increase marginally as the proportion of less weathered rock (higher P Code material) increases. Current cyanide application rates are roughly 0.42 kg/t at the North Plant and 0.48 kg/t at the South Plant. This is expected to increase to an average over the LoM of 0.55 kg/t and 0.62 kg/t for the North Plant and South Plant respectively.

All flows from the leach pad and active process areas are collected and excess solution is detoxified in separate processes at the North Plant and South Plant. Detoxification is carried out using sulphuric acid and hydrogen peroxide at approximately a 6X stoichiometric ratio. The regulatory target CN_{wad} is 0.1 ppm. The mine target is 0.05 ppm and levels of 0.01 ppm are routinely achieved. Design criteria on the detoxification ponds is based on an 48-hour residence time. Current capacity for the North Area is 800 m^3/h while the required detoxification capacity for the South Area is 300 m^3/h.

At both the North Plant and the South Plant, there is no average annual make-up water requirement. However, to cover extreme conditions, a make-up water supply of 385 m^3/h for the North Plant and 100 m^3/h for the South Plant is in place.

12.2.3 CIL Process

With the anticipated increase in low P type material the recovery from the heap leach operation would decrease. Various studies, culminating in a feasibility study, were done to provide a solution. As part of the feasibility study, GFGL conducted an evaluation of the potential of various schemes and chose a conventional milling and CIL circuit to complement the existing heap leach circuit. The nameplate capacity of the new section is 4.2 Mtpa. Based on the physical characteristics of the ore, metallurgical testwork results and the proposed operating philosophy, the following treatment plant flow sheet has been selected for the mill-CIL Plant:

- single stage primary gyratory crushing (54” x 74” crusher) fed by direct truck dumping or front end loader (the RoM dump pocket is larger than the original feasibility study design);

- live crushed ore stockpile with reclaim;

- single stage semi-autogeneous grinding (“SAG”) milling (8.22 m diameter x 12.2 m SAG mill with a dual pinion two 7,000 kW drives) in closed circuit with eight cyclones (the SAG mill is wider and has larger motors than the feasibility study design);

- a leach stage followed by seven CIL stages for optimum stage efficiency and minimum carbon inventory; and

- a 15 t Anglo American Research Laboratory (“AARL”) / Zadra elution circuit with electrowinning using sludging stainless steel cathodes.

A schematic of the CIL process is shown in Figure 12.2. Apart from the changes noted above, the plant has been designed to allow for an easy expansion to 8.4 Mtpa. This involved larger drive trains for the conveyors and layout changes so that the envisaged additional equipment can easily be retrofitted. The capital required for this was USD2.1M. There has been an additional cost of USD7.1M due to adverse exchange rate movement. Milling is anticipated to start late September 2004.

Crushing, Coarse Ore Stockpile and Reclaim

RoM ore is loaded into the crusher dump pocket by either a CAT 992 or directly dumped from CAT 785 haul trucks.

The RoM hopper has a live capacity of 225 t and feeds directly into a 1,372 mm x 1,880 mm (54” x 74”) primary gyratory crusher. The gyratory crusher handles RoM ore with a maximum lump size of 1,100 mm and is fitted with a rock breaker to handle oversize rocks. Primary crushed material discharges to a 300 t surge chamber directly underneath the crusher and feeds through a variable speed apron feeder to a 1.2 m wide conveyor belt for discharge onto the crushed ore stockpile. The crushed ore stockpile has a 12,600 t live capacity, which is equivalent to 24 hours of SAG mill feed. Material from the crushed ore stockpile is reclaimed via three apron feeders with each feeder capable of providing the SAG with ore at the full mill feed rate.

Grinding and Classification

The grinding circuit consists of a single stage SAG mill operating in closed circuit with 8 x 650 mm hydrocylcones. The selected duty for the SAG mill is 525 tph with a speed range of 65% to 75% critical speed availability. The SAG mill is 8.22 m in diameter by 12.2 m in effective grinding length with a dual pinion 2 x 7,000 kW drive and operates with a 10% volumetric ball loading. Operating with an 18% ball loading will be possible. The structural design has been for a 25% loading. Variable speed control will provide flexibility for processing of the various ore types and blends.

The discharge from the SAG mill is screened over a 2.4 x 6.1 m horizontal vibrating screen into the 60 m^3 mill discharge hopper. Mill discharge pumps deliver the slurry to classifying cyclones to provide a product size of 80% passing (P_{80}) 75 µm. The design concept for SAG mill discharge has incorporated provisions to install a trommel and/or a gravity circuit at a future date, should either recycle pebble crushing or gravity concentrators be required.

Studies indicated that below average amounts of grinding energy are required by the various ore types, however, the abrasion index was found to be quite high. The latter implies that liner and media consumption will be above average for all ore types.

Leaching and Adsorption

Cyclone overflow is introduced onto one of two 2.4 m wide x 6.1 m long trash screens with the underflow gravitating to a 29 m diameter high rate thickener. The thickener underflow is pumped to the leach/adsorption circuit while the overflow gravitates to a process water tank for return to the SAG milling circuit. Flocculant dosing at the thickener is closely monitored to maintain thickener underflow density to 50% solids.

The leach/adsorption circuit consists of one leach and seven adsorption tanks each with a live capacity of 3,255 m^3. The tanks are interconnected with launders and slurry will flow by gravity through the tank train. Each tank is fitted with dual stage mechanical agitators with hollow shafts to facilitate aeration air discharge at the base of the CIL tank. In addition, tanks are fitted with two mechanically swept woven wire intertank screens to retain carbon.

Cyanide addition is staged into the early leach tanks with automatic control using an on-line cyanide analyzer. Fresh or regenerated carbon enters the circuit in the last adsorption tank and is advanced through the tank column counter-current to the slurry flow using a recessed impeller pump.

Slurry discharge from the last adsorption tank gravitates to two 2.4 x 6.1 m vibrating screens. The screens are designed to recover any coarse carbon leaking from the intertank screens for return to the CIL circuit.

Elution and Gold Recovery

Loaded carbon is recovered from tank one in the adsorption column and transferred into a 15 t capacity acid wash column. Transfer and fill operations are controlled manually while all other aspects of the acid wash and the pumping sequence are automated.

During the acid wash, a dilute solution of hydrochloric acid is pumped into the bottom of the column to remove contaminants from the carbon. Following the acid wash, the column is rinsed with water prior to elution. Treated water is pumped through a solution heating circuit and injected into the elution column with cyanide. The loaded carbon is pre-soaked in the caustic/cyanide solution for 30 minutes to elute the gold. After the soak period, the pregnant eluate is rinsed from the carbon and transferred to two elution tanks in preparation for electrowinning.

Direct current is passed through stainless steel anodes and stainless steel mesh cathodes within the electrowinning cells and the electrolytic action causes the gold in solution to precipitate on the cathodes. Electrowinning will continue until the solution is depleted of gold, which will take nominally 8 hours. Barren eluate solution is returned to the leach feed tank, allowing any residual gold to be recovered. The cathodes are washed with high pressure spray water and the gold slime is recovered in a plate and frame filter press. The gold sludge filter cake is dried in calcination ovens and boxed for transport to the smelting site.

Barren carbon is transferred to a 625 kg/h horizontal regeneration kiln circuit where it is regenerated at 650-750 ° C. The regenerated carbon discharges to a quench tank then pumped over a carbon sizing screen located above the 7th CIL adsorption tank.

12.3 Processing Operating Costs

Table 12.4 shows the historical performances of the heap leach plants at Tarkwa. Historically throughput has exceeded budget in the three previous years and although operating costs have exceeded budget in two years on a unit (per tonne) basis processing operating costs have been at or under budget for two years and only 2% over budget in 2004.

In the LoM Plan the heap leach plants are projected to process up to 16Mtpa, which is the tonnage achieved in 2004. The LoM Plan unit operating cost is based on the actual cost achieved in 2004.

Table 12.4: Tarkwa Heap Leach Plants– Historical Performance

FY End June	Throughput Budget (Mt)	Throughput Actual (Mt)	Costs Budget (USDM)	Costs Actual (USDM)	Costs Budget (USD/t)	Costs Actual (USD/t)
2002	13.8	15.0	34.25	32.66	2.49	2.18
2003	14.6	15.3	34.31	35.90	2.35	2.34
2004	15.4	16.0	35.88	38.21	2.33	2.38

There is no historical data for the CIL Plant and the projected throughput in the LoM Plan of 4.2 Mtpa is the same as the nameplate capacity. The unit operating costs in the LoM Plan are based on the BFS costs, which have been derived from first principles and benchmarked.

A review of the performance of the heap leach plants over the past three years shows that, compared to budget, feed has been higher, grade has been marginally lower, recovery has been met and operating costs have been comparable. As the CIL Plant is yet to operate, there is no past performance. Overall, in SRK's opinion the basis of the LoM Plan is reasonable.

Figure 12.1: Schematic of the Heap Leach Process

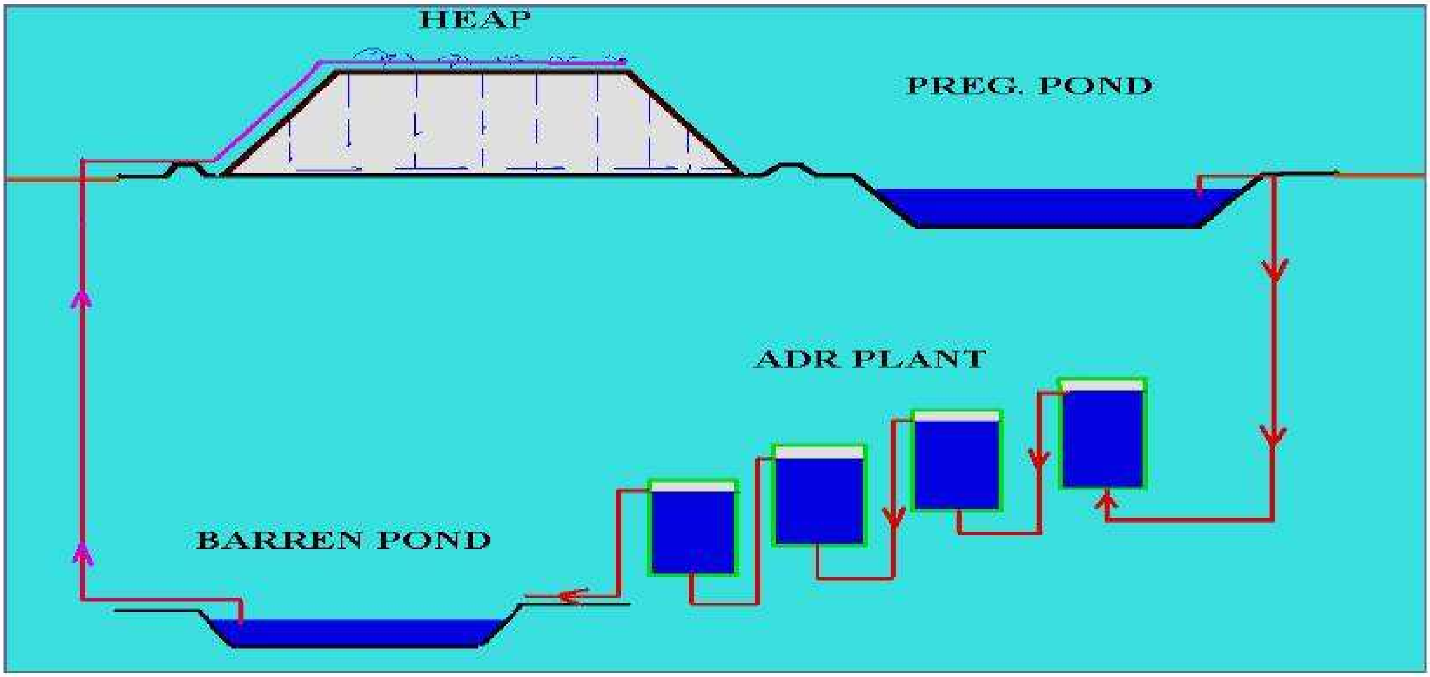
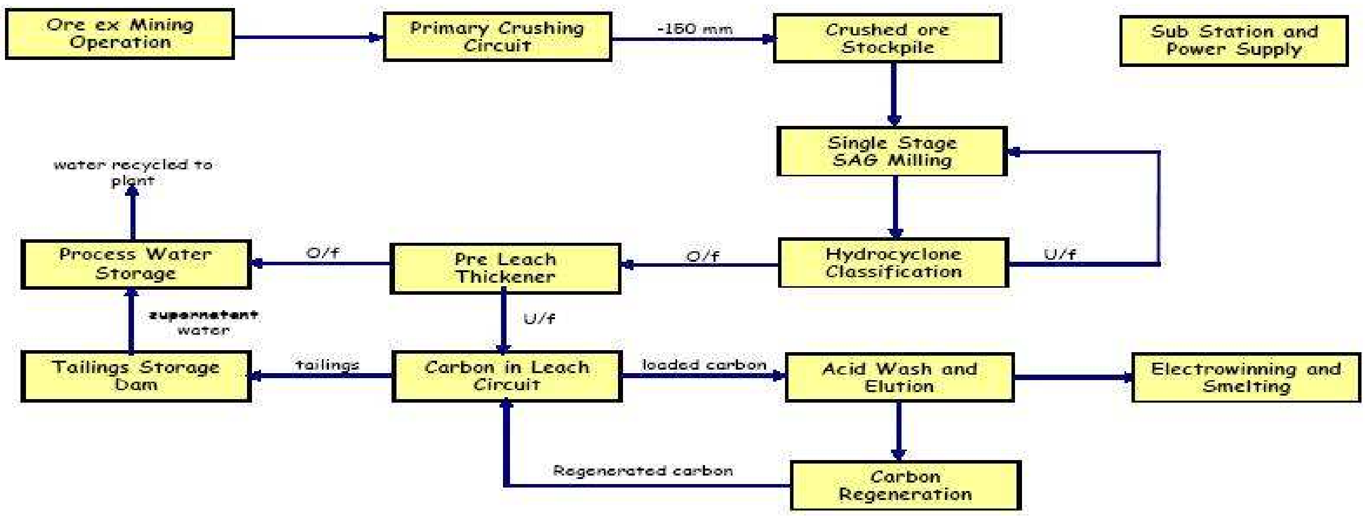


Figure 12.2: Schematic of the CIL Process



13 TAILINGS

13.1 Introduction

At the time of this report, the tailings storage facility ("TSF") has been constructed, but will only be commissioned in December 2004. The designers are Knight Piésold (Ghana) Limited ("Knight Piésold"), a company with an established reputation for the design of such facilities. Initial construction was under the supervision of Lycopodium and, subsequently, the supervising engineer was the owner, GFGL. Knight Pié sold was responsible for quality assurance throughout the construction period. The TSF has a design capacity of 84 Mt, equivalent to 60 million m^3 at a consolidated dry density of 1.4 t/m^3. The monthly tonnage is 350,000 t, and the design life is 20 years. The TSF is a hillside impoundment south of the existing north heap leach pads. The containment is formed by a zoned earthfill embankment of 1,400 m length constructed parallel to the east-west ridge forming the northern boundary, and two shorter earthfill embankments constructed at right angles to the main embankment, and abutting into the ridge. The location of the facility was changed from the original position selected during the feasibility design, by moving it along the ridge, approximately 400 m closer to the CIL plant. This change was made for optimum use of the available space, and to allow for possible future extensions of the facility beyond the present 20 year design life.

13.2 Storage Capacity

The design capacity of the TSF of 84 Mt is less than the tonnage in the LoM Plan (99 Mt). A provision has been made for an expansion of the TSF by the addition of a new paddock on the west side, and this will provide the capacity for the additional tonnage. The additional cost of this extension will be approximately USD3.4 M.

13.3 Founding Conditions

A geotechnical investigation of the proposed site showed that the embankments will be founded on competent residual soils and weathered rock. The major part of the basin is on weathered quartzite at about 4 m depth overlain by residual silty sand, and a silty sand alluvium or colluvium to a maximum depth of 2 m. The ridge forming the northern boundary is of fractured and faulted phyllite. Fresh unweathered rock is at depths of between 3 m and in excess of 15 m below natural ground level, but typically at 4 m under the embankments. The residual soils within the basin area are fine-grained and are expected to have a low permeability when compacted.

13.4 Tailings Water Quality

Geochemical testing of the tailings indicates that the material presents a low environmental risk, and will not generate an acidic leachate or a leachate with high metal contents. These tests did not use process water and did not include process cyanide. Confirmatory tests will be carried out when representative process water is available. The TSF will be operated in accordance with the "South African Guideline on Cyanide Management for Gold Mining" prepared by the Chamber of Mines of South Africa.

13.5 Embankment Construction

The TSF will be raised in stages, and will finally occupy an area of approximately 145 ha, with a catchment area of 190 ha. A starter embankment has been constructed to provide storage for the first two years of operation. Thereafter the embankment will be raised annually to a maximum final height of 50 m. The starter wall has been formed using a combination of mine waste and low permeability fill from borrow areas located within the facility area. The embankments comprise a downstream bulk fill zone placed by the mining contractor using mine waste, a compacted transition zone constructed by an earthworks contractor using mine waste, and an upstream sealing layer constructed using low permeability material from borrow areas within the TSF basin. The sealing layer has been extended into a key which has been excavated at the upstream toe, to block the permeable surface zone, and minimise the seepage of water under the embankment. The Stage 2 works will be constructed on top of the Stage 1 embankment crest and thereafter the embankment will be raised using low-permeability fill by upstream construction with annual lifts.

The facility has been sized so that the average rate of tailings rise is low enough to provide adequate drying time for the tailings, dropping from an initial high rate of rise to 2 m per annum. When the facility is managed in accordance with the operating manual, a consolidated beach will be formed, capable of supporting upstream construction.

13.6 Underdrains

A toe blanket drain has been placed beside the inner toe of the embankment, and a network of finger drains has been installed over part of the basin, beneath the area to be occupied by the decant pool. These drains feed a substantial double concrete tower sump adjacent to the inner wall of the embankment and accessible from the embankment. A submersible pump will return drain water to the decant pool. On part of the outer toe of the embankment, on the north-west side where the initial pond will be located, a seepage cut-off trench has been excavated, to collect any seepage passing under the embankment. It will be directed to a sump and pumped back into the decant pool.

13.7 Seepage Prediction

As part of the design process a seepage assessment was undertaken using the software SEEPW. The assessment indicated that providing the facility is managed in accordance with the design intent, under average climatic conditions the phreatic surface through the embankment should be low and seepage rates through and under the embankments should also be low. Seepage through possible high permeability zones on the southern abutment may be significant, and monitoring boreholes are to be installed in the vicinity.

13.8 Tailings Delivery

Tailings will be pumped to the TSF from the CIL Plant via a 500 mm diameter HDPE pipeline installed in an unlined earth containment bund along its overland length of 2.2 km (from the process plant to the south-east corner of the TSF). From this point the tailings will be sub-aerially deposited into the facility through a combination of open-ended discharge and spigotting to form an extensive uniform beach with the objective of maximising in-situ tailings densities. Deposition will be from all three embankments to form a beach that slopes downward towards the north-central part of the facility, where the supernatant pond will form, remote from all confining embankments.

13.9 Return Water System

Clarified supernatant water will be returned to the plant from a vertical metal decant tower. Three steel towers have been constructed to decant water at different stages of the life of the facility, as the pool moves up the slope. The towers are surrounded by filter fabric and rock fill, with circular apertures allowing the entry of water. The water will be removed using submersible pumps, and the towers therefore act as sumps for these pumps.

A maximum return rate of 200 l/second from the facility will be required, and water will be returned to the plant via an HDPE pipeline running alongside the tailings delivery line. The supernatant pond will gradually move north towards the final pond position adjacent to the ridge in the middle of the facility and remote from all confining embankments. Pumping of return water will be from the final, most northerly tower.

13.10 Water Balance

A water balance model was developed for the TSF and applied to average and extreme rainfall conditions. The model considered the effects of supernatant water, seepage, rainfall run-off, and also allowed for the incorporation of input and output from the heap leach operation. The water modelling indicated that the TSF water balance is slightly positive, generating a moderate water surplus over the life of the facility. In extreme rainfall conditions, with precipitation greater than a 1 in 50 year event, it will be necessary to discharge water, and this will be sent to the heap leach detox plant for treatment and discharge. In any lesser event, Knight Piésold has confirmed that there will be no discharge, though the pool on the surface of the facility will remain enlarged for up to a year or more, until the excess has been removed as plant make-up water.

13.11 Operating Manual

The TSF will be operated in accordance with an operating manual, which will define responsibilities, operating procedures, monitoring procedures and emergency responses.

13.12 Monitoring and Auditing

The monitoring programme will be included in the operating manual. The monitoring installations comprise sampling wells for water quality, stream sampling points, levelling points and embankment piezometers for the monitoring of stability. There will be fixed inspection and reporting procedures for monitoring of both operations and performance. All monitoring installations and procedures will be in accordance with the requirements of the Ghanaian EPA and with good international practice. The TSF will be inspected quarterly by an independent tailings engineer.

13.13 Risk Assessment

A risk assessment has been carried out in accordance with the “ANCOLD Guidelines on Tailings Dam Design, Construction and Operation” of October 1999, and the “ANCOLD Guidelines on Assessment of the Consequences of Dam Failure” of May 2000. It was concluded that, while the risk will be low if the TSF is constructed an operated correctly, the consequences of a failure would be severe. Consequently, strict standards of design and operation must be adhered to, and an Emergency Action Plan (“EAP”) is required for implementation in the event of an embankment failure and subsequent flow slide. This EAP is in preparation, and will be included in the operating manual.

13.14 Rehabilitation and Closure

The outer slope of the embankment will be vegetated during the operating phase. Topsoil has been stockpiled from the basin area for final rehabilitation.

During the final period of operations, tailings deposition will be carefully controlled to form the final geometry, to minimise the earthworks required. On closure, the surface of the TSF will be left to dry and consolidate, and a final permanent spillway will be cut in natural ground through the ridge forming the southern boundary of the facility.

All infrastructure associated with the TSF, including pipelines, exposed sections of the decant towers and power lines will be removed.

The surface of the TSF will be vegetated and the vegetation will be maintained. Seepage in the sumps will be monitored, treated if necessary and released. When monitoring shows that treatment is no longer necessary, the sumps will be backfilled and the flows released directly to the environment.

14 ENVIRONMENT AND WATER MANAGEMENT

14.1 Environmental policy

The management of GFGL is committed to adherence to policies and responsible operating practices which promote the conservation or enhancement of the natural and social environments in which the company operates. The Environmental Policy is included as Appendix D.

14.2 Environmental Assessment and Permitting

14.2.1 General

Tarkwa has been assessed and is operated in accordance with Ghanaian environmental requirements, administered by the Environmental Protection Agency ("EPA"), and holds the required current Environmental Permit and Environmental Certificate. The Environmental Certificate follows the Environmental Permit. The operations have been the subject of the following:

- Environmental Impact Statement (EIS 1996).
- Environmental Action Plan (1996).
- Environmental Management Plan ("EMP") (1999).
- Costed Reclamation Plan and Conceptual Decommissioning Study (2001).
- Supplementary Environmental Impact Statement for the South Facilities (2001).
- Supplementary Costed Reclamation Plan for the South Facilities (2001).
- Supplementary Environmental Management Plan for the South Facilities (2002).
- Environmental Management Plan (2002).

The EPA also requires the following for the duration of the operations:

- monthly monitoring returns;
- an annual environmental report; and
- an update of the Environmental Management Plan at intervals of three years (the next is required in 2005).

The Environmental Certificate issued by the EPA covers all activities, including the CIL plant and the tailings facility (see Section 14.2.2 below). The airstrip has an Environmental Permit, but has not yet received the subsequent Environmental Certificate. No problems are anticipated. The EPA may suspend or revoke an Environmental Permit or Environmental Certificate if it is considered necessary.

14.2.2 Permitting for the new CIL plant, Phase IV Project

The original mine plan incorporated a phased expansion of operations involving deepening the open pits and a transition from near surface deposits to harder less porous ores. The Environmental Impact Statement (1996) included a description of the CIL plant and tailings facility as part of the project development.

In its review of the environmental requirements for the Phase IV Project, the EPA requested an Addendum to the “Costed Reclamation Plan and Environmental Management Plan” and “a full report on the operations and management of the CIL Plant, tailings storage facility, and the mine pits”. The scope of the latter study was later changed by the EPA to a “Supplementary Environmental Impact Statement”. The following documents were prepared and submitted:

- Supplementary Environmental Impact Statement for the CIL Mill Project;
- Addendum to the Environmental Management Plan; and
- Addendum to the Costed Reclamation Plan.

The potential environmental impacts for the Phase IV Project have been examined and environmental management plans to mitigate or limit the impact on the environment are outlined in the above documents.

Construction of the CIL Plant and TSF have utilised existing infrastructure and facilities currently in use at Tarkwa.

14.3 Environmental Management

Environmental management at Tarkwa is conducted within the framework of an ISO14001 certified Environmental Management System. An Environmental Management Plan has been approved for the period December 2002 to November 2005, but it does not yet include the CIL plant and tailings facility.

The Environmental Manager reports directly to the Mine Manager. There are separate Health and Safety and Community Affairs Managers. There is a Sustainable Development Manager responsible for both Tarkwa and Damang. He is devoting particular attention to the involvement of Non-Governmental Organisations (“NGOs”) and other third parties in sustainable development activities.

The Environmental Department is training selected individuals in other departments to take environmental responsibility for the activities of their departments, thus reducing the duties of the Environmental Department in policing the mine, and releasing staff for their monitoring and rehabilitation activities.

The mitigation and control measures which will be implemented specifically for the CIL plant and tailings facility are set out in the Addendum to the EMP, which provides an overview of the environmental initiatives to be undertaken, including performance indicators and the responsible personnel..

Issues covered in the EMP for the CIL plant include, air emissions, cyanide management, noise, hazardous substance storage, bunding and drainage, waste management, monitoring and emergency response. Issues covered for the TSF include, dust, monitoring, pipelines, deposition of tailings, water management and emergency response.

There are no outstanding contentious issues with the EPA and there is a good relationship with the local community.

14.4 Existing Environment

The existing environmental setting of the proposed project area has been detailed in various reports on Tarkwa (Tarkwa EIS (SRK 1996) and the Teberebie EIS (Jay Mineral Services Ltd 1990)).

The original ecological value of land in the concession area was downgraded by past human activity prior to large-scale surface mining and processing. This has included forestry, charcoal burning, hunting, agricultural practices and artisanal mining. No important or rare plant habitats were identified in the Tarkwa EIS or Teberebie EIS, with only occasional sightings of a limited number of remaining animals.

14.5 Socio-Economic

Resettlement

A large resettlement programme was carried out during the original mine development, in cooperation with the local community and the authorities. There was no requirement to relocate or resettle any additional persons as a result of the CIL development. The nearest downstream resident from the proposed TSF and CIL plant is 2 km away.

Employment

The CIL Plant development will create an additional 100 jobs, increasing the total employed to approximately 1290, as well as other jobs for contractors and employment in service areas, and provide significant input to both the local and national economy. The increased numbers of employees are accommodated and served by existing facilities and those who are not have been given housing allowances to acquire their own accommodation.

Community involvement

Tarkwa maintains, and is expanding, sustainable development programmes for the improvement of community infrastructure, sustainable livelihoods and stakeholder engagement. The Gold Fields Trust Fund, established to provide funding for local community and national assistance projects in Ghana, is used for community development projects. This fund is maintained by donations by Gold Fields of 0.5% of pre-tax profits from Ghanaian mines and USD1.00 for each ounce of gold produced by those mines.

14.6 Discharge Water Quality

14.6.1 General

There have been occasional discharges of silt to the local streams, and the mine has constructed numerous silt traps to prevent recurrences. In 2004, there were several mercury and chromium levels which exceeded the limits, but repeat tests did not confirm these values, and they are thought to be a result of sample contamination or laboratory errors. During 2003, 1.2 million m^3 of uncontaminated storm-water and detoxified process solution was discharged. Iron and manganese levels in some streams exceeded standards.

Water containing cyanide will be discharged to the tailings impoundment. In conditions of extreme rainfall, it may be necessary to discharge tailings water. This water will be directed to the heap leach detoxification facilities, to ensure environmental compliance is maintained. The operating cost for the CIL plant includes an allowance for detoxification, which should not be required during normal operations.

14.6.2 Acid mine drainage

Testing has shown that there is a low potential for acid generation by the waste rock and tailings, and monitoring results have confirmed this finding.

The ore to be treated in the CIL Plant is not associated with sulphides. As a result, there is minimal potential for acid generation, and this has been confirmed by acid base accounting testing on samples of ore and tailings. Assay results indicate that there are only trace levels of arsenic present. Arsenic contamination of mine drainage has not been experienced in current or historic operations on the property and is not expected in association with future operations.

14.7 Noise

Blasting is carefully monitored to ensure adherence to the applied limits. This is particularly important because of the proximity of Tarkwa town.

14.8 CIL Plant

The CIL Plant design includes dust suppression, water recycling and containment of hazardous substances. Hazardous materials and potentially contaminated rainfall run-off from around the operational area will be contained. Facilities such as the mill, process tanks, reagent storage tanks and pipelines will be enclosed within concrete bunded areas. The bunds will be interconnected to increase the storage capacity for containment. Should an extreme event occur, the bunded area will overflow to the event pond, which is a secondary containment storage pond, with an HDPE liner.

14.9 Tailings Storage Facility

The TSF has been designed for maximization of in situ tailings density, recovery and re-use of tailings fluids, minimization of seepage, provision for containment under extreme storm events and provision for containment under maximum credible earthquake events.

The facility is equipped with drainage/seepage collection systems to capture seepage from the facility and to lower the phreatic surface in the vicinity of the embankment. The drainage system will consist of basin under-drainage, an upstream toe drain, and downstream seepage trenches.

The tailings design includes a closure and reclamation plan, and rehabilitation of the outer embankments will be carried out during the operating life of the facility. Topsoil was stripped and stockpiled from the entire basin before construction.

14.10 Rehabilitation and Decommissioning

The ore and waste material at Tarkwa does not demonstrate the potential for Acid Mine Drainage ("AMD"). The reclamation plan does not, therefore, include any of the remedial measures associated with AMD.

14.10.1 Rehabilitation

Rehabilitation of disturbed land is undertaken as soon as it is no longer required for mining or associated activities. The reclamation of disturbed areas, including borrow-pits, areas cleared for construction, open-pits, waste dumps and roads is accomplished by re-contouring of disturbed areas, establishment of storm-water controls to minimise erosion, back-filling of open-pit areas where practicable, placement of topsoil and planting of indigenous grasses and trees.

The progress of re-vegetation is monitored to ensure that the re-establishment of productive natural communities is achieved, and erosion is minimised. Demonstration plots of food crops and common commercial species are established within areas of restorable lands.

In terms of the Reclamation Security Agreement with the EPA, an update of the Costed Reclamation Plan is submitted every two years, and this includes a Completion Progress Report, describing work performed in relation to tracts of "disturbed land" and the level of reclamation. When the Completion Progress Report is approved by the EPA, the value of completed reclamation works is used to adjust the basis for the Reclamation Bond (14.11.3 below). In 2003, as a typical example, 85 ha of disturbed lands was rehabilitated.

14.10.2 Decommissioning

The details of the decommissioning strategies are described in the "Conceptual Decommissioning Plan" approved by the EPA, and in the Tarkwa EMP. The restoration measures which are applied depend on the classification of the land as "restorable" or "non-restorable". Restorable lands are covered with topsoil and re-vegetated. On non-restorable lands, such as the rocky inner areas of open-pits which have not been backfilled, the measures and success criteria are reduced.

Waste rock dumps will be re-shaped, covered with a soil layer and vegetated. Appropriate storm-water controls will be constructed to minimise erosion.

Open-pits will be surrounded by a perimeter berm, with signs to warn the public of the hazard. Waste rock will be used for backfilling of mined-out pits where practical from an economic, environmental, logistical and long-term resource exploitation perspective. Open-pits which have been backfilled will be treated in a similar fashion to the waste rock dumps. The slopes and floors of pits which have not been backfilled will generally be rock, which it is impractical to re-forest during reclamation. Where possible, topsoil will be spread and vegetated.

In many pits the water level will rise, forming a pool which may spill, and this water will be directed into natural water courses. Fish species of value to post-mining land users will be established in suitable ponds. As an example, a pit lake has formed in the nearby Teberebie Pit since the cessation of mining in 1999, the water quality meets applicable standards and Tilapia fish are multiplying. The geology of the pit walls is the same as at Tarkwa, indicating that the favourable projections for water quality and future use are justified.

The ore heaps on the leach pads will be re-sloped as necessary, with the installation of appropriate drainage controls to minimise erosion. They will be rinsed until the quality of the water reaches agreed standards. The top surface of the rinsed heaps is classified as restorable land, and will be covered with a layer of soil and re-vegetated.

Roads which will not be left intact after reclamation will be ripped and revegetated. The reestablishment of natural vegetation will be encouraged on steep cuttings, embankment slopes and road sections over competent rock. Roads to be left intact for use will be graded, watered and left in serviceable condition. Effective storm-water controls will be implemented.

Any infrastructure not taken over by the Government of Ghana will be dismantled, removed or disposed of appropriately. The cleared area will be made safe for post mining land use. Areas with flat or gentle slopes will be categorised as restorable lands and will be ripped as necessary and re-vegetated with grasses, shrubs and trees. Topsoil will be placed where surface materials are not suitable for re-vegetation. The construction of final storm water controls will follow decommissioning.

Rehabilitation of the tailings facility will be undertaken progressively, from year two onwards, as upstream construction of the facility will allow lower lifts to be rehabilitated. The final tailings beach surface will not be re-vegetated until the tailings have dried and consolidated sufficiently which is expected to take one to two years following the end of deposition of tailings. This will involve the placement of topsoil / sub soil and re-vegetation of the top and slopes.

Decommissioning and rehabilitation of the open pits and waste rock dumps will be as described in the Costed Reclamation Plan and Conceptual Decommissioning Study (2001).

14.10.3 Reclamation Bond

The total cost for reclamation has been updated in March 2004, and includes the new CIL plant. The total life of mine liability has been estimated to be USD26.6M.

The system of bonding used by the EPA involves an assessment of the cost to rehabilitate the land which remains disturbed at the time of the review, and subtracting from it the cost for areas already rehabilitated to an accepted standard. There are three levels of accepted completion and associated reduced bonding costs:

Primary completion	reduced to 30%
Completion	20%
Final completion	0% (bond no longer required for this area)

At the time of the Reclamation Security Agreement of September 2003, the adjusted cost estimate derived in this manner was USD12.0M. The security is 50% of the adjusted cost estimate. Initial security is USD6.0M, based on the adjusted cost estimate of USD12.0M, and is composed of a Banker's Guarantee for USD5.4M, and a cash deposit of USD0.6M. The Security Agreement is updated at two year intervals.

The EPA requires the Costed Reclamation Plan to be updated at two year intervals.

15 HUMAN RESOURCES AND SAFETY

Tarkwa is adequately resourced with the appropriate levels of technically qualified and experienced personnel in production and related support functions.

Tarkwa has 2,631 employees, including contractors' staff, as at 30 June 2004. A total of 11 managers report to the General Manager. A Health & Safety policy is documented with a Health & Safety Manager reporting to the General Manager and the latter, together with the Mining Manager and Metallurgical Manager being responsible for various areas of activity.

The CIL Mill Project will be incorporated into the existing health and safety programme. Associated training, reporting, health and safety standards, monitoring and emergency procedures will be maintained property-wide. The health and safety programme has been successful at the Tarkwa Gold Mine in reducing worker injuries and improving safety in the workplace.

Table 15.1: Historical Safety Statistics

Total Accidents	2001	2002	2003
Medically treated injuries	11	25	38
Lost day injuries	6	6	12
Fatalities	0	1	1

Table 15.1 shows the Tarkwa safety statistics for the last three years ending June. Tarkwa is currently planning to achieve OHSAS 18001 accreditation by the end of May 2005.

16 TECHNICAL ECONOMIC INPUT PARAMETERS

16.1 Introduction

The following section includes discussion and comment on the technical-economic aspects of the LoM plan associated with the Tarkwa Tax Entity. Specifically, comment is included on the basis of projections, production schedules, operating costs and capital expenditures. These have been compiled into detailed TePs on an annual basis to derive the revenue and cost inputs necessary to generate the FMs. Key aspects associated with the generation of the TePs and their derivations are discussed.

16.2 Basis of the Technical-Economic Input Parameters

The valuation of the Tarkwa Tax Entity as presented in Section 17, has, inter alia, been based on the LoM plan and the resulting production profile an associated revenue stream from gold sales, operating costs and capital expenditure profiles as provided to SRK by GFGL, and reviewed and adjusted by SRK where deemed appropriate. The generation of a LoM plan requires substantial technical input and detailed analysis and is critically dependent upon assumptions of the long-term commodity prices and the respective impact on cut-off grades, potential expansion and/or reduction in the Mineral Resource and Mineral Reserve and the return on capital expenditure programmes.

The basis of forward projections of operating costs for mature mining operations are generally based on historical performance, with certain modifications for inflation, projected improvements in productivity and other cost-reduction initiatives.

Unless otherwise stated, operating expenditures comprise.

- ***Cash Cost Components*** : namely direct mining costs, direct processing costs, direct general and administration costs, consulting fees, management fees, transportation, and realisation charges.

- The incremental components, including royalties but excluding taxes paid, required to yield ***Total Cash Costs*** . Royalties in this regard include the amount of 3% paid on gross revue to the Government of Ghana and is payable for all gold sold;

- The incremental components, including terminal separation liabilities, reclamation and mine closure costs (the net difference between the total environmental liability and the current bond amount) but excluding non-cash items such as depreciation and amortisation. Incrementally these cash expenditures summate to yield ***Total Working Costs*** ; and

- ***Total Costs*** : the summation of total working costs, net movement in working capital and capital expenditure.

In addition to long-term capital projects, the LoM capital expenditure programmes generally include significant detail based on approved expenditure programmes (typically two-years). Where warranted, SRK has made provision over and above these expenditures, specifically, for example, where no detail is available beyond this two-year period to cater for normal ongoing capital expenditure requirements.

Environmental provisions have been included in the operating costs as they are confirmed as necessary contributions to the fund ongoing environmental cost and closure provisions. Notwithstanding this approach the most likely scenario will result in expenditures from such provisions being expended on commencement of the closure programme. SRK considers that there are potential opportunities to realise salvage value on closure, although owing to the indeterminate nature of estimating such values these have been excluded from the LoM projections included herein.

16.3 Technical-Economic Parameters

The TePs for Tarkwa include:

- Commodity sales profiles derived from all ore sources;
- Total Working Cost profiles as previously defined; and
- Capital Expenditure Profiles.

All expenditures are based in calendar years and stated in July 1, 2004 money terms.

16.4 Special Factors and Operational Risks

SRK has included its view on the achievement of the LoM plans and the appropriateness of the Mineral Reserve statements when presenting the data in Sections 10, 11, 12 13 and 14. At the time of writing, SRK considers these projections to be both technically and economically achievable.

In all likelihood many of the identified risks and/or opportunities will have an impact on the cash flows as presented in Section 17, some positive and some negative. The impact of one or a combination of risks and opportunities occurring cannot be specifically quantified to present a meaningful assessment. SRK has however provided sensitivity tables for single and multi parameters. The sensitivity range covers the anticipated range of accuracy in respect of commodity prices, operating expenditures and capital expenditure projections. These sensitivities are necessarily simplistic and are based on the current Mineral Reserve. Actual movements in respect of commodity prices, operating expenditures and capital expenditure would result in different cut-off grades, Mineral Reserve estimates and LoM Plans and therefore these sensitivities should be viewed as indicative only.

16.5 General Risks and Opportunities

Tarkwa operations are subject to certain inherent risks, which apply to some degree to all participants of the gold mining industry. These include:

- ***Commodity Price Fluctuations*** : These may be influenced inter alia, by demand for gold in industry and jewellery, actual or expected sales by central banks, sales by gold producers in forward transactions and production and cost levels for gold in major producing countries. In the period between January 1, 2002 and June 30, 2004 the gold price has ranged between 307 USD per ounce and 415 USD per ounce. As at 30 June 2004 the USD gold price was 397 USD per ounce.

- ***Inflation Rate Fluctuations*** : Specifically the United States Consumer Price Index.

- ***Country Risk*** : Specific country risk including political and economic stability in the longer term as indicated by the International Country Risk Grade ("ICRG").

- ***Legislative Risk*** : Specifically changes to future legislation (tenure, mining activity, labour, healt ***h*** and safety and environmental) within Ghana.

- ***Environmental Liability Risk*** : The inability of Tarkwa to fund the balance of its environmental liabilities from estimated operating cash flows, should operations cease prior to the stated LoM period. This would result in an outstanding liability since the estimated rehabilitation expenditure exceeds the amounts available in the respective rehabilitation trust funds as at June 30, 2004. As at July 1, 2004 the total outstanding liability remaining to be funded is estimated at USD11.6M.

- ***Mining Risks*** : Specifically Mineral Reserve estimate risks, uninsured risks, industrial accidents, labour disputes, unanticipated ground water conditions, human resource management, and safety performance.

In contrast, whilst certain of the above also reflect opportunities, SRK recognise that as of yet, an un-quantified opportunity is the beneficial application of new technology and also discovery of additional Mineral Resources.

In addition to those stated above, the individual operations may be subject to certain specific risks and opportunities, which independently may not be classified to have material impact but in combination may do so.

17 ASSET VALUATION

17.1 Introduction

The following section presents discussion and comment on the valuation of the Tarkwa Tax Entity. Specifically, comment is included on the methodology used to generate the FM including basis of valuation, valuation techniques and valuation results.

In generating post-tax pre-finance cash flows for the purpose of valuation, SRK has relied upon Gold Fields for certain inputs to the FMs. Further in reproducing the results of the FM in this ITR, SRK provides assurances to the Directors of Gold Fields, that the technical-economic inputs including operating costs, capital expenditure and saleable product profiles of the Tarkwa Tax Entity, as provided to and reviewed by SRK, are accurately incorporated into the FM.

17.2 Basis of Valuation

In generating the FM and deriving the valuations, SRK has:

- incorporated an annual United States customer price index ("US CPI") of 2% per annum as provided by Rothschild;
- incorporated a real terms gold price of USD400 per ounce as provided by Rothschild;
- Assumed a nominal discount factor of 7.46% for all assets to establish a base case. (Note that this does not necessarily reflect the nominal Weighted Average Cost of Capital ("WACC") assuming Gold Fields' expected average tax rate; country inflation rate and debt/capital ratio);
- relied upon Gold Fields for all accounting inputs as required for the generation of the FM;
- relied upon Gold Fields that for the purpose of valuation the assumption that 100% of the sales revenue as derived from the quantum of gold production sold and the forecast USD gold price is available to the Tarkwa Tax Entity;
- reported a Discounted Cash Flow ("DCF") valuation, dated July 1, 2004, which includes Mineral Reserves only;
- performed sensitivity analyses to ascertain the impact of discount factors, commodity prices, total working costs and capital expenditures;
- assigned no salvage value for plant and equipment on cessation of operations;
- valued the Tarkwa Tax Entity on a stand alone basis only; and
- not included hedging or forward sale components in the valuation.

17.3 Limitations and Reliance on Information

The cash flows reported for the Tarkwa Tax Entity are contingent upon the current and anticipated performance of mine management, as well as the expected achievement of the operating parameters as provided to and reviewed by SRK and set out in this ITR.

The cash flow projections and valuation is based upon the anticipated operating performance as well as information provided to SRK by Gold Fields at the date hereof. It should be understood that unforeseen developments might affect SRK's opinion, or the reasonableness of any assumptions or basis used.

The LoM plans and the FM include forward-looking statements that are not historical facts. These forward-looking statements are necessarily estimates and involve a number of risks and uncertainties that could cause actual results to differ materially. Notwithstanding this, SRK considers that at the time of compilation, the Mineral Reserves and associated depletion resulting in cash flow projections are appropriate and technically and economically achievable.

17.4 Valuation Methodology

The valuation methodology for the Tarkwa Tax Entity is based on the Net Present Value (“NPV”) of the ring-fenced mining asset. Supplemental information as provided by Gold Fields (balance sheet items) could then be used with the NPV to arrive at the Net Asset Value (“NAV”) for the Tarkwa Tax Entity.

The NPV has been derived using DCF techniques applied on a post-tax pre finance basis for the ring-fenced Tarkwa Tax Entity. These are based on the various LoM production plans, including the resulting TePs (Section 16), and are solely based on Mineral Reserves.

In respect of non-LoM Mineral Resources no valuation is presented and discussion is limited to technical disclosure in accordance with the requirements of the rules and companion policies of NI 43-101.

The post-tax pre-finance cash flow is developed on the basis of the commodity price and macro-economic projections as presented in Section 17.2. SRK has developed a FM which is based on: annual cash flow projections ending 31 December; and TePs stated in July 1, 2004 money terms. As the valuation date is July 1, 2004, the cash flow projection for the first period includes projections for the 6 months to December 2004.

Variances in commodity prices exist between those used to derive Mineral Reserves, the current spot market prices and that used for the financial valuation. The impacts on the individual Mineral Reserve statements are presented in the Mineral Reserve sensitivity tables as included in Section 11.10 of this ITR. Further, as the generation of LoM plans is constrained by the annual planning process SRK has based its review on the latest available information as presented by Gold Fields.

17.5 Post-Tax — Pre-Finance Cash Flows

Table 17.1 present the post-tax pre-finance cash flows for the Tarkwa Tax Entity. Note that this table is not representative of a financial statement as may be customary for determining the consolidated cash flow positions for a company. Further, no account is taken of movements in working capital at the corporate level, or deferrals of tax liabilities between accounting periods, as may be the case in the generation of such company level financial statements.

Table 17.1: Tarkwa: post-tax pre-finance cash flows

Financial Year		**Totals**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Project Year	**Units**	**/Averages**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Production																											
Mining																											
RoM Tonnage	(kt)	350,185	10,177	21,175	22,178	22,600	21,587	20,295	18,349	15,181	13,922	14,732	18,504	21,995	18,560	14,495	14,322	14,660	14,736	14,528	14,429	14,025	8,329	1,407			
Head Grade	(g/t)	1.3	1.3	1.3	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4			
Contained Gold	(koz)	14,736	425	870	840	870	876	788	716	636	591	615	813	948	794	644	631	676	680	633	623	623	377	65			
Processing																											
Milled Tonnage	(kt)	351,513	9,688	19,816	20,256	20,284	20,284	20,256	19,735	16,582	13,929	13,910	13,910	13,929	13,929	13,910	13,910	13,929	13,929	13,910	13,910	13,929	13,929	11,422	6,567	3,878	1,778
Milled Grade	(g/t)	1.3	1.3	1.3	1.2	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.5	1.6	1.5	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.1	0.9	0.9	0.9	0.9
Metallurgical Recovery	(%)	77.3%	87.5%	84.9%	83.7%	82.3%	77.9%	77.5%	78.3%	77.0%	75.9%	76.4%	76.9%	75.8%	75.6%	75.5%	73.7%	74.0%	74.0%	71.6%	71.4%	71.8%	73.1%	75.9%	83.4%	93.8%	93.8%
Recovered Gold	(koz)	11,442	365	717	674	680	662	610	581	510	449	455	525	545	505	476	459	488	490	443	436	446	374	240	151	110	50
Clean-up Gold	(koz)																										
Saleable Metal	(koz)	11,442	365	717	674	680	662	610	581	510	449	455	525	545	505	476	459	488	490	443	436	446	374	240	151	110	50
Commodity Sales																											
Gold	(koz)	11,442	365	717	674	680	662	610	581	510	449	455	525	545	505	476	459	488	490	443	436	446	374	240	151	110	50
Silver	(koz)																										
Commodity Prices																											
Gold Price	(USD/oz)		404	412	420	429	437	446	455	464	473	483	492	502	512	523	533	544	555	566	577	589	600	612	625	637	650
Silver Price	(USD/oz)		5.15	5.25	5.36	5.47	5.58	5.69	5.80	5.92	6.04	6.16	6.28	6.40	6.53	6.66	6.80	6.93	7.07	7.21	7.36	7.50	7.65	7.81	7.96	8.12	8.29
Macro Economics																											
US PPI	(%)		1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
US CPI	(%)		1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Financial - Nominal																											
Sales Revenue - Gold	**(USDM)**	**5,667.7**	**147.4**	**295.6**	**283.3**	**291.4**	**289.4**	**272.3**	**264.3**	**236.8**	**212.5**	**219.8**	**258.8**	**273.6**	**258.6**	**248.9**	**244.6**	**265.4**	**271.7**	**250.8**	**251.8**	**262.4**	**224.3**	**146.9**	**94.5**	**69.9**	**32.7**
Operating Expenditures	**(USDM)**	**(3,889.5)**	**(95.4)**	**(154.2)**	**(170.0)**	**(183.3)**	**(185.9)**	**(190.7)**	**(192.3)**	**(183.3)**	**(176.7)**	**(182.5)**	**(190.6)**	**(186.5)**	**(174.4)**	**(171.7)**	**(165.4)**	**(174.3)**	**(175.3)**	**(172.0)**	**(184.0)**	**(184.9)**	**(152.0)**	**(100.8)**	**(66.1)**	**(47.9)**	**(29.6)**
Mining	(USDM)	(1,516.8)	(23.2)	(49.8)	(63.3)	(72.6)	(77.2)	(82.1)	(82.9)	(85.7)	(88.2)	(89.7)	(91.8)	(87.4)	(77.1)	(72.7)	(64.7)	(68.5)	(68.7)	(66.8)	(74.9)	(72.6)	(46.2)	(10.5)	—	—	—
Processing	(USDM)	(1,511.5)	(29.5)	(62.1)	(65.2)	(66.6)	(68.0)	(69.2)	(69.7)	(63.0)	(57.0)	(58.0)	(59.2)	(60.4)	(61.6)	(62.8)	(64.0)	(65.4)	(66.7)	(68.0)	(69.3)	(70.8)	(74.4)	(74.0)	(54.4)	(35.3)	(16.5)
Overheads	(USDM)	(666.3)	(15.7)	(32.7)	(33.4)	(34.1)	(31.6)	(31.9)	(31.8)	(29.0)	(26.5)	(27.0)	(28.1)	(28.7)	(28.7)	(28.9)	(29.1)	(30.0)	(30.6)	(30.7)	(31.3)	(32.0)	(27.0)	(17.2)	(12.4)	(12.0)	(6.0)
Realisation	(USDM)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
By-Product Credits	(USDM)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mineral Royalty	(USDM)	(170.0)	(4.4)	(8.9)	(8.5)	(8.7)	(8.7)	(8.2)	(7.9)	(7.1)	(6.4)	(6.6)	(7.8)	(8.2)	(7.8)	(7.5)	(7.3)	(8.0)	(8.1)	(7.5)	(7.6)	(7.9)	(6.7)	(4.4)	(2.8)	(2.1)	(1.0)
Environmental	(USDM)	(15.0)	(0.2)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.8)	(0.8)	(0.4)
Terminal Benefits	(USDM)	(10.9)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(10.9)
Net Change in Working Capital	(USDM)	0.9	(22.3)	(0.2)	0.9	(0.7)	0.2	1.3	0.6	2.1	1.9	(0.6)	(3.2)	(1.1)	1.4	0.8	0.5	(1.7)	(0.4)	1.7	(0.1)	(0.8)	3.1	6.0	4.3	2.2	5.1
Operating Profit	**(USDM)**	**1,778.2**	**52.0**	**141.4**	**113.3**	**108.1**	**103.5**	**81.6**	**72.0**	**53.5**	**35.8**	**37.3**	**68.2**	**87.2**	**84.2**	**77.3**	**79.3**	**91.1**	**96.4**	**78.8**	**67.9**	**77.6**	**72.4**	**46.1**	**28.4**	**21.9**	**3.0**
Tax Liability	**(USDM)**	**(427.0)**		**-21.1**	**-31.8**	**-32.9**	**-31.9**	**-18.9**	**-14.3**	**-13.8**	**-9.2**	**-7.1**	**-16.8**	**-24.0**	**-20.5**	**-14.6**	**-17.6**	**-21.4**	**-24.0**	**-22.4**	**-17.0**	**-17.6**	**-19.2**	**-13.6**	**-9.2**	**-7.1**	**-1.0**
Capital Expenditure	**(USDM)**	**(405.5)**	**(29.7)**	**(39.7)**	**(15.5)**	**(7.0)**	**(5.3)**	**(23.5)**	**(28.1)**	**(11.0)**	**(7.4)**	**(15.6)**	**(16.7)**	**(13.2)**	**(21.1)**	**(32.4)**	**(25.0)**	**(25.2)**	**(22.6)**	**(9.8)**	**(15.6)**	**(23.3)**	**(13.3)**	**(4.4)**	—	—	—
Project	(USDM)	(207.7)	(29.6)	(39.4)	(15.1)	(6.6)	(4.5)	(19.2)	(17.4)	(2.4)	(2.5)	(9.3)	(8.0)	(0.3)	(8.1)	(8.2)	—	(8.6)	(8.7)	—	(7.4)	(12.5)	—	—	—	—	—
Sustaining	(USDM)	(197.8)	(0.2)	(0.3)	(0.4)	(0.4)	(0.9)	(4.3)	(10.7)	(8.6)	(4.9)	(6.3)	(8.7)	(13.0)	(13.0)	(24.1)	(25.0)	(16.6)	(13.9)	(9.8)	(8.2)	(10.8)	(13.3)	(4.4)	—	—	—
Final Net Free Cash	**(USDM)**	**945.8**	**22.3**	**80.5**	**66.0**	**68.3**	**66.3**	**39.2**	**29.7**	**28.7**	**19.2**	**14.7**	**34.8**	**49.9**	**42.6**	**30.3**	**36.6**	**44.5**	**49.8**	**46.6**	**35.3**	**36.6**	**39.9**	**28.2**	**19.2**	**14.8**	**2.1**
Reporting Statistics - Real																											
Cash Operating Costs	(USD/oz)	271	198	208	241	250	256	281	291	312	335	330	289	270	271	276	270	259	256	276	291	279	275	289	295	283	288
Total Cash Costs	(USD/oz)	271	198	208	241	250	256	281	291	312	335	330	289	270	271	276	270	259	256	276	291	279	275	289	295	283	288
Total Working Costs	(USD/oz)	273	199	208	241	251	257	282	292	313	336	331	290	271	272	277	271	260	257	277	292	281	276	291	298	287	426
Total Costs	(USD/oz)	302	340	262	262	261	264	315	333	328	347	361	320	292	302	328	311	301	291	290	317	317	295	286	280	274	363

17.6 NPV Sensitivities

The following tables present the NPVs of the nominal cash flows of the asset as derived from the FM. In summary they include:

- The variation in NPV with discount factors;
- The variation in NPV based on single parameter sensitivities; and
- The variation in NPV based on twin (revenue and operating expenditure) sensitivities.

Table 17.2: Tarkwa: Variation of NPV with discount factors

Discount Factor (%)	NPV (USDM)
0.00%	945.8
5.00%	592.8
7.46%	**492.4**
10.00%	416.9
12.00%	371.3
14.85%	320.9
18.00%	279.2
20.00%	258.1
25.00%	217.4

Table 17.3: Tarkwa: variation of NPV — single parameter sensitivity

Sensitivity Range - Revenue	**-30%**	**-20%**	**-10%**	**0%**	**10%**	**20%**	**30%**
Sensitivity Range - Operating Expenditures	**-30%**	**-20%**	**-10%**	**0%**	**10%**	**20%**	**30%**
Sensitivity Range - Capital Expenditures	**-30%**	**-20%**	**-10%**	**0%**	**10%**	**20%**	**20%**

Currency	(USDM)	(USDM)	(USDM)	(USDM)	(USDM)	(USDM)	(USDM)
Variation in NPV @ 0% DCF							
Revenue	(221.2)	228.4	587.6	945.8	1,303.7	1,661.7	2,019.7
Operating Expenditures	1,657.5	1,420.3	1,183.0	945.8	708.4	470.1	231.7
Capital Expenditures	1,027.9	1,000.5	973.1	945.8	918.4	891.0	863.7
Variation in NPV @ 7.46% DCF							
Revenue	(80.2)	138.4	316.3	492.4	668.5	844.6	1,020.6
Operating Expenditures	833.7	719.9	606.2	492.4	378.6	264.5	147.2
Capital Expenditures	535.8	521.3	506.9	492.4	477.9	463.5	449.0

Table 17.4: Tarkwa: variation of NPV – twin parameter sensitivity

	Revenue Sensitivity						
NPV (USDM)	-30%	-20%	-10%	0%	10%	20%	30%
Operating Expenditure Sensitivity							
-30%	305.4	481.5	657.6	833.7	1,009.7	1,185.7	1,361.6
-20%	191.3	367.8	543.8	719.9	896.0	1,072.1	1,247.9
-10 %	71.7	253.9	430.1	606.2	782.2	958.3	1,134.3
0 %	(80.2)	138.4	316.3	492.4	668.5	844.6	1,020.6
10 %	(246.9)	(0.8)	201.8	378.6	554.7	730.8	906.9
20%	(415.8)	(154.6)	77.9	264.5	441.0	617.1	793.1
30%	(585.1)	(323.4)	(73.6)	147.2	326.9	503.3	679.4

18 CONCLUDING REMARKS

The views expressed in this ITR have been based on the fundamental assumption that the required management resources and pro-active management skills to access the adequate capital necessary to achieve the LoM plan projections for Tarkwa are sustained.

SRK has conducted a comprehensive review and assessment of all material issues likely to influence the future operations at Tarkwa. The LoM plan, as provided to and taken in good faith by SRK, has been reviewed in detail for appropriateness, reasonableness and viability, including the existence of and justification for departure from historical performance. Where material differences were found, these were discussed with GFGL and adjusted where considered appropriate. SRK consider that the resulting TePs and FM are based on sound reasoning, engineering judgement and technically achievable mine plans, within the context of the risks associated with the Ghanaian gold mining industry.

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APPENDIX A

GLOSSARY

GLOSSARY OF TERMS AND ABBREVIATIONS

A1	*Conglomerate reef at Tarkwa*
A3	*Conglomerate reef at Tarkwa*
AA	*Atomic Absorption*
AARL	*Anglo American Research Laboratories*
ABA	*Acid Base Accounting*
Abrasion Index	*Measure of how tough a rock type is with respect to wear and tear on grinding equipment.*
AFc	*Conglomerate reef at Tarkwa*
AGC	*Ashanti Goldfields Company Limited*
AGL	*Abosso Goldfields Limited*
AMD	*Acid Mine Drainage*
AMS	*African Mining Services Limited*
Analytical Variance / Precision	*An estimate of the error induced by the analytical procedures routinely used. A measure of the repeatability of assays.*
Ancillary equipment	*Service equipment not directly associated with primary process.*
AngloGold	*AngloGold Ashanti Limited*
ARD	*Acid rock drainage; the result of rainwater reacting with sulphides in broken rock i.e. waste dumps.*
Assay	*Measure valuable mineral content.*
Au	*Gold*
AVS	*Abontiakoon Vertical Shaft*
B2	*Conglomerate reef at Tarkwa*
BFS	*Bankable Feasibility Study*
BGL	*Bogoso Gold Limited*
°C	*Degrees Centigrade (temperature).*
°	*Degrees of angle from horizontal (i.e. pit slope angle)*
CDE	*Conglomerate reef at Tarkwa - Resource*
CIL	*Carbon in Leach gold processing and recovery technology*
Clay	*Material with a particle size of less than 2µm.*
CNwad	*Weak acid Dissociable Cyanide*
Companion Policy	*Companion Policy 43-101CP*
CPI	*Consumer Price Index*
CPR	*Competent Person's Report*
Cross-section	*A diagram or drawing that shows features transected by a vertical plane drawn at right angles to the longer axis of a geologic feature.*
Cut-off grade	*When determining economically viable Mineral Reserves, the lowest grade of mineralised material that qualifies as ore.*
Damang	*Damang Gold Mine*
DCF	*Discounted Cash Flow.*
DD (Diamond drilling)	*Rotary drilling using diamond-set or diamond-impregnated bits, to produce a solid continuous core of rock.*
Dip	*The angle at which layered rocks, foliation, a fault, or other planar structures, are inclined from the horizontal.*
DGM	*Damang Gold Mine*
DTM	*Digital Terrain Model*
EAP	*Emergency Action Plan*
EBITDA	*Earnings Before Interest, Tax, Depreciation and Amortisation*
EC	*Environmental Certificate*
EIA	*Environmental Impact Assessment.*
EIS	*Environmental Impact Statement*
ESIS	*Environmental and Social Impact Statement*
EMP	*Environmental Management Plan.*
EPA	*Environmental Protection Agency*

Feasibility Study	*A definitive engineering study addressing the economic viability of bringing a deposit to the production stage; taking into consideration all associated costs, revenues and risks.*
FM	*Ffinancial Model*
Fold	*A bend in strata or other planar structure.*
Footwall	*A geological or mining term meaning the rock below a fault, or underlying a natural feature, or the mining floor.*
Form	*Form 43-101F1*
G	*Conglomerate reef at Tarkwa*
GAG	*Ghanaian Australian Goldfields Limited*
Galamsay	*Informal miner or miners (Ghana)*
G&A	*General and Administration costs*
GBX	*Graphite Breccia*
Gemcom	*Mining software developer.*
Geochemical prospecting	*A prospecting technique which measures the content of certain metals in soils and rocks used to define anomalies for further testing.*
Geophysical surveys	*A survey method used primarily in the mining industry as an exploration tool, applying the methods of physics and engineering to the earth's surface.*
GFGL	*Gold Fields Ghana Limited*
Gold Fields	*Gold Fields Limited*
Golden Star	*Golden Star Resources Limited*
Government	*Government of Ghana*
GP	*Graphitic Phyllite*
Grade	*Quantity of metal per unit weight of host rock.*
g/t	*Grammes per tonne*
ha	*Hectare (unit of area equal to 10,000 m^2)*
Hanging wall	*A geological or mining term meaning the rock above a fault, or overlying a natural feature (as opposed to footwall).*
HDPE	*High-density Polyethylene*
Host rock	*The rock containing a mineral or an orebody.*
IAMGold	*IAMGold Corporation*
ICRG	*International Country Risk Grade*
IDW	*Inverse distance weighting.*
IFC	*International Finance Corporation*
Igneous	*A rock formed by the solidification of mineral-rich molten liquid which is intruded into bedrock or erupted from a volcano.*
Indicated Mineral Resources	*An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.*
In-situ	*In its natural position (Latin).*
Instrument 43-101	*Canadian National Instrument 43-101 for reporting Mineral Resources and Reserves.*
IRR	*Internal Rate of Return.*
ITR	*Independent Technical Report*
JORC	*Australian code for reporting Mineral Resources and Reserves.*
KCA	*Kappes, Cassidy & Associates Australia Pty Ltd.*
kg/h	*Kilogrammes per hour*
kg/t	*Kilogram per tonne*
km	*kilometre*

koz	*Thousand Troy ounces*
Kriging	*A method of block grade interpolation which takes into account the statistical and spatial characteristics of the mineralisation.*
kt	*Thousand metric tonnes*
kV	*kilovolts*
kVA	*kilovolt-amperes*
Lakefield	*Lakefield Research Africa*
Lithology	*The physical characteristics of rock.*
LoM	*Life of Mine. Often used to describe plans covering the life of the project.*
M	*metre*
M	*million*
m RL	*Metres Relative Level; level relative to a fixed datum*
m^3/hr	*Cubic metres per hour.*
m^3/s	*Cubic metres per second.*
Ma	*Million years*
Measured Mineral Resources	*A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they 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. The estimate is based on detailed and reliable exploration, sampling and testing information gathere4d through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.*
Metamorphic	*Term applied to pre-existing sedimentary and igneous rocks which have been altered in composition, texture, or internal structure by processes involving pressure, heat and/or the introduction of new chemical substances.*
Micron (µm)	*One thousandth of a millimetre.*
Mineral	*A natural, inorganic, homogeneous material that can be expressed by a chemical formula.*
Mineralisation	*The process by which minerals are introduced into a rock. More generally, a term applied to accumulations of economic or related minerals in quantities ranging from weakly anomalous to economically recoverable.*
Mineralogy	*The science of minerals.*
Mineral Resource	*A tonnage or volume of rock or mineralisation of intrinsic economic interest.*
Mm	*Millimetre.*
Mm^3	*Million cubic metres.*
PER	*Preliminary Environmental Report*
Moz	*Million troy ounces*
m/s	*Metres per second.*
Mt	*Million tonnes*
Mtpa	*Million tonnes per annum.*
MVA	*Million volt-amps*
MW	*Megawatts.*
NAV	*Net Asset Value*
NGO	*Non-Governmental Organisation*
NI 43 -101	*National Instrument 43-101 — Standards of Disclosure for Mineral Projects*
North Plant	*Tarkwa heap leach plant*
NPV	*Net Present Value.*
Open pit, open cut	*Surface mining in which the ore is extracted from a pit or quarry. The geometry of the pit may vary with the characteristics of the ore body.*
Ore	*Mineral bearing rock that contains one or more minerals, at least one of which can be mined and treated profitably under current or immediately foreseeable economic conditions.*
Orebody	*A mostly solid and fairly continuous mass of mineralisation estimated to be*

	economically mineable.
Ore grade	The average weight of the valuable metal or mineral contained in a specific weight of ore i.e. grammes per tonne of ore.
OSC	Ontario Securities Commission.
Oxide	Gold bearing ore which results from the oxidation of near surface sulphide ore.
Oz	Troy ounce
P Codes	Porosity values
Ph	Measure of acidity / alkalinity
PL	Performance Laboratories Limited
Pleistocene	A sub-division of the Tertiary System which immediately followed the Pliocene. 1.8 million years before present to 10,000 years before present.
Pliocene	A sub-division of the Tertiary System, 5 million to 1.8 million years before present, which immediately precedes the Pleistocene.
Plunge	The angle from the horizontal of a linear geological feature on a plane.
PQ	Borehole of intermediate size.
Pre-feasibility Study	The initial stage of the feasibility study in which the accuracy of the factors involved such as costs and revenues is ± 25%.
Probable Mineral Reserve	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.
Proven Mineral Reserve	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.
PSS	Plant Sulphides
Pyrite	Common sulphide of iron.
P80	The sieve mesh size through which 80% of the particles in a particular particle distribution will pass; normally quoted as P80 at x microns.
QP	Qualified Person
Quartz	A mineral composed of silicon dioxide, SiO 2 (silica).
RAB	Rotary Air Blast drilling. Relatively cheap and quick exploration drilling method returning rock chips using high pressure air.
RC	Reverse Circulation drilling. A drilling method using a tricone bit, during which rock cuttings are pushed to the surface through an outer tube, by liquid and/or air pressure moving through an inner tube.
RL	Reference level (elevation)
RoM	Run of mine — usually refers to the tonnage and grade of ore delivered to the processing plant.
Rock	Mineral matter of various compositions.
SACNASP	South African Council for Natural & Scientific Professions
SADC	South African Development Country
SAG	Semi-a utogeneous grinding
Sampling and Analytical Variance/Precision	An estimate of the total error induced by sampling, sample preparation and analysis.
SAMREC	South African code for reporting Mineral Resources and Reserves.
SEC	Securities Exchange Commission
Sediment	Particles transported by water, wind or ice.
Sedimentary rock	Rock formed at the earth's surface from solid particles, whether mineral or organic, which have been moved from their position of origin and re-deposited.
SG	Specific Gravity
SGMC	State Gold Mining Corporation, the official state-owned national mining company; by extension, sampling carried out by this institution.

SGS	*SGS Laboratory Services - Ghana*
SK	*Simple Kriging*
SMU	*Selective Mining Unit*
South Plant	*Teberebie heap leach plant*
SRK	*Steffen, Robertson & Kirsten (UK) Ltd*
SRK Consulting	*The SRK Group of Companies, represented herein by SRK(UK) Limited, Cardiff, United Kingdom*
SRK Group	*SRK (Global) Limited*
Strike	*The direction or bearing of a bed or layer of rock in the horizontal plane.*
Sub-parallel	*Roughly in line with.*
Sulphide	*Metallic sulphur bearing mineral often associated with gold mineralisation. Sulphide is also used to differentiate from oxide rock or ore which is softer, less dense, nearer surface and generally responds better to cyanide leaching in the processing plant.*
Syncline	*A sequence of rocks flexed downwards into a valley shape with a core of younger rocks*
Synform	*Bent or folded downwards*
t	*Tonne (metric) equal to 1,000 kilograms*
t/h	*Metric tonnes per hour*
t/m^3	*tonnes per cubic metre.*
Tailings	*Fine ground wet waste material produced from ore after economically recoverable metals or minerals have been extracted.*
TEM	*Technical Economic Model*
TeP	*Technical Economic Parameters*
TGL	*Teberebie Goldfields Limited*
Tarkwa	*Tarkwa Gold Mine*
tonnes	*Metric tonne, equal to 1,000 kilograms.*
Tpa	*tonnes per annum.*
tpd	*tonnes per day.*
tph	*tonnes per hour.*
tpm	*tonnes per month.*
Trans	*Transition ore material*
Triassic	*A geological period extending from 250 to 204 million years which marks the beginning of the Mesozoic Era.*
TSE	*Toronto Stock Exchange.*
TSF	*Tailings Storage Facility*
TWL	*Transworld Laboratory Services - Ghana*
US CPI	*United States Consumer Price Index*
USD	*United States Dollars (currency).*
UTM	*Universal Transverse Mercator projection — grid co-ordinate system*
Variogram/Semi-Variogram	*A graphical representation of the rate of change of grade with distance which is used to define parameters for controlling sample layout and resource modelling.*
VRA	*Volta River Authority*
VT	*Vertical Thickness*
WACC	*Weighted Average Cost of Capital*
Weathering	*Near surface alteration and oxidation of minerals and rocks by exposure to the atmosphere or ground water.*
Wireframe	*A mesh of triangles used to make computerised geological models.*
µm	*Micron - one thousandth of a millimetre.*

PROFESSIONAL REGISTRATIONS AND QUALIFICATIONS

BSc	*Bachelor of Science*
BSc (Eng) Mining	*Bachelor of Science (Engineer) Mining*
CEng	*Chartered Engineer.*
CGeol	*Chartered Geologist.*
FGS	*Fellow of the Geological Society.*
FIMMM	*Fellow of the Institute of Materials, Mining and Metallurgy.*
MIMMM	*Member of the Institute of Materials, Mining and Metallurgy.*
MSAIMM	*Member of the South African Institute of Mining and Metallurgy.*
MSc	*Master of Science.*
PhD	*Doctor of Philosophy.*
Pr Eng	*Professional Engineer (South Africa).*

APPENDIX B

REFERENCES

Reference

Reference Number	Title	Author	Date
# 1	Gold Fields Ghana, Tarkwa Phase IV Bankable Feasibility Study	Lycopodium Pty. Ltd	December 2002
# 2	Tarkwa Gold Mine & Damang Mine Resources and Reserves	Gold Fields Ghana Limited	2002
# 3	Management Information Circular	Repadre Capital Corporation	December 6 th 2002
# 4	Tarkwa Phase IV Feasibility Study – Strategic Analysis Section – Strategic Cases 1 to 6, Main Report	SRK Consulting	December 2002
# 5	Annual Reports	Gold Fields Limited	
# 6	An Audit if the Mineral Resources and Mineral Reserves at Tarkwa Gold Mine	SRK Consulting	September 2004
# 7	Technical Report on the Tarkwa Gold Mine, Ghana IAMGold Corporation	Gold Fields Ghana Limited and	May 2003
# 8	Tarkwa Gold Mine Mineral Resources and Reserves, CPR	Gold Fields	2004
# 9			
# 10			
# 11			
# 12			
# 13			
# 14			

APPENDIX C

CERTIFICATES

CERTIFICATE OF QUALIFICATION

I **John Arthur** with a business address at Steffen, Robertson and Kirsten (UK) Limited, Windsor Court, 1-3 Windsor Place, Cardiff, CF10 3BX, hereby state that:

1. I am a Principal Consulting Mining Geologist with the firm Steffen, Robertson and Kirsten (UK) Limited (SRK).
2. I am a graduate of the University of Newcastle Upon Tyne, UK, with an honours degree in Geology gained in 1987.
3. I obtained an M.Sc in Mining Geology and Mineral Exploration from Leicester University, UK in 1989.
4. I obtained a PhD in Mineral Resource Evaluation from Cardiff University, UK in 1994.
5. I have practised my profession continuously for some 16 years since graduating, have variously managed, authored and co-authored over twenty mining feasibility studies, feasibility audits and due diligence review reports for a variety of mineral deposit types in many different countries and am a “qualified person” for the purpose of National Instrument 43-101.
6. I am a Chartered Engineer (UK), a member of the Institute of Materials, Minerals and Mining (UK), a Chartered Geologist and a Fellow of the Geological Society of London.
7. I am the QP with respect to the Mineral Resources in the report “An Independent Technical Report on the Tarkwa Gold Mine, Ghana”, which is based on a study of: -
   - all available technical reports, geological and sampling data on the project provided to SRK;
   - first hand discussions with the appropriate project geologists and other employees currently working on the project;
   - a visit to site between August 2 and 5, 2004.
8. I am not aware of any material fact or material change with respect to the subject matter of this report, which is not reflected in this report, the omission or disclosure of which makes the technical report misleading.
9. I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein, nor in the securities of GFGL or Gold Fields and am independent of AGL and Gold Fields.
10. I have previously carried out consulting work for Gold Fields at Damang as an SRK employee, specifically reviewing the Mineral Resources.
11. The report has been prepared in compliance with National 43-101 and Form 43-101F1 and I have read this Instrument and Form.

September 2004

Dr John Arthur CGeol FGS, CEng MIMMM
Principal Mining Geologist SRK (UK) Ltd

CERTIFICATE OF QUALIFICATION

I **Neil Holloway** with a business address at Steffen, Robertson and Kirsten (UK) Limited, Windsor Court, 1-3 Windsor Place, Cardiff, CF10 3BX, hereby state that:

1. I am an Associate Principal Process Engineer with the firm Steffen, Robertson and Kirsten (UK) Limited (SRK).
2. I am a graduate of the University of Bristol, UK, with a joint honours degree in Geology and Chemistry gained in 1971.
3. I obtained an M.Sc in Surface Chemistry and Colloids from Bristol University, UK in 1972.
4. I obtained a PhD in Minerals Engineering from Birmingham University, UK in 1975.
5. I have practised my profession continuously for some 29 years since graduating, have variously managed, authored and co-authored over twenty mining feasibility studies, feasibility audits and due diligence review reports for a variety of mineral deposit types in many different countries and am a "qualified person" for the purpose of National Instrument 43-101.
6. I am a Chartered Engineer (UK) and a Fellow of the Institute of Materials, Minerals and Mining (UK).
7. I am the QP with respect to the Mineral Processing in the report "An Independent Technical Report on the Tarkwa Gold Mine, Ghana", which is based on a study of: -
   - all available technical reports and minerals/process engineering data on the project provided to SRK;
   - first hand discussions with the appropriate minerals/process engineers and other employees currently working on the project;
   - a visit to site between September 7 and 8, 2004.
8. I am not aware of any material fact or material change with respect to the subject matter of this report, which is not reflected in this report, the omission or disclosure of which makes the technical report misleading.
9. I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein, nor in the securities of GFGL or Gold Fields and am independent of GFGL and Gold Fields.
10. I have had no prior involvement with Tarkwa.
11. The report has been prepared in compliance with National 43-101 and Form 43-101F1 and I have read this Instrument and Form.

September 2004

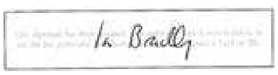
Dr Neil Holloway, CEng FIMMM
Associate Principal Process Engineer SRK (UK) Ltd

CERTIFICATE OF QUALIFICATION

I **Ian Brackley** with a business address at Steffen, Robertson and Kirsten (UK) Limited, Windsor Court, 1-3 Windsor Place, Cardiff, CF10 3BX, hereby state that:

1. I am a Principal Engineer with the firm Steffen, Robertson and Kirsten (UK) Limited (SRK).
2. I am a graduate of the University of Northampton, UK, with an honours degree in Civil Engineering gained in 1967.
3. I obtained a Ph.D in Civil Mechanics from Natal University, South Africa in 1975.
4. I have practised my profession continuously for some 37 years since graduating, have variously contributed tailings and environmental sections of over twenty mining feasibility studies, feasibility audits and due diligence review reports for a variety of mineral deposit types in many different countries and am a “qualified person” for the purpose of National Instrument 43-101.
5. I am a Chartered Engineer (UK), a Fellow of the South African Institution of Mining & Metallurgy, a Member of the Institution of Civil Engineers, a Member of the Institute of Materials, Minerals and Mining (UK),
6. I am the QP with respect to the Environmental Management and Tailings Engineering in the report “An Independent Technical Report on the Tarkwa Gold Mine, Ghana”, which is based on a study of: -
   - all available technical reports, geological and sampling data on the project provided to SRK;
   - first hand discussions with the appropriate project engineers and scientists and other employees currently working on the project;
   - a visit to site between September 7 and 8, 2004.
7. I am not aware of any material fact or material change with respect to the subject matter of this report, which is not reflected in this report, the omission or disclosure of which makes the technical report misleading.
8. I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein, nor in the securities of GFGL or Gold Fields and am independent of GFGL and Gold Fields.
9. I have had no prior involvement with Tarkwa.
10. The report has been prepared in compliance with National 43-101 and Form 43-101F1 and I have read this Instrument and Form.

September 2004



Dr Ian Brackley CEng FSAIMM
Director and Principal Engineer SRK (UK) Ltd

CERTIFICATE OF QUALIFICATION

I **Rick Skelton** with a business address at Steffen, Robertson and Kirsten (UK) Limited, Windsor Court, 1-3 Windsor Place, Cardiff, CF10 3BX, hereby state that:

1. I am a Principal Consulting Mining Engineer with the firm Steffen, Robertson and Kirsten (UK) Limited (SRK).
2. I am a graduate of the Royal School of Mines, London, UK, with an honours degree in Mining gained in 1969
3. I obtained an M.Sc in Mineral Production Management from the Royal School of Mines, London, UK, in 1974.
4. I have practiced my profession continuously for some 35 years since graduating, have variously managed, authored and co-authored many mining feasibility studies, feasibility audits and due diligence review reports for a variety of mineral deposit types in many different countries and am a "qualified person" for the purpose of National Instrument 43-101.
5. I am a Chartered Engineer (UK), a Member of the Institute of Materials, Minerals and Mining (UK), and a Member of the South African Institute of Mining and Metallurgy, Johannesburg, South Africa.
6. I am the QP with overall responsibility for the technical report and specifically with respect to the Mineral Reserves and Mining Engineering in the report "An Independent Technical Report on the Tarkwa Gold Mine, Ghana", which is based on a study of: -
   - all available technical reports on the project provided to SRK;
   - first hand discussions by others with the appropriate project mining engineers and other employees currently working on the project;
   - a visit to site between August 2 and 5, 2004.
7. I am not aware of any material fact or material change with respect to the subject matter of this report, which is not reflected in this report, the omission or disclosure of which makes the technical report misleading.
8. I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein, nor in the securities of GFGL or Gold Fields and am independent of GFGL and Gold Fields.
9. I have previously carried out consulting work for Gold Fields at Tarkwa as an SRK employee, specifically reviewing the Mineral Reserves in 2002 and assisting with the Expansion Feasibility Study in 2002/3.
10. The report has been prepared in compliance with National 43-101 and Form 43-101F1 and I have read this Instrument and Form.

September 2004

Rick Skelton MSc, CEng MIMMM, MSAIMM
Principal Mining Engineer - SRK (UK) Ltd

APPENDIX D

ENVIRONMENT POLICY

ENVIRONMENT POLICY

The Management of Gold Fields Ghana Limited is committed to adherence to policies and responsible operating practices which promote the conservation or enhancement of the natural and social environments in which the company operates. We recognise that the sustainability of our operations in exploring, developing and exploiting mineral resources is reliant on sound environmental management. We acknowledge that the environment represents a strategic resource for both current and future generations and will therefore minimise to the maximum extent practical the impact that the company's operations have on the environment.

In furtherance of this policy, Gold Fields Ghana Limited has set the following specific objectives:

1) Comply with all applicable laws and regulations of the government of Ghana and maintain open and cooperative working relationships with relevant government agencies;

2) Apply internationally-recognised industry best management practices for environmental management and sustainable development;

3) Establish and maintain a clearly defined environmental management program which covers all relevant aspects of the company's operations and integrate environmental management into the company's day-to-day operational activities;

4) Train employees at all levels of the organisation to perform their job functions in compliance with sound environmental practices and procedures and require the highest level of commitment to the company's environmental objectives from company directors, managers and staff;

5) Provide managers and supervisors with the necessary resources and authority to carry out the environmental management programme;

6) Establish and maintain effective environmental monitoring systems, act promptly and responsibly to address any identified non-compliance, and take necessary steps to prevent reoccurrence;

7) Complete periodic reviews of the company's operations to monitor environmental performance and to continuously improve the effectiveness of the environmental management program with consideration of technical and scientific advances;

8) Minimise waste generation and maximize efficiency of resource use; and

9) Communicate and consult with interested and affected parties on the environmental aspects of company's operations.

The Management of Gold Fields Ghana Limited will actively participate in achieving these objectives for the benefit of the company, its employees, and the communities in which we operate.

R. Graeme	J. Barenberg
Managing Director	General Manager — Tarkwa Gold Mine