Annual Qualified Persons Report for Selected Deposits, Konongo Gold Project, Ghana
- Year Ended 31 March 2014 -
LionGold Corporation Limited

Singapore

Effective date 31 March 2014

Prepared in accordance with the requirements of Singapore Exchange Practice Note 6.3

Qualified Persons:
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APPENDICES

Appendix A Checklist of assessment and reporting criteria, based on Table 1 of the 2012 JORC Code
1 EXECUTIVE SUMMARY

1.1 Report Scope and Basis
LionGold Corporation Limited (“LionGold”) subsidiary Signature Metals Limited (“Signature”) commissioned Snowden Mining Industry Consultants Limited (“Snowden”) to deliver resource statements for selected deposits located within the Konongo project area, Ashanti, Ghana. These deposits include Apan, Aserewa, Boabedroo (North, South and South Extension) and Obenemase D. It was requested that the Mineral Resources be reported in accordance with The JORC Code 2012 (JORC, 2012). The Mineral Resources will be publically reported by LionGold to the Singapore Exchange (SGX).

1.2 Project Description
The deposits are located within the Konongo licence. This is in close proximity to the village of Konongo (estimated population 40,000), approximately 200 km by road northwest of Accra and approximately 55 km east of the major regional centre of Kumasi, within the Ashanti region of southwest Ghana. Konongo contains historical open pit and underground workings. The project lies along the highly prospective Ashanti shear zone. The Konongo gold project comprises two leases totalling 195 km$^2$. The Mining Lease is valid through to 2023. The Prospecting Lease is renewed on a yearly basis, conditional on a 50% statutory reduction. The estimated production between 1903 and 1997 is 1.6 Moz Au. To date, a total of 68,318 m of drilling and 14,448 m of exploration trenching have been completed at the selected deposits.

1.3 Geology and Mineralisation
Two styles of mineralisation have been identified at the selected deposits, an early disseminated sulphide phase and a later quartz vein phase. Gold mineralisation is associated with arsenopyrite, pyrite, and rare chalcopyrite. Free gold occurs on fractures in sulphides as well as rimming sulphides. Quartz veins are 0.5 m to 0.8 m wide, and display evidence of repeated shearing and resealing. Laminated quartz is common, often with included wall fragments. Arsenopyrite forms a thin vein selvedge or a wall rock halo up to 0.5 m to 1 m wide around veins, and often carries significant gold. There is a positive correlation between increased vein width and higher gold grade. Carbonate and potassic wall rock alteration is intense with carbonates, chiefly ankerite, forming a wide halo around the veins. Potassic alteration accompanies the highest ore grades and only occurs close to the veins. Mineral assemblage varies between individual veins and ore shoots. Disseminated sulphide mineralisation forms a wide zone around quartz veins and in tuff.

Host rocks consist primarily of tuffs with basaltic and andesitic lithologies often present adjacent to the mineralised zones. Graphitic argillites are also present. Structurally the area is complex with overturned isoclinal folding along the regional north-east trend resulting in dips towards the northwest. A later folding event has resulted in the development of a series of en-echelon folds oblique to the main trend. These have steeply plunging axes and previously have been interpreted to have developed during a strike slip reactivation of the main trend.

1.4 Mine Production
Colonial mining commenced with the discovery of gold at Obenemase in 1903, when the BI shaft was sunk and four levels developed between 1903 and 1907, when production ceased. Between 1988 and 1992, a total of 852,000 t of ore was heap leached for 86,295 oz Au recovered at a recovered grade of 3.15 g/t Au. The bulk of the ore was extracted from open pits on the Obenemase A and B lodes. The operation was unsuccessful, primarily due to poor recoveries from the heap leach pads, and was closed in 1992. Between 1995 and 1997, 614,000 t of ore was treated grading 2.96 g/t Au for 58,500 oz Au recovered until production ceased in 1997 due to decreasing production and increasing operating costs.

During the period January 2012 to February 2013, Signature mined and processed 297,911 t of oxide ore to yield 11,663 oz Au. The recovered grade was 1.2 g/t Au, from a head grade of 1.7 g/t Au. During the period mill recovery averaged 71%, ranging from between 50% to 81%.

1.5 Mineral Resources and Ore Reserves
The Mineral Resources for the selected deposits as of March 2014 are shown in Table 1.1. There are no Ore Reserves reported.
### Konongo selected deposits, Mineral Resources as of 31 March 2014

<table>
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<th>Deposit</th>
<th>JORC category</th>
<th>Gross attributable to licence</th>
<th>Net attributable to issuer (54.6%)</th>
<th>Change in tonnes from previous reported update (%)</th>
<th>Contained gold in total resource (oz Au)</th>
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<tr>
<td></td>
<td></td>
<td>Tonnes (t)</td>
<td>Grade (g/t Au)</td>
<td>Tonnes (t)</td>
<td>Grade (g/t Au)</td>
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<tr>
<td>Apan</td>
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<td>399,000</td>
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<td></td>
<td>Total</td>
<td>731,000</td>
<td>2.3</td>
<td>399,000</td>
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<tr>
<td>Aserewa</td>
<td>Measured</td>
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<tr>
<td></td>
<td>Inferred</td>
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<td>223,000</td>
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<td>Boabedro North</td>
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<tr>
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<td>156,000</td>
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<td></td>
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<td>1,005,000</td>
<td>3.0</td>
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<tr>
<td>Obenemase D</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td></td>
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<tr>
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<td>1.6</td>
<td>396,000</td>
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<tr>
<td>TOTAL</td>
<td>All</td>
<td>4,438,000</td>
<td>2.6</td>
<td>2,432,000</td>
<td>2.6</td>
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</table>

All Resources have been depleted by the latest available mining surfaces and underground mining volumes. The north-eastern portion of Obenemase D has been removed, since it overlaps with the Obenemase A and B deposit in that area. Resources are reported at 0.5 g/t Au cut-off for oxide and transitional and 1.0 g/t Au cut-off for sulphide. Note: Mineral Resources which are not Ore Reserves have not demonstrated economic viability. No Ore Reserves are defined at these deposits. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. Tonnage is reported in metric tonnes (t), grade as grammes per tonne gold (g/t Au) and contained gold in troy ounces (oz Au). Ounces rounded to the nearest 1,000 oz Au.

### 1.6 Economic Analysis

The selected deposits at Konongo are part of an advanced exploration project. No mining is currently being undertaken. A Scoping Study to support recommencement of mining is currently being undertaken.

### 1.7 Risk Assessment

The current Mineral Resources for the selected deposits at Konongo carries an overall "high" risk. The risk is principally related to geological and grade variability. It is reflected by the downgrading of all these resources to the Inferred Mineral Resource category following a high level review by Snowden.

Sample representivity, type, preparation and assays carry a “medium” risk rating. In-situ sample representivity is likely to be reasonable, given minimal coarse-gold present and a relatively low nugget effect.
Historically different sample (mass) support, preparation and assaying methods impart some sampling error. Historical and recent QAQC is sparse.

General geological control in the selected deposits is based on variable drilling grids. Knowledge of historical mining and recent drilling aids interpretations. There is lesser understanding of small-scale local continuity issues which control variability of tonnes and grade. Best resolution of geological continuity and ore zone complexity is only gained after development.

The grade estimates bear a “high” risk due to likely variability. Estimation block size is not based on proper analysis and does not relate to any SMU size. The application of cut-off grades is problematic. On a block by block basis, estimation error will be relatively high. The estimation methodology is not best practice.

No Ore Reserves are defined and no economic studies have been undertaken. The Competent Persons believe that extraction via open pit operations is reasonable. There is a fully operational plant at Konongo, but this is optimised for oxide rather than primary ore. The current plant is optimised for oxide ore. The majority of the resources are primary-sulphide ore. Previous test work indicates that the primary-sulphide ore is refractory and requires special treatment. Further test work is required to prove extractability.

Social, legal, political and environmental risks are considered “low”, given the relatively stable and developed nature of Ghana. The country has a long history of gold mining. Signature has a mining lease in place and has operated successfully for a number of years.

1.8 Conclusions

The selected deposits are located within the Konongo licence. This is in close proximity to the village of Konongo, approximately 200 km by road northwest of Accra and approximately 55 km east of the major regional centre of Kumasi, within the Ashanti region of southwest Ghana. The deposits at Konongo contain historical open pit and underground workings. The Konongo gold project comprises two leases totalling 195 km². The Mining Lease is valid through to 2023. The Prospecting Lease is renewed on a yearly basis, conditional on a 50% statutory reduction. The estimated production between 1903 and 1997 is 1.6 Moz Au. To date, a total of 118,521 m of drilling and 18,640 m of exploration trenching have been completed at the selected deposits.

Two styles of mineralisation are described at the selected deposits, an early disseminated sulphide phase and a later quartz vein phase. Gold mineralisation is associated with arsenopyrite, pyrite, and rare chalcopyrite. Gold occurs free, on fractures in sulphides as well as rimming sulphides. Quartz veins are 0.5 m to 0.8 m wide, and display evidence of repeated shearing and resealing. Laminated quartz is common, often with included wall fragments. Disseminated sulphide mineralisation forms a wide zone around quartz veins and in tuff.

Drilling to date has permitted the estimation for the selected deposits of a total Inferred Mineral Resource containing 378,000 oz Au (see Table 1.1). Based on geological logging, three domains were defined in each of these deposits. These were principally based on weathering, including oxide, transitional and primary types. All domains were estimated using inverse distance squared (ID²) with a top-cut.

Snowden has reviewed the Mineral Resources for the selected Konongo projects and are of the opinion that none of the Resources conform to the requirements of the JORC (2102) reporting guidelines in order to be classified as Mineral Resources. However, Snowden is of the opinion that the current Mineral Resources are at the Inferred level of confidence (Table 1.1). Overall resource risk is defined as “high”, reflecting the historical nature of the data, geological model and estimation methodology.

The resources are deemed by the Competent Persons to have reasonable prospects for eventual economic extraction. The selected deposits have the potential to be open-pit bulk-mineable deposits, though further drilling and a scoping study is required.

1.9 Recommendations

Key recommendations for the selected deposits are:

- Review the data and re-estimate all resources.
- Based on review, plan and undertake additional drilling on some or all of the deposits, with the aim
of:
  o Verifying geology and grade
  o Uprating the current Inferred resources
  o Extending the current resources
  o Collecting both geotechnical and metallurgical data (see below)

- Undertake a scoping study to review production options.
- To support the scoping study, an extensive metallurgical sampling and test work programme is suggested to review process options for the refractory primary-sulphide ore.
- Given QAQC issues with historical data, Signature should where possible re-assay remaining core or pulps as a verification process.
- On-going geological studies are recommended to further refine the geological models for mineralization and resource classification, and in particular to assist in targeting additional ore shoots.
2 INTRODUCTION

2.1 Aim and Scope of Report

LionGold Corporation Limited (“LionGold”) subsidiary Signature Metals Limited (“Signature”) commissioned Snowden Mining Industry Consultants Limited (Snowden) to compile a resource summary for selected deposits located within the Konongo project area, Ashanti, Ghana. The Mineral Resources are reported in accordance with The JORC Code (2012) and as such, includes consideration of all key matters (refer to Table 1 of The JORC Code, 2012).

Snowden did not estimate the resources contained in this Qualified Persons Report (“QPR”). It was provided with supporting data, which was verified and reviewed, and is reported in accordance with The JORC Code (2012) where appropriate. Some historic resources at Konongo are not reported in this QPR, as they could not be reported in accordance with The JORC Code (2012).

2.2 Use of Report

The Mineral Resources will be publically reported by LionGold to the Singapore Exchange (“SGX”).

2.3 Reporting Standard

The contained Mineral Resources have been reported in accordance with The JORC Code 2012 (JORC, 2012).

The SGX Mainboard rules require that a QPR be prepared in accordance with one of three allowable international public reporting standards. For this report, Snowden has adopted The JORC Code 2012 as the reporting standard. The JORC Code requires that a public report concerning a company’s exploration targets, exploration results, Mineral Resources, or Ore Reserves must be based on, and fairly reflect, the information and supporting documentation prepared by a Competent Person (“CP”), as defined by the JORC Code. SGX Mainboard rules use the term qualified person, and provide a definition which is effectively equivalent to a Competent Person. In this report, whenever reference is made to a Competent Person as per the JORC Code, it is equivalent to a qualified person as per SGX Mainboard rules.

2.4 Report Authors and Contributors

Snowden staff who contributed to this QPR are listed in Table 2.1.

Table 2.1 Staff who contributed to this QPR

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Employer</th>
<th>Independent of LionGold</th>
<th>Date of site visit</th>
<th>Professional designation</th>
<th>Contribution to QPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Simon Dominy</td>
<td>Executive Consultant</td>
<td>Snowden Group</td>
<td>Yes</td>
<td>No</td>
<td>FAusIMM(CP) FAIG(RPGeo) FGS(CGeol)</td>
<td>All sections, Competent person.</td>
</tr>
<tr>
<td>Dr Belinda Van Lente</td>
<td>Senior Consultant</td>
<td>Snowden Group</td>
<td>Yes</td>
<td>February 2014</td>
<td>PrSciNat</td>
<td>All sections, Competent person.</td>
</tr>
</tbody>
</table>

(1) Address: Level 4, 1 Kingdom Street, Paddington Central, London W2 6BD, UK.

Snowden drew on the expertise of other experts during the compilation of this QPR. Key other experts are listed in Table 2.2.

Table 2.2 Reliance on other experts

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Employer</th>
<th>Independent of LionGold</th>
<th>Date of site visit</th>
<th>Professional designation</th>
<th>Contribution to QPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Bill Reid</td>
<td>Exploration Manager</td>
<td>Signature Metals Ltd</td>
<td>No</td>
<td>Based on site</td>
<td>MAusIMM</td>
<td>Hosted Dr Van Lente during her site visit and provided Snowden with information and data as requested.</td>
</tr>
</tbody>
</table>
2.5 Qualified Persons Statement

The qualified persons responsible for preparation of this QPR are:

- Dr Simon C Dominy - Executive Consultant with Snowden UK; and
- Dr Belinda Van Lente - Senior Consultant with Snowden UK.

Dr Van Lente visited the Owere project during February 2014. During the site visit, Dr Van Lente visited the project offices, reviewed data and discussed the project with Signature staff, reviewed drill core and walked over the project area. The visit was hosted by Mr Bill Reid, Exploration Manager for Signature.

Dr Dominy has not visited the property.

Dr Dominy and Dr Van Lente are independent of Signature and LionGold.

Dr Dominy and Dr Van Lente take responsibility as CPs for all sections of this QPR. Snowden has previously undertaken work for Signature. In late 2013, Signature requested Snowden to undertake a desk-based review of all resources at Owere. This study was completed by Dr Van Lente.

Reliance on the QPR may only be assessed and placed after due consideration of Snowden’s scope of work. The QPR is intended to be read as a whole, and sections or parts thereof should therefore not be read or relied upon out of context.

Unless otherwise stated, information and data contained in this report or used in its preparation was provided by Signature.

The effective date of this QPR is 31st March 2014.

2.6 Basis of the Report

This report presents Mineral Resource estimates undertaken by DataGeo and reviewed by Snowden. The resources are reported in accordance with The JORC Code (2012). The database and geological models used in the review was supplied to Snowden by Signature. The resources were reviewed using CAE Datamine Studio 3 software. Some historic resources at Konongo are not reported in this QPR, as they could not be reported in accordance with The JORC Code (2012).
3 PROJECT DESCRIPTION

3.1 Project Overview

The deposits are located within the Konongo area, Ashanti, Ghana. They are situated close to the village of Konongo which has an estimated population of around 40,000. It lies 200 km northwest of the Capital City of Accra and 55 km east of the major regional centre of Kumasi, within the Ashanti region of southwest Ghana (Figure 3.1). The deposits at Konongo contain historical open pit and underground workings. The estimated production between 1903 and 2013 is 1.6 Moz Au. The project operator is Owere Mines Limited, which 70% is owned by Signature Metals Limited. Signature Metals Limited is listed on the Australian Stock Exchange and is 78% owned by LionGold Corporation Limited. The current operator is reviewing the potential for restarting open pit and underground mining. The net ownership of the Konongo project by LionGold is 54.6%.

Figure 3.1 Location of the deposits

3.2 Tenure

The current mining area previously comprised a group of eight areas which formed the Konongo tenement. This tenement was issued to the State Gold Mining Corporation on the 8th December 1986 for a period of 30 years. This was subsequently assigned to Southern Cross Mining Limited on the 8th August 1988. The current Konongo Mining License 749/03 was issued to Talos in December 2002 for a period of eight years and covers an area of 125.54 km² (Figure 3.2). In 2004 Talos entered into a joint venture agreement with African Gold PLC, forming Owere Mines Limited (“Owere”). As part of this agreement African Gold PLC (now Mwana Africa PLC) purchased a 70% interest in Owere. In 2009, Signature acquired a 70% interest in the project from Mwana via the acquisition of their 70% ownership of Owere.

Table 3.1 Summary of tenure details

<table>
<thead>
<tr>
<th>Asset name/ Country</th>
<th>Issuer’s interest (%)</th>
<th>Development Status</th>
<th>Licence expiry date</th>
<th>Licence Area</th>
<th>Type of mineral, oil or gas deposit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konongo, Ghana</td>
<td>54.6%</td>
<td>Evaluation</td>
<td>June 2023</td>
<td>125.54 km²</td>
<td>Minerals, mining lease (#749/03)</td>
<td>Mining Lease (ML)</td>
</tr>
<tr>
<td>Kurofa, Ghana</td>
<td>54.6%</td>
<td>Exploration</td>
<td>Feb 2012</td>
<td>67 km²</td>
<td>Minerals, mining lease (#PL6/296)</td>
<td>Prospecting Lease (PL)</td>
</tr>
</tbody>
</table>
3.3 Tenure Conditions

The Konongo gold project comprises two leases totalling 195 km\(^2\) (Table 3.1). The ML is valid through to 2023. The PL is renewed on a yearly basis, conditional on a 50% statutory reduction.

The mining lease is valid through to 2023. The 2014 Operating Licence and the Environmental Permit for the ML and PL have been delivered. There are no known impediments to the ML.

The PL licence is conditional on acceptance of a terminal report submitted in December 2013. The delay on the PL is due to a conversion from the old cadastral system to a graticular system (based on 15° north-south and east-west grid) throughout Ghana. The required conversion data has been submitted to the Ghanaian Minerals Commission, and delays have been experienced to date.

Figure 3.2 The Konongo tenement area

3.4 Access

Access to the Konongo area is by bitumen road from Accra and Kumasi. The deposits are accessible by a network of gravel roads. Commercial flights are available between Accra and Kumasi on a daily basis. Konongo is also close to the national Accra-Kumasi railway.

The mine offices are located on the outskirts of the major town of Konongo-Odumasi, which lies on the Accra-Kumasi highway.

3.5 Climate

Temperatures in the region vary between 18°C and 35°C and rainfall averages about 1,200 mm per annum. The rainy season is from April to October with two peak periods in May-June and September. The topography is gently undulating with some prominent hills, covered primarily by secondary tropical forest comprising trees up to 60 m in height and thick undergrowth. Average elevation is 200 m to 250 m above sea level.

It is possible for mining operations to continue throughout the year, though occasional days may be lost due to extremely heavy rain. The exploration field season can continue throughout the year however, some areas may become inaccessible during the peak of the rainy season.

3.6 Landforms and Soils

The topography is gently undulating with some prominent hills, covered primarily by secondary tropical forest comprising trees up to 60 m in height and thick undergrowth. Average elevation is 200 m to 250 m above sea
level. Rainfall averages 1,200 mm per annum, falling primarily in the wet season from April to October, with two peak periods in May-June and September.

3.7 Fauna and Flora
Owere is located within the tropical rain forest zone of the country and the vegetation has been classified by Hall and Swaine (1981) as a Moist Semi-Deciduous forest of the Northwest sub-type. Large areas within the project site have had a long history of land rotation cultivation characterised by slash and burn so the present vegetation is a mosaic of fallow farmland consisting of secondary forests, herbs, shrubs and swamp vegetation.

3.8 Hydrology
The major stream on the concession is the Owere River, which traverses the concession beginning at the Adumadum village (off the concession to the north), through Obenemase and Odumase. The river is fed by a number of minor streams which drain a series of northeast-southwest ridges.

Rivers and streams have variably developed alluvial plains comprising basal (and often auriferous) gravels beneath sands and clays. Typically, the main channel of the drainage is less than 2 m. In many of the lesser streams, the drainage is ephemeral. The alluvial plains are typically intensively farmed. Flooding is not uncommon, occurring during and after heavy rains.

3.9 Cultural Environment
3.9.1 Republic of Ghana
The Republic of Ghana is located in West Africa on the Gulf of Guinea and shares borders with Côte d'Ivoire (Ivory Coast) to the west, Togo to the east and Burkina Faso (formerly Upper Volta) to the north (Figure 3.3). To the south are the Gulf of Guinea and the Atlantic Ocean. Ghana has a total land area of approximately 239,540 km². Ghana’s capital city is Accra, which is located along the south-eastern coast.
In March 1957, Ghana gained independence from Great Britain. Following a national referendum in July 1960, it became a republic. Ghana has a population of approximately 24 million people. Most speak English, together with a number of local languages.

3.9.2 Transport and communication systems

Passenger and freight transport in Ghana is generally by road. It is estimated that approximately 40% of the country’s road network has been asphalted and are generally maintained in good condition (Figure 3.4). Road traffic can become extremely congested in the major cities.
The rail network is restricted to the southern portion of the country. The network has deteriorated since 2000 to the extent that the popular Accra to Takoradi, Accra to Kumasi and Takoradi to Kumasi lines are no longer operational. The only passenger rail system currently operational is the Nsawam to Tema commuter service.

Kotoka International Airport is globally well connected with regular direct flights to Europe, North America, Dubai, South Africa and many other African countries. Ghana does not operate a national airline.

There is a good domestic airline business with flights from Accra to Takoradi, Kumasi, Tamale and Sunyani.

Most of the country is covered by mobile phone networks, which reach many remote parts of the country and provide adequate coverage for communication on exploration projects. Internet access is also available on these networks although the service may be slow in rural areas.

### 3.9.3 Business and investment environment

The economy of Ghana was recently tied to the Chinese Yuan Renminbi (CN¥). As a result, the Bank of Ghana began circulating the Renminbi throughout Ghanaian state-owned banks and to the Ghanaian public as a tradable currency in addition to the Ghana Cedi (GH₵). The Renminbi has replaced the traditional role played by the US dollar.
Ghana is defined as a Middle Income Economy and as an Emerging Economy with an estimated purchasing power parity of US$97.5B and GDP purchasing power parity per capita of US$3,718 in January 2014.

The Ghana Stock Exchange (GSE) is the third largest stock exchange in Africa after the Johannesburg Stock Exchange (JSE) and the Nigerian Stock Exchange (NSE). The Ghanaian economy is the 4th largest economy in sub-Saharan Africa behind Nigeria, South Africa and Angola and 7th largest economy on the African continent behind South Africa, Nigeria, Egypt, Algeria, Morocco, and Angola.

The economy is resource-rich and relatively diverse with exports of minerals, agricultural products (cocoa, rubber, fruit and shea butter), petroleum and natural gas as well as industries such as electricity generation, information and communications technology, retailing and tourism being sources of foreign exchange. The Akosombo, Bui and Kpong dams, in addition to conventional oil and gas fired power stations, provide a relatively reliable source of electricity.

3.9.4 Legal system
The legal system in Ghana is largely based upon British law and is overseen by the Supreme Court which is the highest authority to interpret the Ghanaian Constitution and has final ruling over legal matters.

3.9.5 Mining code and regulations
The Ministry of Lands and Natural Resources is entrusted with the management of Ghana's land, forests, wildlife and mineral resources.

The current legislation governing the mining industry is contained in the Minerals and Mining Act of 2006. Six Minerals and Mining Regulations were approved by parliament during 2012, with the remaining regulations being reviewed by parliament.

Under the Mineral and Mining Act (2006), every mineral in its natural state in, under or upon any land in Ghana, rivers, streams, water courses throughout the country, the exclusive economic zone and any area covered by territorial sea or continental shelf is the property of the Republic of Ghana and is vested in the President in trust for the people of Ghana.

3.9.6 Government equity in mining companies
The Republic of Ghana retains a non-contributing shareholding in every company holding a Mining Lease. The Government’s percentage holding is generally set at 10%, but may be altered in circumstances where special agreements exist. The Government’s share of dividends when declared by the companies is collected by the Non Tax Revenue Unit of the Ministry of Finance and Economic Planning.

3.9.7 Taxes
Corporate tax is currently fixed at 35% of net profit. All the mining companies under consideration are on self-assessment schemes. Companies are allowed to forecast their profits for the year and pay some deposits based on their own assessment. Companies are required to submit their yearly returns four months after the end of the accounting year. In 2012, the country amended the capital allowance rules for the mining sector. Ground rent is the annual payment made by mining companies and other companies to the owners of the land.

All current mining companies operate on land held by traditional leaders on behalf of their tribal groups, referred to in Ghana as Stool Lands (Chiefs sit on stools for traditional duties). Mining companies therefore pay their ground rent to the Office of the Administrator of Stool Lands. The amount payable as ground rent depends on the size of the tenement.

Gold companies account for 80% of total government revenue from the mining industry.

Tax incentives are offered such that mining companies can carry forward their losses incurred over the next five years of assessment. The losses can be deducted from the profits of the succeeding five years.

Mining firms are granted 20% capital allowance over a period of five years.
4 HISTORY

In 1986, the State Gold Mining Corporation of Ghana (SGMC) was granted a 125 km² mining lease over the Konongo project area for a term of 30 years. In 1988 it formed a joint venture with North Queensland Company Limited. The joint venture company was named Southern Cross Mining Limited (SCM) and was set up with the purpose of exploiting oxide resources.

In 1994, a 90% share of the leases was acquired by Obenemase Gold Mines Limited (OGM), with the Government of Ghana retaining a 10% interest. A second hand CIL plant with a nominal capacity of 350,000 t per annum was purchased and mining of the remaining oxide resources commenced in 1995.

In 1998, Resolute Mining Limited (RML) acquired an interest of 19.9% in Ghana Gold Mines Ltd (GGM) who had in turn acquired a 90% interest in Owere. RML, through GGM, undertook an extensive data compilation and validation programme on all data relating to the Konongo mining leases and prospecting licences. In 2000, RML increased its equity interest in the project to 81% through the purchase of 90% of Ghana Meeting Investments Pty Limited (GMI), a wholly owned subsidiary of GGM. The remaining 19% interest in the Owere project was held by the Government of Ghana (10%) and the Apollo Group (9%).

A pre-feasibility study undertaken by Owere (RML) indicated good potential for the definition of significant sulphide resources and good metallurgical recoveries by flotation, pressure oxidation and cyanide leaching.

Gold prices during this period were at historical lows, and the high cost of resource drilling, together with the capital investment required for the establishment of a pressure oxidation plant could not justify an open pit operation based on the resources. It was estimated that the project would be marginally profitable over a four year open pit mine life at Obenemase, utilising the current gold plant.

Owere (RML) failed to obtain a joint venture partner or purchaser for the project and the ML’s were relinquished in December 2002 and placed on care and maintenance.

Talos Ghana Limited (Talos) acquired the current Konongo mining license from the government in 2002 for a period of eight years. In 2004, Talos entered into a joint venture agreement with African Gold Plc (Mwana), forming Owere. As part of this agreement Mwana purchased a 70% interest in Owere. In 2009, Signature acquired a 70% interest in the project from Mwana via the acquisition of their 70% ownership of Owere. In March 2012, LionGold Corporation of Singapore acquired a 76.2% ownership in Signature.

4.1 Exploration

Operating since 1903, extensive underground exploration was undertaken throughout the life of the Konongo mines, but few records of this work have been preserved. Similarly the records of systematic surface exploration are also fragmentary.

Geophysical techniques were used for prospecting as early as 1935 and have continued to be used up to the present day, including regional VTEM and heli-magnetics flown by Fugro in 1995.

Geochemical surveys have been an effective tool in locating mineralisation. In the early 1950’s a large, detailed geochemical survey was completed on the concessions. A geochemical sampling programme commenced in November 1990 based on sample grid of 800 m by 30 m.

SGMC carried out orientation geochemical surveys at Obenemase in the 1970’s, as well as drilling a series of 15 DD holes under the Obenemase A Lode and a series of 128 short RC holes.

SCM commenced exploration on the concession in 1987, initially to assess the oxide ore resources on the project. RC holes were drilled on section lines 40 m apart to a depth of 50 m. A total of 87 DD holes, 811 RC holes and 221 production & exploration trenches are included in the database.

With mining having commenced in 1988, regional exploration was curtailed and exploration focused on defining further mineable resources.

OGM carried out drilling between 1994 and 1998 with a total of 216 DD holes, 1,132 RC holes, 111 RAB holes and 578 grade control trenches to support the open pit mining.

Following the formation of Owere Mines Limited, Mwana (then African Gold Plc) completed several exploration programs at the project consisting of regional soil geochemistry, trenching, diamond core and reverse circulation (RC) drilling, focussed on the Boabedroo South deposit.
Owere drilled a series of deeper DD holes between 2004 and 2005 for a total of 65 holes.

Signature (before investment by LionGold in 2011) commenced work at the Project in May 2009 and carried out Diamond Drilling, RC drilling, aircore drilling and trenching of greenfield and brownfield targets through early 2012, focused mainly on oxide potential throughout the project.

Signature also targeted the historic Konongo Tails, commencing mining in 2011. LionGold acquired the project in March 2012 and has refocused the operation to assess the sulphide potential. Work has focused on the Obenemase deposits, seven other prioritised brownfield prospects and regional geophysical/geochemical targets.

4.2 Mining

The Konongo region has been mined in several periods since 1903. It has produced approximately 4.4 Mt of ore for 1.6 Moz of gold, at an average recovered grade of 11.8 g/t Au.

Mining activity predates European settlement at Konongo and native workings are found in both Tarkwaian and Brimian rocks over a distance of 70 km. Numerous pits are found on the vein outcrops and in down slope laterite.

Production at Konongo ceased in 1986, with a total of 2.84 Mt mined for 1,446,600 ounces of gold, at a recoverable grade of 15.7 g/t Au (Signature, 2010).

In 1987, SCM refurbished the Konongo Mines infrastructure, at that point still on care and maintenance, providing a base for the exploration of the Obenemase A deposit. The first gold was poured in May 1988. Between 1988 and 1992, SCM heap leached a total of 852,000 tonnes of ore for 86,295 recovered ounces of gold at a recovered grade of 3.1 g/t Au (Reidy, 2012). Due primarily to poor recoveries from the heap leach pads, the operation was unsuccessful. Final exploration was carried out in the Obenemase area between 1992 and January 1993, after which the mine was placed on care and maintenance.

Between 1995 and 1997, OGM treated 614,000 t of ore grading 2.9 g/t Au for 58,500 oz Au until production ceased in 1997.

Obenemase production summaries show a total of 650,000 t of oxide ore at an average grade of 5.5 g/t Au for a total of 115,000 oz Au (Signature, pers. comm.). An additional 30,000 oz Au at an estimated grade of 9.5 g/t Au were extracted from underground workings.

During the period January 2012 to February 2013, Signature mined and processed 297,911 t of oxide ore to yield 11,663 oz Au. The recovered grade was 1.2 g/t Au, from a head grade of 1.7 g/t Au.
5 GEOLOGICAL SETTING

5.1 Regional Geological Setting

5.1.1 Regional overview

West African geology is dominated by the West African Craton that stabilised after the major Paleoproterozoic Eburnean orogeny (~2.1 Ga) and comprises two Precambrian aged shields. The Reguibat Shield lies along the northern boundary of the craton and underlies much of northern Mauritania, southern Western Sahara and south-western Algeria (Figure 5.1).

Figure 5.1 Main geological units of the West African Craton

The Man Shield covers the southern portion of the craton and stretches from Ghana in the east to Senegal in the west (Figure 5.1). Between these two shields lies the Taoudeni Basin which comprises Neoproterozoic to Palaeozoic sediments. The oldest rocks in the West African Craton are the charnockites, migmatites and granulite gneisses that form the Archaean Kenema-Man Domain of Liberia, Sierra Leone and Guinea. This cratonic nucleus also has diamondiferous kimberlite pipes. To the east lies the Paleoproterozoic granite-greenstone terrain of the Baoule-Mossi Domain which includes mainly Birimian and Tarkwaian rocks.
The West African craton is bounded by Pan Africa late Proterozoic to early Palaeozoic mobile belts, including the Rokelides and the Mauritanides along the western margin and the Dahomides along the eastern margin.

The Eburnean orogeny was a major, Proterozoic crust-forming event that occurred between 2250 Ma and 2100 Ma. This orogenic domain consists mainly of polyphase granite-gneiss complexes that cover approximately half of the domain’s area and are often referred to as basin granitoids. The Birimian Supergroup, within the Eburnean domain, comprises volcanic complexes and flysch-like sediments, with volcanic and volcanosedimentary components. The Eburnean domain also contains fluvial deltaic sediments of the Tarkwaian Group. Gold mineralisation occurred during the Eburnean orogeny. Significant gold occurrences within Ghana have been found in Birimian sediments and volcanics, Tarkwaian sediments and Quaternary alluvium derived from Birimian and Tarkwaian rocks.

5.1.2 Geology of Ghana

The geology of Ghana can be divided into three areas (Figure 5.2); (1) north and southwest, the area of Paleoproterozoic metamorphosed granite-greenstones that includes the volcano-sedimentary rocks of the Birimian Supergroup and Tarkwaian Group, (2) south east, the area of meta-sediments and gneisses of the Mesoproterozoic to Neoproterozoic, Pan-African, Togo and Dahomeyan Mobile Belts and (3) central east, an area of relatively un-deformed Neoproterozoic to Palaeozoic sediments forming the Volta Basin. Localized onshore and offshore basins of Palaeozoic and Mesozoic sediments also occur near the coast.

All gold mineralisation in Ghana is confined to the Birimian and Tarkwaian which consists of metamorphosed volcanic, volcaniclastic and sedimentary rocks with a strong north-northeast striking tectonic grain. The Birimian occurs as north-northeast to south-southwest striking volcanic belts up to 40 km wide separated by meta-sedimentary filled basins up to 100 km wide. The volcanic belts are dominated by volcanic rocks and volcaniclastic sediments of tholeiitic basaltic (81%), andesitic (16%) and dacitic (3%) composition.

The meta-sediments of the intervening basins comprise turbiditic greywackes and argillites with similar chemistry to the volcanic rocks of the belts.

Figure 5.2 Geological map showing the location of the other belts and basins in Ghana

![Geological map](image-url)
Syn- and post-tectonic granitoids intruded both the metasediments and metavolcanics of the Birimian Supergroup as a result of the Eburnean Orogeny (Figure 5.2). The granitoids can be broadly grouped into two types: namely (1) Basin type (or Cape Coast-type) and (2) Belt type (or Dixcove-type). Basin type granitoids have intruded the meta-sedimentary basins whereas Belt type granitoids have intruded the volcanic and volcano-sedimentary belts. The Belt-type granitoids of southern Ghana, which are similar to I-type granites, are most commonly of diorite to granodiorite composition, whereas the Basin granitoids, which are S-type granites, are mostly of granodiorite to granite composition. The Belt-type granitoids were emplaced earlier as subvolcanic plutonism late in the development of the Birimian greenstone belts, between 2179 Ma and 2136 Ma; while the Basin granitoids were emplaced mostly during the Eburnean Orogeny, between 2116 Ma and 2088 Ma.

Uplift and erosion, prior to the final stages of deformation, resulted in the deposition of intracratonic sediments of the Tarkwaian Group, which unconformably overlie the Birimian Supergroup (Figure 5.3). The contact between the Tarkwaian and Birimian is tectonic and may represent migration of the Tarkwaian along major thrusts.

Figure 5.3 Schematic stratigraphic column of rock units in the Birimian Supergroup and Tarkwaian Group in Ghana

5.2 Local Geological Setting

Within the Konongo project area the sequence comprises rocks of the Upper Birimian Series and Tarkwaian System. The Tarkwaian rocks occur as an infolded synclinal structure flanked to the northwest and southeast by the Upper Birimian. The sequence in the northern part of the tenement is best exposed in the Kwakawkaw mine through mining and exploration and it is believed to be representative of the Upper Birimian within the tenement. The succession in the south western part of the tenement is known from mining and exploration at Konongo. The rocks strike in a north-easterly direction and are over-folded and dip steeply to the northwest.

The gold deposits occur within a greenschist facies sequence of meta-sedimentary and tuffaceous rocks, with minor intercalated andesitic flows. Gold quartz vein mineralisation is developed entirely within the Mine series rocks, chiefly the Akyenase, Aware and Odumase greenstones. Mineralisation is associated with broad zones of sulphide-silica-carbonate alteration within greywacke, shale and chloritic schist, forming multiple lenses, with the central zone being the most consistent and continuous. The mineralised envelope
dips and plunges sub-vertically, with two high-grade cores identified plunging about 30° to 40° to north and south. The mineralised lenses pinch and swell along strike and down dip.

Granitoid rocks related to the West African Eburnean orogeny are widespread in the Konongo region, although none outcrop within the tenement. The intrusion of the Juaso batholith, 10 km south east of Konongo, has resulted in an increase in metamorphic grade near the Konongo mines from lower greenschist to almandine-amphibole. Minor granodiorite dykes post-date quartz veining and gold mineralisation. Diorite stocks outcrop in the north eastern part of the tenement, and have well developed radial dyke swarms and sheeted zones which post-date the Obenemase sulphide mineralisation, but may be contemporaneous with Tarkwaian deposition. At Kwakawkaw, diorite dykes of the radial type cut both lithological boundaries and mineralisation. At Obenemase, diorite and lamprophyre dykes are emplaced along axial planes or parallel to axial plane foliation, and displace mineralisation.

Early structural observations on the area tended to focus on the styles of folding within the mine sequence rocks. Regionally, the Birimian rocks appear to be folded around a northeast-trending axis, broadly parallel to the long axis of the tenement but swinging northeast with flattening dips between the Obenemase and Kwakawkaw mines. Folding is isoclinal, with the fold axis overturned to the east, the dips of the limbs varying from 80° west to vertical. The Konongo and Obenemase mineralisation occurs on the western limb of the fold whose eastern limb outcrops along the eastern margin of the tenement. Folding postdates Tarkwaian deposition, and the two limbs of the isoclinal fold are separated by a narrow vertically dipping belt of the Tarkwaian Banket Series sandstones.

Outside the tenement the more massive Tarkwaian rocks are folded on an open axis with more moderate dips of 40° to 65°. Throughout the area, axial plane foliation (F1) is near parallel to bedding in tuffs and metasediments.

At Konongo there is little or no angular separation between the foliation and bedding, but at Obenemase angular divergence is five to eight degrees. At least two subsequent fold episodes are superimposed over F1 foliation with an F2 foliation intersecting F1 at 30° to 50° degrees. The local effect of this F2 episode is to super-impose a set of parasitic F2 folds, which at Konongo have a clear spatial relationship with higher grade mineralisation. At Obenemase, gold-sulphide mineralisation has been folded around tight anticlines and synclines and is concentrated in fold closures. The imposition of F2 deformation on F1 is clearly seen at Obenemase where the parasitic fold structures repeat en-echelon on the west limb of the major isoclinal fold. The fold regime and metamorphism is more intense at Konongo where axial plane thrusting has been preserved.

Two deformation events are identified in most of the prospects within the Konongo tenements:

- The first is a moderately ductile strike-slip shear zone which is right-lateral (dextral), generally northerly striking and a shallow southerly plunging movement direction. The shears may dip steeply either easterly or westerly and intersection lineations, fold hinges and high-grade shoots plunge steeply to the north. The shear system appears to have been compressive as northerly dipping reverse faults are associated with the array from Boabedroo to Obenemase.
- The second deformation event is a more brittle dip slip system which has reverse movement, refolds lineations produced in the strike slip movement (particularly clear at Obenemase A), and generally produces shallow south plunging fold hinges, intersection lineations and shoots in mineralised zones.

The main mineralising event appears to be the strike slip shearing with possible remobilization by a later dip-slip event.

5.3 Mineralisation

5.3.1 Deposit type

The Konongo deposits are regarded as typical examples of orogenic gold deposits. The Ashanti gold mine at Obuasi, along strike on the same overall structure as these deposits, is one of the largest gold deposits in the world having produced approximately 32 Moz. It is a classic example of an orogenic gold deposit. Other deposits of this type in Ghana include Prestea, Konongo and Bibiani.
Orogenic gold deposits account for around one-third of the gold that is mined worldwide. They are generally gold-only systems. The deposits formed in actively evolving orogenic belts and are hosted in regionally metamorphosed and intrusive igneous rocks. As a deposit class they are almost unique in that they form at relatively great pressures of between about 1.5 to 5 kbar, hence at depths in the crust of between 4 km and 15 km. Although they form at moderately high temperatures, the temperatures of formation are lower than many magmatic-hydrothermal deposits and are most typically between 300°C and 450°C. They are most commonly hosted in rocks metamorphosed to the greenschist facies. Where they occur, they are often abundant and widespread throughout the host belt and typically cluster into camps.

Mineralisation is generally quartz-dominated and ranges from internally structureless and massive, to brecciated and into coarsely banded or laminated veins. Veining ranges from discrete veins through bulk stockwork or sheeted vein systems. Alteration haloes up to a few tens of metres are commonly developed around ore zones. They are generally zoned laterally away from the vein or ore zone with different assemblages that mark increasing degrees of replacement and metasomatism. Sulphide minerals are typically present in both veins and alteration haloes. Gold is generally hosted in the veins and sometimes strongly altered wall rocks. It may be present either as free gold and/or locked in sulphides or more rarely tellurides.

Typical Ashanti area mineralisation features quartz vein systems that display a complex geometry and commonly associated with extensive disseminated sulphides. The vein systems usually appear to be related to regional northeast-southwest trending deformation corridors along the margins of Birimian greenstone belts and adjacent meta-sedimentary basins. The most favourable host rocks are usually inter-bedded argillite, greywacke and volcaniclastic units frequently deposited in the transitional zone between the belts and basins. These transitional zones may also contain a variety of chemical sediments, dominated by graphite, manganese, carbonate or sulphides.

The principal characteristic of the Ashanti deposits can be summarised as follows:

- Located on, or close, to the lithological contact between greenstones and metasediments.
- Spatially related to deep-seated, high-angle wrench faults, which have a strike extent exceeding 100 km. Cross-cutting northwest to southwest-trending faults have also exerted an influence on the location of gold remobilised from the main zones.
- Gold is hosted in quartz veins, which may be en-echelon or as laminated veins. Grade-width characteristics persist virtually unchanged to depths exceeding 1 km. The veins broadly parallel the regional foliation, but locally cross-cut the foliation.
- Disseminated sulphides, such as pyrite, pyrrhotite and arsenopyrite, are common in wall rocks.
- Several generations of quartz veining are common and gold is seemingly associated with the final phase.
- Mineralisation is spatially associated with graphitic phyllites and manganiferous sediments.
- Mineralogy is simple with a strong positive correlation between gold and arsenopyrite. Accessory minerals include pyrite, chalcopyrite, pyrrhotite, and bornite.
- Strong silicification is common, accompanied by sericite and carbonate alteration. Tourmaline may also be present.
- Granitoids may or may not be spatially associated with mineralisation.

### 5.3.2 Mineralisation

Two styles of gold mineralisation are observed at Konongo:

- Disseminated sulphides hosted by volcanic rocks.
- Quartz-gold-sulphide vein mineralisation in shear zones.

The disseminated style of mineralisation is developed in the Obenemase-Kwakawkaw area and the vein-hosted mineralisation is developed at Konongo.
5.3.2.1 Disseminated mineralisation

The Obenemase-Kwakawkaw deposits are hosted by volcanic rocks, with gold, arsenopyrite, pyrrhotite and minor base metal sulphides disseminated within tuff and tuffaceous sandstone which are local lateral facies equivalents. Mineralisation occurs in a potassic alteration zone which accompanied silica flooding, within a wider zone of carbonate metasomatism. The highest grade ore comprises a dense mosaic of ankerite, sericite and finely divided hematite, with interstitial silica, grading laterally into siliceous, carbonate altered tuff. Arsenopyrite, the most common sulphide, occurs as foliation parallel needles 5 mm to 8 mm in length, or aggregates to 10 mm, with pyrrhotite. Gold rims arsenopyrite or occurs in fractures in arsenopyrite crystals. Remobilisation of both gold and sulphides species veinlets are common. Several generations of quartz are evident both mineralised and barren.

5.3.2.2 Vein mineralisation

Gold mineralisation is associated with arsenopyrite, pyrite, and rare chalcopyrite. Gold occurs free, on fractures in sulphides as well as rimming sulphides. Quartz veins are 0.5 m to 0.8 m wide, and display evidence of repeated shearing and resealing. Laminated quartz is common, often with included wall fragments. Arsenopyrite forms a thin vein selvedge or a wall rock halo up to 0.5 m to 1 m wide around veins, and often carries significant gold. There is a positive correlation between increased vein width and higher gold grade.

Carbonate and potassic wall rock alteration is intense with carbonates, chiefly ankerite, forming a wide halo around the veins. Potassic alteration accompanies the highest ore grades and only occurs close to the veins. Mineral assemblage varies between individual veins and ore shoots.

Disseminated sulphide mineralisation forms a wide zone around quartz veins and in tuff.
6 EXPLORATION ACTIVITIES

6.1 Exploration Overview

Previous exploration work included regional geochemistry, regional geophysics, drilling, trenching, underground mining and survey data. The GIS dataset thus includes geographic, geological, geophysical, drilling and surface geochemistry, mine data and sectional interpretation.

Even though extensive underground and surface exploration has been undertaken, few records have been preserved. Outside of the Obenemase A deposit within the Nanwa Mines concession, exploration was minimal and consisted largely of surface trenching of quartz veins as well as development and shallow drilling beneath the Kwakawkaw outcrop.

Geophysical techniques were used for prospecting as early as 1935 and have continued to be used up to the present day. These techniques included electrical surveys, ground magnetics, aeromagnetics, electromagnetics and resistivity surveys. Geochemical surveys started in the early 1950's with orientation geochemical surveys occurring in the 1970’s at Obenemase and Kwakawkaw. Further geochemical studies commenced in November 1990, covering the Tarkwaian contact and uppermost Birimian volcanic belt, which led to the detection of numerous gold-arsenic anomalies, but follow-up was limited.

Exploration on the concession was continued in 1987 by SCM, primarily to assess the oxide ore resources in the Obenemase A deposit. Recognition of problems in resource evaluation shortly after the commencement of mining in 1988 reduced regional exploration and drilling focused on defining further resources.

Owere commenced with regional soil geochemistry, trenching and a combination of DD and RC drilling in 2004 which showed the best results for the Obenemase prospect. The high grade down plunging ore shoots north of the Obenemase area were subsequently targeted by further DD and RC drilling.

The continuity and trend of mineralisation at the Boabedroo South prospect along the Odumase-Boabedroo mineralised system, as well as the extent of mineralisation intersected in a parallel system to the east, were the focus of most RC drilling programs.

During May 2009, Signature commenced working on the Konongo Gold Project and carried out DD, RC and aircore (AC) drilling. The DD focused on the Obenemase deposit and aimed to validate and follow up high grade intersections reported in previous drilling, in order to turn previous exploration results into a quantifiable mineral resource and assess the underground potential in this area. The RC drilling that commenced in January 2010 targeted shallow, high grade zones within the larger Obenemase resource, specifically those seen in historical drilling at D Lode and in areas west of the pit.

To date, a total of 68,318 m of drilling and 14,448 m of exploration trenching have been completed at the selected deposits.

Exploration methods used at Konongo include:
- Diamond core drilling (resource definition).
- Reverse circulation (RC) drilling (resource definition).
- Trenching.
- Air core drilling.
- Geophysical methods (regional).
- Geochemical methods (regional).

In addition, underground channel samples were collected during historical mining.

6.1.1 Geophysics and remote sensing

Geophysical techniques were used for prospecting from 1935 and have continued to be used to the present day. Many datasets consist of pre-digital data and are known only because of historic references. Historic surveys (pre-1980) include electrical methods, ground geophysics and some airborne geophysics.
The most recent surveys were conducted as regional surveys. Surveying from a heli-borne platform include ternary radiometrics, magnetics and VTEM. Some 1,246 line km of detailed helimagnetics and electromagnetic (EM) data were flown by Aerodat in 1995.

In 2012, Fathom Geophysics was engaged to apply a suite of enhancement filters and semi-automated interpretation routines to 2009 Konongo VTEM. The survey was flown as part of a larger European Union funded survey with a line spacing of 400 m and a direction of 130°. Magnetic data collected in 1995 was part of a heliborne magnetic and EM survey flown by Aerodat. This was also filtered and enhanced as the line spacing was 200 m and the data were of good quality and complimented the VTEM data.

The magnetic and EM data collected during 2009 have been filtered and auto-interpreted by Fathom Geophysics to extract features important for target generation and focused ongoing exploration. Key features include northeast-trending shears and northwest cross-faults; lithological contacts, possible dilation and closing zones along conductive units, location of intrusives and highly conductive zones. A lithological and structural interpretation using the products generated was completed.

Remote sensing has not been attempted, as thick vegetation (>70%) precludes the methodology as an effective exploration tool.

6.1.2 Geochemistry

Geochemical sampling has been conducted as several programmes over the entire project area. Traditional soil sampling has been employed. However, the methodology has not been documented. The exception is the most recent programme of multi-element portable XRF sampling in 2012.

Over 500 line km of conventional soil sampling (>19,273 sample points) has been undertaken. Samples were taken over several stages and are stored in the database. Early work included gold-only assays and was based on a 600 m by 30 m grid. Follow-up in-fill sampling reduced to a 300 m line spacing. Subsequent phases included gold and arsenic geochemistry.

In 2013, analysis with field portable XRFs was conducted to assess polymetallic anomalism. Some 4,400 points were taken on a 300 m by 30 m grid.

6.1.3 Drilling

Extensive underground exploration was carried out through the life of the Konongo mines to maintain a resource base ahead of production. Few records of this work have been preserved. Similarly the records of systematic surface exploration are fragmentary. A major database and data capture exercise was conducted in 2009 and data capture is complete from at least this time.

Historical drilling has focused on two main targets centred on the depth continuity of the historic mining centres at Obenemase and Odumase, and shallow drilling along the main shears hosting the majority of known resources. Away from the major mining centres, the depth of drill testing rarely exceeds 150 m vertical.

To date, exploration drilling has included:

- Air core: 77,171 m
- RAB: 19,236 m
- RC: 228,768 m
- DD: 74,595 m

The most recent drilling has included a 66,000 m regional air core programme which commenced in 2012. A sulphide target drilling programme commenced in 2013 at Obenemase.

6.1.4 Sampling

Sampling intervals were marked out on DD core and the core was cut in half on the electric diamond blade core saw, where the cut is made 3 mm to the side of the orientation line with the half core portion that contains the line being kept in the tray and stored and the second portion broken up for assay (RSG, 2006).
RC and AC drilling samples were collected from the drill rigs at 1 m intervals down-hole via a cyclone into PVC bags prior to splitting. Four metre composite samples were created using a riffle splitter and the final 1 m sample of approximately 2 kg was collected, bagged and labelled and sent to the laboratory. The remaining 1 m split was stored for re-assay, which occurred when the average composite assay returns a value of greater than 0.3 g/t Au (RSG, 2006).

The procedure used to determine the bulk density by SCM in 1989 involved taking physical samples in the pits by excavating a 30 cm by 30 cm pit, weighing the excavated material, followed by drying the excavated and re-weighing. Bulk density determinations on the fresh diamond core were completed by measuring the weight in air and in water by Mwana and Owere (RSG, 2006).

6.1.4.1 Standard operating procedures and manuals
Signature has Standard Operating Procedures and manuals for most of the site practices. These were reviewed by Snowden and deemed to be generally reasonable.

6.1.4.2 Underground sampling
Historical underground sampling data forms a large part of the assay database.

No descriptions of the underground sampling methods are recorded, though it is considered that minimal QAQC was applied. Samples were most likely collected with a hammer and chisel.

6.1.4.3 Diamond core sampling
No descriptions of the historical Diamond Core sampling methods are recorded, though it is considered that minimal QAQC was applied.

6.1.4.4 Reverse circulation sampling
No descriptions of the historical Reverse Circulation sampling methods are recorded, though it is considered that minimal QAQC was applied.

6.1.4.5 Trench sampling
No descriptions of the historical Trench sampling methods are recorded, though it is considered that minimal QAQC was applied.

6.1.4.6 Sample preparation
There are few records on sampling and assaying procedures prior to Signature taking ownership of the project. For all Signature programmes, samples were prepared on-site. Chain of custody is not reported. RSCMME (2014) noted that well-sealed bulk bags leave site to the nearby preparation laboratory.

Sample bagging (e.g. RC and trench) was carried out at the collection site. Core samples were bagged at the core yard. All samples received alpha-numeric tickets and were placed in plastic bags. The primary ~2-5 kg samples are received by the laboratory and include standards and blanks. Samples were weighed, with those over ~4 kg undergoing riffle splitting. Coarse rejects were retained. Samples were then dried for 24 hours at 85°C. All samples were pulverised using an LM5 pulveriser for 6-10 minutes. Grind checks were undertaken every 40 samples. The pulp was split in the pulveriser bowl by using a scoop.

The resulting ~400 g pulp sub-sample is placed into a paper bag for further analyses. Pulp residues are stored for two months and then discarded. The ~400 g pulp sub-sample is further split by scooping into a measured 50 g charge for fire assay. The pulp residue is returned to Signature and stored. Signature stores all pulp residues on site. RSCMME catalogued all pulps and coarse rejects stored on site.

A summary of the sample flow-sheet is given in Figure 6.1.

Snowden notes that the sample preparation and assay used methods are reasonable. It notes that they are not optimised for coarse gold, which may be present. Splitting of pulps by scooping is poor practice, promoting various errors such as extraction error and grouping and segregation error. Riffle splitting of the entire sample is the best option. Where an LM5 is used, it is noted that it is difficult to remove the pulp efficiently due to their design.
6.1.5 Chemical analysis

There are few records on chemical analysis prior to Signature taking ownership of the project. Samples are assayed by a 50 g charge fire assay with aqua regia digest and AAS finish (0.01 g/t Au detection limit). RSCMME (2014) did not undertake an audit of the ALS Laboratory, neither has Snowden. A summary of the sample flow-sheet is given in Figure 6.1.

Snowden notes that the assay used methods are reasonable. It notes that they are not optimised for coarse gold, which may be locally present.
6.1.6 Quality Assurance and Quality Control

An independent quality assurance quality control (QAQC) report was prepared for the Aserewa, Apan, Atunsu and the Boabedroo deposits in 2009 (DataGeo, 2009a). The raw drill hole database shows that only the Boabedroo and Obenemase deposits contain data collected by Signature.

The QC data analysed in the report included:

- assay repeats
- pulp duplicates
- field duplicates
- certified reference materials (CRMs)
- blanks.

Signature used ALS laboratory for sample preparation and analysis.

Blanks and CRMs were inserted within samples every 20 m, while repeats were inserted every 10 m.

The CRMs used were purchased from Geostats Pty Ltd and the blank material was collected from the Labadi beach in Accra (DataGeo, 2009a).

The QAQC report showed good accuracy, with a slightly negative bias for the CRMs and moderate precision in the repeats, however poor precision was observed in the field duplicates. The blanks had a few failures.

The Obenemase D report (DataGeo, 2010) reviewed results for the QC samples inserted within the assay data collected by Signature. The QC samples included assay repeats, field duplicates, CRMs and blanks. The report comments that ‘a great number’ of the blanks inserted in RC samples consignments plotted above the upper limit, while blanks submitted with DD samples showed better results (DataGeo, 2010). Of 12 submitted CRMs, eight did not have certified information as they were no longer listed in the supplier’s catalogue. Only four CRMs could therefore be analysed. This reduced the representivity of the CRMs assessed in the dataset. Of the four CRM’s, only one (G 900-5, with medium to high grade) had a substantially higher standard deviation compared to the certified standard deviation value for both RC and DD samples. The assay repeats and field duplicates for RC were reported to have shown good precision (DataGeo, 2010).

6.1.7 Sample security

For all Signature programmes, samples were prepared on-site. Chain of custody is not reported. RSCMME (2014) noted that well-sealed bulk bags leave site to the nearby preparation laboratory.

There are no records on sample security with regard to historical, pre-Signature samples. Snowden has no reason to question sample security.

6.2 QAQC Results

6.2.1 Historical QC data

Historical QC data and reports are limited.

The source of the material used as the blank standard is described as beach sand from Accra. The analysis is by 50 g Fire Assay and the mean measurement of the Au is 0.01 g/t Au.

The following quality controls procedures have been used historically:

- Field Duplicates - Repeatability of duplicate samples sourced from the field.
- Pulp Repeats - Repeat samples selected by the laboratory.
- Assay Repeats - repeat analysis of elements (i.e. Au vs. Au1).
- Alternative Lab checks - repeat analysis of samples at different labs.
Historically, there are 17 different standards used, sourced predominantly from Geostats Pty Ltd, all certified gold reference Materials.

6.3 Data Entry and Validation

In 2013, Owere migrated its data entry and validation process to on-site systems, following the successful introduction of Maxwell Datashed and Logchief software. Previously, data was validated and managed off-site by Geobase, Perth.

Data is stored as electronic and paper copies. Electronic data is stored in its source format, both on on-site servers and by the service provider. On-site servers are backed up weekly. Geological sampling data is entered into a Datashed database, which includes proprietary data validation checks to ensure field sampling information is correct. Returned assay data is stored as certified PDF copies and imported from text files provided by the laboratory. Certified QAQC files are also provided by the laboratory as PDF and text files.

Historic campaign corrections and validation of the databases was conducted by Geobase for Signature Metals from June 2009 through 2010. The current database is a continuation of validation and data entry based on the campaign work.

Approximately 35.6 GB of data was provided which contained some 94,161 files in 5,849 folders. Within this data set, a total of 13,620 original files with corresponding 62,284 duplicates files were noted, a culmination of nearly 20 years of poorly organised and controlled data.

The MS Access stored drilling data was compiled into a standard set of table structures. All compiled tables were subject to a number of validation procedures, which were performed during various stages of data collation. Validation included code, multi-table and spatial validation.

A site visit in January 2010 was undertaken to assist in the validation and subsequent JORC 2004 compliant confidence of the compiled database.

Multi-table validations was conducted on all drill hole tables. Validation on the spatial distribution was undertaken.

Cross referencing of the compiled assay data was undertaken with the original assay lab files. A number of inconsistencies were noted. Due to these inconsistencies, in conjunction with a lack of metadata available on assay techniques, it was deemed necessary to reload as much of the original data as possible.

Of the 184,807 assay results in the final database, approximately 12.7% of the assay database have been sourced from original laboratory electronic data. Random checks of assay data from original drill paper logs were undertaken. Approximately 1 in every 20 to 25 holes was checked. Any issues identified were corrected.
7 MINERAL PROCESSING AND METALLURGICAL TESTING

7.1 Overview

Oxide ore at Owere is free milling and acceptable gold recoveries have been obtained by conventional cyanide leaching of whole ore as demonstrated by recent mining of oxide ore in open pits by SCM and OGM.

Based on limited test work, the sulphide ore is considered refractory. Metallurgical test work has been undertaken at various times in order to determine the most optimal method of gold recovery. OGM carried out the most recent test work programme which has mainly included investigations of pressure oxidation. The bulk of the metallurgical samples were obtained from the Obenemase deposit, with a lesser amount from Santreso and Konongo tailings dam.

7.2 Metallurgical Test Work

Bottle roll tests completed in 1985 indicated recoveries of 95% to 97% on Obenemase oxide ore at grades between 12.3 g/t Au and 15.7 g/t Au. Column leach tests on 5 g/t Au Obenemase oxide ore gave recoveries of 68% to 88% after 24 hours and 88% after 10 days. On this basis, Signature used a heap leach recovery of 85% for mine planning.

Test work designed to test bacterial oxidation of the Konongo sulphide (primary) ore was carried out by OGM in 1996. Recoveries of 95% and 99% were reported following cyanide leaching of an oxidised concentrate (with 42% by cyanide leaching only). A high acid consumption was noted due to high concentrations of carbonate in the ore. It was found that the carbonate floated with the graphite and some sort of beneficiation process to suppress or isolate graphite during flotation would be required.

As part of the pre-feasibility study, RML provided at 2 t bulk sample of sulphide ore from the Obenemase deposit to AMMTEC Australia for pilot plant flotation and associated test work. Gold extraction levels for both direct cyanidation and CIL cyanidation were both poor at 28%, with little improvement by fine grinding. Minimal gold (up to 6%) was recoverable by gravity methods.

Flotation results suggested that the rougher cleaner concentrate and a portion of the scavenger cleaner concentrate (SCC) would constitute the primary product for downstream oxidation treatment procedures. The remainder of the SCC was planned to report to the two tail streams for treatment at the existing CIL plant at Obenemase. Overall gold recovery within the flotation concentrate was 88%.

Pre-treatment and cyanidation produced recoveries of between 82% and 92% using the Lee process and 94% using acid pressure oxidation. Bio-oxidation evaluation test work was not completed. It was found that flotation concentrates can be successfully pressure oxidised with or without acid addition to give cyanide recoveries from the oxidised concentrates of between 92% and 94%. It was determined that overall possible recovery of gold from sulphide ore by CIL treatment of pressure oxidised concentrate would be around 88%. In addition, a further 3% would be recoverable from CIL treatment of the flotation tails to give an overall recovery to bullion of over 91%.

Four composites of sulphide ore from Obenemase A lode were prepared from 8 diamond drill holes. Bond Ball Mill Work Indices (BWi) via the Comparative Method were performed on these composites. The resulting average work index of 13.75 kwh/t was applied in the RML pre-feasibility study.

Test work and operations history show that Obenemase ore has a good prospect for being processed. Given the presence of primary sulphide ore some challenges exist. Further test work will be required.

Snowden is unable to comment on the quality of the metallurgical samples and test work. Additionally, it is unable to comment on the representivity of samples in context of geometallurgical domains.

7.3 Mineral Processing Design

The Owere processing plant employs a direct cyanidation method to treat gold bearing ore. It has an annual capacity of 325,000 t. Processing facilities currently available can handle only oxidized free-milling ores. The main stages followed are crushing, milling, gravity, leaching, adsorption, elution, electrowinning, smelting and bullion.
The 250 t per hour crushing plant unit is mobile and consists of three crushers: a primary jaw crusher, a secondary cone crusher and a tertiary cone crusher. Maximum feed size of the primary crusher is approximately 100 cm, with output from the tertiary crusher at -6 mm. The final product is fed to the mill by means of front end loader through a bin which has a feed gate to control tonnes desired. Dust suppression is employed.

The milling circuit is a single ball mill in closed circuit with the hydrocyclone underflow stream. The mill is designed to grind between 50 and 60 t per hour at a power of 380 kW to 400 kW. The classified overflow is trashed and sized screened, and advanced to the leaching circuit.
A 5% to 10% portion of the cyclone underflow is fed to the gravity circuit, into a single Knelson concentrator. The gravity separator concentrate is refined by tabling. The concentrate is forwarded for smelting. The tails are returned to the mill for regrinding.

The leaching and adsorption circuits are arranged in series, dissolving the solid gold and the subsequent picking of the soluble gold on to activated carbon. An exclusive conditioned leaching takes place in five contactor type tanks (46.56 m³ each). Cyanide, lime and dissolved oxygen are introduced at this stage to initiate and facilitate leaching. This is followed by a second train, made up of four cylindrical vessels (383.3 m³ each) for adsorption purposes. Activated carbon is introduced to the last tank and conventionally advanced forward. The loaded carbon is then lifted for stripping as it moves counter currently to the slurry direction at the first tank.

The elution process has a single pressure vessel used for both acid treatment and stripping. The enclosed pressure column is a two tonne facility and operates under the Zadra system.

The electrowinning cell is sequenced with the elution process. The resulting steel wool sludge is calcined and smelted to produce gold bullion.

During the period October 2012 to January 2013 the plant processed 113,240 t at 1.1 g/t Au (recovered) for 4,174 oz Au. During this period the mean plant availability was 93% (91% to 95%). It yielded a mean gold recovery of 67%, ranging from 44% to 81%.

The current plant is optimised to an oxide ore feed. The dominant component of the current Obenemase resource is primary sulphide ore (88%). Previous test work has determined that a possible recovery of gold from sulphide ore by CIL treatment of pressure oxidised concentrate would be around 88%. In addition, a further 3% could be recoverable from CIL treatment of flotation tails to give an overall recovery to bullion of over 91%. Further test work is required to investigate the options of either upgrading the current plant or building a separate sulphide plant. Signature has indicated that they would prefer a new plant option so as to provide an annual process rate of 600,000 t for sulphide ore. As stated previously, further test work and design studies are required.
8 MINERAL RESOURCES

8.1 Summary of Mineral Resources

Snowden has reviewed the Mineral Resources for the selected Konongo deposits (Apan, Aserewa, Boabedroo North, South and South Extension and Obenemase D) and are of the opinion that none of the resources conform to the requirements of the JORC (2012) reporting guidelines in order to be to be classified at the Indicated level of confidence. Snowden is of the opinion that the current resources are at the Inferred Mineral Resource level of confidence. When following the guidelines of The JORC Code (2012), tonnage and grade estimates are classified so as to reflect different levels of geological confidence and different degrees of technical and economic evaluation (Figure 8.1).

Figure 8.1 General relationship between Exploration Results, Mineral Resources and Ore Reserves (from The JORC Code 2012)

The Mineral Resources for the selected deposits as of March 2014 are given in Table 8.1.

Table 8.1 Mineral Resource summary, as of 31 March 2014

<table>
<thead>
<tr>
<th>Deposit</th>
<th>JORC category</th>
<th>Gross attributable to licence</th>
<th>Net attributable to issuer (54.6%)</th>
<th>Change in tonnes from previous update (%)</th>
<th>Contained gold in total resource (oz Au)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Tonnes (t)</td>
<td>Grade (g/t Au)</td>
<td>Tonnes (t)</td>
<td>Grade (g/t Au)</td>
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<td>-</td>
<td>-</td>
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<tr>
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<td>Total</td>
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<td>399,000</td>
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<tr>
<td>Aserewa</td>
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<td>-</td>
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<tr>
<td>Boabedroo South</td>
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Annual QPR for Selected Deposits, Konongo Gold Project for the Year Ended 31 March 2014
LionGold Corporation Ltd

<table>
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<th>Deposits</th>
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<tbody>
<tr>
<td>Boabedroo South Extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-100</td>
<td>-</td>
</tr>
<tr>
<td>Inferred</td>
<td>1,841,000</td>
<td>3.0</td>
<td>1,005,000</td>
<td>3.0</td>
<td>+22</td>
<td>178,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,841,000</td>
<td>3.0</td>
<td>1,005,000</td>
<td>3.0</td>
<td>+13</td>
<td>178,000</td>
</tr>
<tr>
<td>Obenemase D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-100</td>
<td>-</td>
</tr>
<tr>
<td>Inferred</td>
<td>725,000</td>
<td>1.6</td>
<td>396,000</td>
<td>1.6</td>
<td>+33</td>
<td>37,000</td>
</tr>
<tr>
<td>Total</td>
<td>725,000</td>
<td>1.6</td>
<td>396,000</td>
<td>1.6</td>
<td>-25</td>
<td>37,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,438,000</td>
<td>2.6</td>
<td>2,432,000</td>
<td>2.6</td>
<td>+2</td>
<td>378,000</td>
</tr>
</tbody>
</table>

All Resources have been depleted by the latest available mining surfaces and underground mining volumes. The north-eastern portion of Obenemase D has been removed, since it overlaps with the Obenemase A and B deposit in that area. Resources are reported at 0.5 g/t Au cut-off for oxide and transitional and 1.0 g/t Au cut-off for sulphide. Note: Mineral Resources which are not Ore Reserves have not demonstrated economic viability. No Ore Reserves are defined at these deposits. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. Tonnage is reported in metric tonnes (t), grade as grammes per tonne gold (g/t Au) and contained gold in troy ounces (oz Au). Tonnages rounded to the nearest 1,000 t. Ounces rounded to the nearest 1,000 oz Au. Figures may not compute exactly due to rounding. In 2009, Signature acquired a 70% interest in the project from African Gold PLC via the acquisition of their 70% ownership of Owere Mines Ltd. In March 2012, LionGold acquired a 78% ownership in Signature. The net attributable to LionGold is thus 54.6%.

8.2 General Description of Mineral Resource Estimation Process

Mineral Resource estimates have been undertaken using inverse distance squared (ID²) for the deposits and prospects found on the Konongo Mine Lease area. In general, the following process was used when undertaking Mineral Resource estimates:

If all blocks were not estimated with the primary search, a secondary search was carried with all parameters the same as for the primary search except that search distances were doubled in each direction. If necessary a tertiary search was carried out with double the secondary search distances to inform any remaining blocks (DataGeo, 2010).

Although variograms were modelled for some of the resources, ID² was used for all the resource estimations rather than kriging.

Snowden recommends that, where variograms are available, a kriging method would be more appropriate.

A summary of the parameters used in preparing the Mineral Resource estimates is provided in Table 8.2.

Table 8.2 Estimation methodologies for the selected Konongo deposits

<table>
<thead>
<tr>
<th>Deposits</th>
<th>Estimation method</th>
<th>Cutting applied</th>
<th>Minimum number of composites</th>
<th>Maximum number of composites</th>
<th>Primary search dimensions: Strike x Dip x Across dip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apan</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Aserewa</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>ID²</td>
<td>Not mentioned in report</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 20 m x 5 m (vertical); 50 m x 10 m x 20 m (flat)</td>
</tr>
</tbody>
</table>
8.3 Mineral Resource Estimate

8.3.1 Mineral Resource input data

The Resource estimates listed in Table 8.2, were based on data received from site in various formats (Geobase, 2010), including MS Access (.mdb), MS Excel (.xls), Text (.csv, .txt), portable document format (.pdf), MS Word (.doc), MapInfo (.tab) and Microstation (.dwg).

Geobase collated and validated the data and handed it over to DataGeo for the resource estimation. There is no documentation available describing the data validation procedures carried out by DataGeo before their estimations.

8.3.2 Cut-off Grades

The cut-off grade for defining ore (wireframes) was 0.5 g/t Au, linked to the economic viability of mining.

8.3.3 Density

Bulk default density values were used for estimates undertaken on the Konongo Mining Lease (RSG, 2006) (Table 8.3). The Apan estimate uses a constant density value of 2.8 tonnes per cubic metre (t/m³) applied regardless of weathering.

<table>
<thead>
<tr>
<th>Weathering zone</th>
<th>Density (t/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxide</td>
<td>1.51</td>
</tr>
<tr>
<td>Transitional</td>
<td>2.52</td>
</tr>
<tr>
<td>Sulphide</td>
<td>2.76</td>
</tr>
</tbody>
</table>

The oxide bulk density measurements were carried out by SCM in 1989, using the pit and replacement method, where a 30 cm by 30 cm pit was dug, the contents of which were weighed before and after drying (RSG, 2006). The fresh and transitional bulk density measurements were undertaken by Mwana on DD core samples, where the core was weighed in air and in water. The core was not sealed, which could potentially result in a density error. Most of the samples that were used in this study were not in the mineralised zones (RSG, 2006).

8.3.4 Topography and Pit Surfaces

Digital terrain models (DTM’s) were not available for all the deposits, and DataGeo (2009a; 2010) used collars to create the topography wireframes. Not all pit floors could be surveyed because the pits were filled with water. The topography wireframes used in the resource estimations, along with the associated drillhole collars, are shown in Figure 8.2 to Figure 8.7.
Figure 8.2 Apan topography surface in plan and section views, showing the associated collar positions.
Figure 8.3 Aserewa topography surface in plan and section views, showing the associated collar positions
Figure 8.4 Boabedroo North topography surface in plan and section views, showing the associated collar positions
Figure 8.5 Boabedroo South topography surface in plan and section views, showing the associated collar positions.
Figure 8.6 Boabedroo South extension topography surface in plan and section views, showing the associated collar positions.
Figure 8.7 Obenemase D topography surface in plan and section views, showing the associated collar positions

8.3.5 Weathering Profiles and Interpretations

Three main material categories, based on the weathering profile, were used in the construction of the models. Weathering surfaces were modelled from logged information. The modelled weathering zones were based on the following logged information (DataGeo, 2009a; 2010):

- Oxide was modelled where “hw” or “ew” were logged
- Transitional was modelled where “mw” or “ww” were observed in the logging
- Sulphide (fresh) was modelled where “fr” was logged

In the absence of drill hole data, as at Apan, the oxide surface was modelled to the bottom of the modelled pit.

The weathering profiles used in the resource estimations, along with the associated drill holes, are shown in Figure 8.8 to Figure 8.13 below.

**Figure 8.8 Apan weathering profile as coded in the resource model**

![Figure 8.8 Apan weathering profile as coded in the resource model](image)

**Figure 8.9 Aserewa topography and fresh weathering surfaces in section view**

![Figure 8.9 Aserewa topography and fresh weathering surfaces in section view](image)
Figure 8.10 Boabedroo North topography and fresh weathering surfaces in section view

Figure 8.11 Boabedroo South topography and fresh weathering surfaces in section view
8.3.6 Geological Interpretation

The three dimensional wireframe models of the mineralisation are based on sectional interpretations using logging, mapping and assay data, with a 0.5 g/t Au cut-off, constructed by DataGeo in 2010 to 2013. Snowden reviewed these surfaces and found the interpretations are not always a good representation of the assay data in the drillhole dataset and includes a large percentage of waste material.
Sections of the mineralised envelopes used in the estimates, along with the associated drill holes, are shown in Figure 8.14 to Figure 8.19.

For many of these deposits, there are no reports available the references modelling and domaining procedures.

**Figure 8.14 West-east section of Apan, showing the ore envelope and associated drill hole data**

Apan mineralisation consists of a main mineralised body and a few smaller mineralised zones, mostly to the west of the main body. The mineralisation generally dips steeply to the west. The section interpretations generally tie up well with one another and show continuity of mineralisation.

**Figure 8.15 West-east section of Aserewa, showing the ore envelope and associated drill hole data**
Mineralisation at Aserewa has been defined using a cut-off grade of 0.2 g/t Au, instead of the stated 0.5 g/t Au. The mineralisation envelopes dip steeply to the west. The envelopes include a substantial amount of unmineralised intercepts.

**Figure 8.16 West-east section of Boabedroo North, showing the ore envelope and associated drill hole data**

The following assumptions were made with regards to the modelling of Boabedroo North (DataGeo, 2009a):

- If sub-mineralisation grade was on strike of the main mineralised zone, it was included to assist in continuity;
- When there was no evidence on the next section of mineralisation, the process was terminated halfway to the section; and
- Down dip projection was to a common elevation as supported by the drilling.

The section interpretations generally tie up well with one another and show continuity of mineralisation.
The mineralisation at Boabedroo South mainly dips steeply to the west, with some flat-lying domains. Although the modelled wireframes for the sub-vertical mineralisation show good continuity between sections, some waste has been included in the modelled volumes. A high grade domain was defined within the mineralisation at a cut-off of 3 g/t Au. Most of the high grade intercepts are located above the fresh weathering surface, and continuity of such mineralisation is not robust at depth.

Figure 8.17 West-east section of Boabedroo South, showing the ore envelope and associated drill hole data

Figure 8.18 West-East section of Boabedroo South extension, showing the ore envelope and associated drill hole data
The mineralisation wireframes at Boabedroo South extension comprise a number of envelopes with a gentler dip to the west, with some that are sub-horizontal. These envelopes do not capture the mineralisation well and some of the defined envelopes are based on single intercepts extending for 40 m.

**Figure 8.19 West-east section of Obenemase D, showing the ore envelope and associated drill hole data**

Mineralisation at Obenemase D was modelled into two main domains, namely the flat-lying and vertical domains. The sub-vertical mineralisation generally dips steeply to the west, with a zone dipping at a shallower angle to the east. Some mineralisation envelopes were based on single section intercepts, especially in the horizontal domains. The mineralisation therefore seems patchy.

### 8.3.7 Data Analysis and Geostatistics

Before undertaking any estimate, the data needs to be analysed first, in order to understand how the estimate should be approached. No detail on data analysis or geostatistics is available for Boabedroo North, Boabedroo South Extension or Obenemase D.

Normal Probability plots for four zones of Apan (Geobase, 2009b), which had a significant number of samples and a relatively high coefficient of variation, are shown in Figure 8.20 to Figure 8.23 below.
Figure 8.20 Normal probability plot for zone Apan02 (Geobase, 2009b)

The result in the above figure shows very little change in the slope of the graph above 0.1 g/t Au. Statistically there does not appear to be mixed grade populations.

Figure 8.21 Normal probability plot for zone Apan15 (Geobase, 2009b)

Figure 8.21 shows a change in the slope of the graph above 6 g/t Au. This could indicate a different grade population above this level. An inspection of the composite data revealed one very high grade result (114 g/t Au), with the remainder below 6.45 g/t Au. This single high-grade sample is distorting the results and should be top-cut to a value more in line with the remaining data.
Figure 8.22 Normal probability plot for zone Apan18 (Geobase, 2009b)

Figure 8.22 shows a change in the slope of the graph between 3 g/t Au and 7 g/t Au, thus potentially a different grade population above this level. An inspection of the composite data revealed 1 very high grade result (62.7 g/t Au) with the remainder below 7.2 g/t Au. This single high-grade sample is distorting the results and should be top-cut to a value more in line with the remaining data.

Figure 8.23 Normal probability plot for zone apan_sth01 (Geobase, 2009b)

There is a change in the slope of the graph in Figure 8.23 between 2 g/t Au and 6 g/t Au, potentially indicating a different grade population above this level. An inspection of the composite data revealed 1 higher grade result (33.8 g/t Au) with the remainder below 7.35 g/t Au. This single higher grade sample is distorting the results and should be top-cut to a value more in line with the remaining data.
The largest zone of Aserewa (zone01) was reviewed to determine the sample length of the samples included. The result was an average sample length of 1.07 m (Geobase, 2009c). The drillhole dataset was composited to 1 m lengths against the mineralisation solids. The statistics for these 1 m composites used in the Aserewa estimate (Geobase, 2009c) are shown in the table below.

**Table 8.4 Statistics of the Aserewa composites by zone (Geobase, 2009c)**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Number of composites</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average gold grade (g/t Au)</th>
<th>Standard Deviation</th>
<th>Coefficient of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>zone01</td>
<td>3,347</td>
<td>0</td>
<td>48.8</td>
<td>0.77</td>
<td>2.02</td>
<td>2.64</td>
</tr>
<tr>
<td>zone02</td>
<td>8</td>
<td>0.20</td>
<td>3.30</td>
<td>1.75</td>
<td>1.55</td>
<td>0.89</td>
</tr>
<tr>
<td>zone03</td>
<td>8</td>
<td>0.01</td>
<td>1.37</td>
<td>0.45</td>
<td>0.45</td>
<td>0.98</td>
</tr>
<tr>
<td>zone04</td>
<td>7</td>
<td>0</td>
<td>3.60</td>
<td>1.07</td>
<td>1.23</td>
<td>1.15</td>
</tr>
<tr>
<td>zone05</td>
<td>7</td>
<td>0.17</td>
<td>348.50</td>
<td>73.88</td>
<td>125.08</td>
<td>1.69</td>
</tr>
<tr>
<td>zone06</td>
<td>16</td>
<td>0.01</td>
<td>3.50</td>
<td>0.85</td>
<td>1.09</td>
<td>1.29</td>
</tr>
<tr>
<td>zone07</td>
<td>4</td>
<td>0.40</td>
<td>4.60</td>
<td>2.38</td>
<td>1.81</td>
<td>0.76</td>
</tr>
<tr>
<td>zone08</td>
<td>2</td>
<td>0.70</td>
<td>6.30</td>
<td>3.50</td>
<td>2.80</td>
<td>0.80</td>
</tr>
<tr>
<td>zone09</td>
<td>40</td>
<td>0.01</td>
<td>2.30</td>
<td>0.33</td>
<td>0.49</td>
<td>1.47</td>
</tr>
<tr>
<td>zone10</td>
<td>4</td>
<td>0.01</td>
<td>7.10</td>
<td>2.53</td>
<td>2.76</td>
<td>1.09</td>
</tr>
<tr>
<td>zone11</td>
<td>7</td>
<td>0.50</td>
<td>2.90</td>
<td>1.14</td>
<td>0.73</td>
<td>0.64</td>
</tr>
<tr>
<td>zone12</td>
<td>2</td>
<td>0.30</td>
<td>4.50</td>
<td>2.40</td>
<td>2.10</td>
<td>0.88</td>
</tr>
<tr>
<td>zone13</td>
<td>3</td>
<td>0.01</td>
<td>4.10</td>
<td>1.04</td>
<td>1.65</td>
<td>1.59</td>
</tr>
<tr>
<td>zone14</td>
<td>27</td>
<td>0.01</td>
<td>1.50</td>
<td>0.60</td>
<td>0.46</td>
<td>0.77</td>
</tr>
</tbody>
</table>

The results in Table 8.4 indicate that the largest zone (zone01) contains statistically mixed sample populations. The minor zones are usually statistically normal, but most have too few composites to make a valid assessment. The exceptions to this lack of data are zones 6, 9 and 14, which may have sufficient composites to make meaningful assessments.

The normal probability plot for the gold grade in zone01 of Aserewa (Geobase, 2009c) is shown in Figure 8.24.
Figure 8.24 Normal probability plot for Aserewa Zone01 (Geobase, 2009c)

The graph shows an inflection point (potentially a distribution change) at 0.2 g/t Au – this is potentially influenced by the number of composites grade of 0.01 g/t Au, which is most likely artificial.

Normal probability plots for gold grade in the Main zone and East zone of Baobedroo South (Geobase, 2009d), are shown in Figure 8.25 and Figure 8.26

Figure 8.25 Normal probability plot for Boabedroo South, Main zone (Geobase, 2009d)

The trend in Figure 8.25 indicates an inflection point (potentially a distribution change) between 20 g/t Au and 25 g/t Au.
Figure 8.26 Normal probability plot for Boabedroo South, East zone (Geobase, 2009d)

In Figure 8.26 the trend indicates an inflection point above 3 g/t Au and potentially above 10 g/t Au.

Grade cutting was applied in order to lessen the effect of individual high grade samples in the estimates. In cases where individual samples would unduly influence the values of surrounding model cells, without the support of other high grade samples, a top-cut was applied.

Based on the results in the normal probability plots for Apan, top-cutting results were investigated for zones 15, 18 and sth01 (Table 8.5).

Table 8.5 A summary of the top-cut gold grade limits applied to the composites for Apan (Geobase, 2009b)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Number of composites</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average Au (g/t)</th>
<th>Standard Deviation</th>
<th>Coefficient of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>apan15</td>
<td>21</td>
<td>0.07</td>
<td>30</td>
<td>2.94</td>
<td>6.29</td>
<td>2.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>2.47</td>
<td>4.28</td>
<td>1.74</td>
</tr>
<tr>
<td>apan18</td>
<td>50</td>
<td>0.005</td>
<td>30</td>
<td>1.64</td>
<td>4.24</td>
<td>2.59</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>1.44</td>
<td>2.93</td>
<td>2.04</td>
</tr>
<tr>
<td>apan_sth01</td>
<td>41</td>
<td>0.005</td>
<td>30</td>
<td>2.16</td>
<td>4.67</td>
<td>2.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>1.92</td>
<td>3.26</td>
<td>1.70</td>
</tr>
</tbody>
</table>

The top-cutting at 30 g/t Au and 20 g/t Au does not normalise the statistics. This may indicate that the high-grade is within separate structures, but since they are only represented by one composite this will be impossible to resolve by top-cutting (Geobase, 2009b).

A series of top-cuts were applied to zone01 of Aserewa (Geobase, 2009c) and the results are shown in Table 8.6.
Table 8.6 A summary of the top-cut gold grade limits applied to the composites for Aserewa (Geobase, 2009c)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Number of composites</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average Au (g/t)</th>
<th>Standard Deviation</th>
<th>Coefficient of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>zone01</td>
<td>3347</td>
<td>0</td>
<td>25</td>
<td>0.75</td>
<td>1.78</td>
<td>2.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>0.74</td>
<td>1.68</td>
<td>2.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>0.73</td>
<td>1.55</td>
<td>2.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>0.70</td>
<td>1.34</td>
<td>1.91</td>
</tr>
</tbody>
</table>

The results in Table 8.6 indicate that even severe top cutting will not normalised the population as a whole. This indicates that there is most likely a physical zonation within zone01, perhaps structurally controlled higher grade shoots, with an overall lower grade background (Geobase, 2009c).

A series of top-cuts were applied to the zones in Boabedroo South and the results are shown in Table 8.7.

Table 8.7 A summary of the top-cut gold grade limits applied to the composites for Boabedroo South (Geobase, 2009d)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Number of composites</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average Au (g/t)</th>
<th>Standard Deviation</th>
<th>Coefficient of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>east</td>
<td>58</td>
<td>0.03</td>
<td>25</td>
<td>1.77</td>
<td>3.45</td>
<td>1.95</td>
</tr>
<tr>
<td>main</td>
<td>322</td>
<td>0</td>
<td>25</td>
<td>2.34</td>
<td>3.62</td>
<td>1.55</td>
</tr>
<tr>
<td>east</td>
<td>58</td>
<td>0.03</td>
<td>20</td>
<td>1.68</td>
<td>2.88</td>
<td>1.72</td>
</tr>
<tr>
<td>main</td>
<td>322</td>
<td>0</td>
<td>20</td>
<td>2.27</td>
<td>3.26</td>
<td>1.43</td>
</tr>
<tr>
<td>east</td>
<td>58</td>
<td>0.03</td>
<td>10</td>
<td>1.51</td>
<td>1.92</td>
<td>1.27</td>
</tr>
<tr>
<td>main</td>
<td>322</td>
<td>0</td>
<td>10</td>
<td>2.09</td>
<td>2.48</td>
<td>1.19</td>
</tr>
</tbody>
</table>

8.3.8 Variography

Experimental variograms were generated for Aserewa and Boabedroo South (Geobase, 2009c and 2009d). These were used to determine the optimum search ranges for the estimations. Even though there are variograms available for these two deposits, the estimations done were by Inverse Power of Distance (ID$^2$), and not kriging. There is no variography information available for Apan, Boabedroo North, Boabedroo South Extension or Obenemase D.

The largest zone (zone01) was reviewed for Aserewa, using semi-variograms to determine any measurable grade continuity. The following parameters were applied to the construction of the models (Geobase, 2009c):

- Lag 5 m
- Maximum range 250 m
- Tolerance at ±5° on 10° search increments in the horizontal and vertical planes
- Simple spherical model applied
- Downhole variography at 1 m intervals was conducted for nugget estimation
Geobase (2009c) found that the best continuity was along strike, with a range in this direction of approximately 75 m to 80 m. There is also a structure plunging steeply to the north, with a range of less than 50 m. The downhole variation indicated a nugget of approximately 36% of the total variance of the population.

The inability to normalise the population and the apparent appearance of two structures within the variography (the along strike, parallel to the mineralisation zone, is potentially an artefact of the zone modelling) would tend to imply that a grade estimation technique which allows for changes in orientation with grade may be required (that is if the variogram structures are grade related) (Geobase, 2009c).

The largest sub-zone (main01) of Boabedroo South was reviewed using variography to determine any measurable grade continuity (Geobase, 2009d). The spacing between the data points meant that very little structure could be seen in any results. The downhole variation within sub-zone main01 indicated a nugget of approximately 28% of the total variance of the population.

Given the spacing of the data along strike and the small numbers of samples within some sub-zones, it was decided by Geobase (2009d) to use Inverse Distance weighting to the power of two (given the apparent relatively low nugget) for the larger zones (main01 to 04 inclusive) and east03 and east05. The other sub-zones would have the average grade of the input composites applied to the sub-zone. Grade was estimated both uncut and top cut for sub-zones main01, main04 and east05 with the top-cut value set to 25 g/t Au and 20 g/t Au respectively (Geobase, 2009d).

A summary table of block sizes and discretisation used in the estimations are shown in Table 8.8.

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Block Sizes (m)</th>
<th>Discretisation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>Apan</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Aserewa</td>
<td>2.5</td>
<td>10</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>2.5</td>
<td>25</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>2.5</td>
<td>10</td>
</tr>
</tbody>
</table>

A summary of the search ranges for the selected Konongo resources are shown in Table 8.9.

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Primary search dimensions (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strike</td>
</tr>
<tr>
<td>Apan</td>
<td>30</td>
</tr>
<tr>
<td>Aserewa</td>
<td>30</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>30</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>30</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>30</td>
</tr>
<tr>
<td>Obenemase D (vertical)</td>
<td>30</td>
</tr>
<tr>
<td>Obenemase D (flat)</td>
<td>50</td>
</tr>
</tbody>
</table>

A summary table of number of composites used in the estimations are shown in Table 8.10.
Table 8.10  A summary of the gold grade composite numbers for the Konongo resources

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Minimum number of composites</th>
<th>Maximum number of composites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apan</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Aserewa</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

8.3.9  Estimation

Mineral Resource estimates have been undertaken using various parameters for the deposits and prospects found on the Konongo Mine Lease area.

If all blocks were not estimated with the primary search, a secondary search was carried with all parameters the same as for the primary search except that search distances were doubled in each direction. If necessary a tertiary search was carried out with double the secondary search distances to inform any remaining blocks (DataGeo, 2010a). Although variograms were modelled for some of the resources, inverse distance squared was used for all the resource estimations.

A summary of the parameters used in preparing the resource estimates is provided in Table 8.11.

Table 8.11  Estimation methodologies for the Konongo resources

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Estimation method</th>
<th>Capping applied</th>
<th>Minimum number of composites</th>
<th>Maximum number of composites</th>
<th>Primary search dimensions: Strike x Dip x Across dip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apan</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Aserewa</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>ID²</td>
<td>Not mentioned in report</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 15 m x 5 m</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>ID²</td>
<td>Yes</td>
<td>3</td>
<td>20</td>
<td>30 m x 20 m x 5 m (vertical); 50 m x 10 m 20 m (flat)</td>
</tr>
</tbody>
</table>

The parameters used for the model prototypes are summarised in Table 8.12.

Table 8.12 Model prototype parameters

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apan</td>
<td>XMORIG</td>
<td>49545.234</td>
</tr>
<tr>
<td></td>
<td>YMORIG</td>
<td>51545.907</td>
</tr>
<tr>
<td></td>
<td>ZMORIG</td>
<td>15.413</td>
</tr>
<tr>
<td></td>
<td>NX</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>NY</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>NZ</td>
<td>10</td>
</tr>
</tbody>
</table>
8.3.10 Validation

In order to validate the estimated blocks in the resource models, the models were compared against the composite input drillhole data. A number of techniques were used for the validations. These included visual validation of block grades to input composite drill hole sample data, global comparisons between average block model grade and average declustered composite sample grade, and slicing plots through the deposit in northing, easting and elevation, comparing average block model grades with average declustered composite sample grades for each slice.

Section slices were inspected to see if the sample grades and model grades are comparable, to assess whether the estimation used local data in order to assign a grade. Figure 8.27 to Figure 8.32 show examples of sectional slices with the block models and composite samples coloured on gold grade.

### Annual QPR for Selected Deposits, Konongo Gold Project for the Year Ended 31 March 2014

**LionGold Corporation Ltd**

<table>
<thead>
<tr>
<th>Deposit</th>
<th>XMORIG</th>
<th>YMORIG</th>
<th>ZMORIG</th>
<th>NX</th>
<th>NY</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aserewa</td>
<td>49800</td>
<td>50050</td>
<td>70</td>
<td>856</td>
<td>283</td>
<td>84</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>49520</td>
<td>51230</td>
<td>0</td>
<td>180</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>49520</td>
<td>50915</td>
<td>0</td>
<td>180</td>
<td>62</td>
<td>100</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>49500</td>
<td>50000</td>
<td>0</td>
<td>160</td>
<td>36</td>
<td>100</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>9650</td>
<td>9190</td>
<td>0</td>
<td>142</td>
<td>120</td>
<td>148</td>
</tr>
</tbody>
</table>
Figure 8.27 Visual validation of gold grade in the Apan deposit

Figure 8.28 Visual validation of gold grade in the Aserewa deposit
Figure 8.29 Visual validation of gold grade in the Boabedroo North deposit

Figure 8.30 Visual validation of gold grade in the Boabedroo South deposit
Figure 8.31 Visual validation of gold grade in the Boabedroo South Extension deposit

Figure 8.32 Visual validation of gold grade in the Obenemase D deposit
The global mean grade comparison between the ore models and the declustered composite sample data from which the blocks were estimated are shown in Table 8.13.

**Table 8.13 Global mean gold grade comparison for the selected deposits**

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Declustered Composite Mean</th>
<th>Model Mean</th>
<th>Difference to Composite Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apan</td>
<td>0.39</td>
<td>0.37</td>
<td>-5.1%</td>
</tr>
<tr>
<td>Aserewa</td>
<td>0.90</td>
<td>0.64</td>
<td>-28.9%</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>2.83</td>
<td>3.37</td>
<td>+19.1%</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>3.24</td>
<td>1.80</td>
<td>-44.4%</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>3.05</td>
<td>2.44</td>
<td>-20.0%</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>1.50</td>
<td>1.59</td>
<td>+6.0%</td>
</tr>
</tbody>
</table>

The assumption of stationarity is a statistical concept where data that has been pooled within a given area or domain is geologically homogenous with the same statistical properties, i.e. the mean and variance of values do not depend on location.

As part of the validation process, the block models and input samples that fall within defined sectional criteria were compared and the results displayed graphically to check for visual discrepancies between grades. The validation plots comparing declustered sample grades to model grades are presented in Figure 8.33 to Figure 8.38.

Model estimates that show a close relationship to the composite grades include Obenemase D, Apan and Aserewa. The Boabedroo North Resource model shows overestimation, while the Boabedroo South model shows underestimation. Boabedroo South Extension estimates appear smooth; this could be improved if more data is available for estimation.
Figure 8.33 Validation plots for the compositing, declustered input gold grade drillhole data vs. kriged model data for Apan

The Apan estimates show underestimation and smoothing when compared to the drillhole data in the northing and easting validation slices.
The swath plots for Aserewa do not include the high grade domains, because these are classified at an Inferred level of confidence. The estimates show acceptable correlation to the drill holes used in the estimation in all directions.
Figure 8.35 Validation plots for the composit ed, declustered input gold grade drillhole data vs. kriged model data for Boabedroo North

The Boabedroo North resource model shows overestimation in grade with depth when compared to the drillhole data.
Figure 8.36 Validation plots for the compositied, declustered input gold grade drillhole data vs. kriged model data for Boabedroo South

The swath plots for Boabedroo South were prepared with the inclusion of the high grade domain, because this domain was classified at the Indicated level of confidence. The estimates show smoothing and lower grade than the composite grade.
Figure 8.37 Validation plots for the composited, declustered input gold grade drillhole data vs. kriged model data for Boabedroo South Extension

The Boabedroo South Extension estimates are smooth compared to the composite grade in the easting and with depth). The available drilling information in the North-South direction is widely spaced.
Figure 8.38 Validation plots for the compositied, declustered input gold grade drillhole data vs. kriged model data for Obenemase D

The Obenemase D estimates compare well with the input data in the northing direction; however, the estimates are showing overestimation in the easting and between depths of 115 m to 195 m.
8.3.11 Classification

Snowden has reviewed the resource estimates for selected deposits that have been undertaken for the Konongo project. The classification methodology employed by DataGeo to determine the geological and grade confidence, was the utilised search distances, as well as the number of composites used in the estimation. This strict application of this methodology resulted in a ‘spotted dog’ effect as can be seen for the Aserewa and Obenemase D models. This method alone is not considered appropriate because it does not reflect confidence in the geology, continuity of the mineralisation, estimation approach or data quality (e.g. sampling and assaying quality).

There are no reports available that refer to the parameters used to classify the Apan resource model.

Sections of the classification used in the resource estimations, along with the associated drill holes, are shown in Figure 8.39 to Figure 8.44.

In Snowden’s opinion the resource classification methodology needs to be revised to incorporate additional issues. All the reviewed resources should be classified as Inferred Mineral Resource. The uncertainties and associated risks identified in this review (lack of QAQC and other factors) limits higher confidence on these estimates.

**Figure 8.39 West-east section of the Apan Resource model (2013), colour-coded according to resource classification**
Figure 8.40 West-east section of the Aserewa resource model (2010), colour-coded according to resource classification

Figure 8.41 West-east section of the Boabedroo North resource model (2010), colour-coded according to resource classification
Figure 8.42 West-east section of the Boabedroo South resource model (2010), colour-coded according to resource classification

Figure 8.43 West-east section of the Boabedroo South Extension resource model (2010), colour-coded according to resource classification
Figure 8.44 West-east section of the Obenemase D resource model (2011), colour-coded according to resource classification

Reporting in accordance with The JORC Code (2012) requires the CP to state that the Mineral Resources have “reasonable prospects for eventual economic extraction”. Mineral Resources which are not Ore Reserves have not demonstrated economic viability. No Ore Reserves are defined at the selected deposits and no economic studies have been completed as of 31st March 2014. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. It is uncertain if further exploration will result in upgrading the Mineral Resources to higher categories or Ore Reserves. The CPs believe that the selected deposits have “reasonable prospects for eventual economic extraction” via open pit methods. The resources are reported to appropriate nominal cut-off grades, based on the CPs experience of other open pit operations in Central and West Africa.

The CPs believe the accuracy of the grade and tonnage estimate for Inferred Mineral Resources to be within ±40-80% globally. This is based on general experience of this style of mineralisation (Dominy and Edgar, 2012), however also factors in key issues of historical data (e.g. sampling, assay and QAQC), geological model and estimation methodology.

8.3.12 Reported Mineral Resources

Snowden has reviewed the Mineral Resources for the Konongo projects and are of the opinion that all resources should be classified as Inferred Mineral Resources. Classification should reflect confidence, continuity and risk in the estimate based on the validity and quality of the data used in the modelling and estimation, understanding of the geology underpinning the resource and drillhole spacing. QA/QC procedures and results should be at industry standard. This was not true for any of the resources.

The Mineral Resource is reported below the recorded extents of open cut mining at a 1.0 g/t Au cut-off for fresh rock material and a 0.5 g/t Au cut-off for oxide and transition material.

Table 8.14 presents Mineral Resource numbers produced by Snowden compared to numbers currently reported for the different Resources. The numbers reported by Snowden are for blocks that lie below the topography and pit shells.
### Table 8.14  Snowden resource numbers vs. reported resources

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Class</th>
<th>Snowden reported Resource numbers</th>
<th>Numbers currently reported for Resources</th>
<th>Difference between Resource numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tonnes*</td>
<td>Average grade (g/t)</td>
<td>Ounces*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(t)</td>
<td></td>
<td>(t)</td>
</tr>
<tr>
<td>Apan</td>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Inferrred</td>
<td>731,000</td>
<td>2.3</td>
<td>55,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>731,000</td>
<td>2.3</td>
<td>55,000</td>
</tr>
<tr>
<td>Aserewa</td>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Inferrred</td>
<td>409,000</td>
<td>3.3</td>
<td>43,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>409,000</td>
<td>3.3</td>
<td>43,000</td>
</tr>
<tr>
<td>Boabedroo North</td>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Inferrred</td>
<td>285,000</td>
<td>3.6</td>
<td>33,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>285,000</td>
<td>3.6</td>
<td>33,000</td>
</tr>
<tr>
<td>Boabedroo South</td>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Inferrred</td>
<td>447,000</td>
<td>2.2</td>
<td>32,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>447,000</td>
<td>2.2</td>
<td>32,000</td>
</tr>
<tr>
<td>Boabedroo South Extension</td>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Inferrred</td>
<td>1,841,000</td>
<td>3.0</td>
<td>178,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,841,000</td>
<td>3.0</td>
<td>178,000</td>
</tr>
<tr>
<td>Obenemase D</td>
<td>Indicated</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Inferrred</td>
<td>725,000</td>
<td>1.6</td>
<td>37,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>725,000</td>
<td>1.6</td>
<td>37,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>ALL</td>
<td>4,438,000</td>
<td>2.6</td>
</tr>
</tbody>
</table>

*Reported in Signature (2012). All Resources have been depleted by the latest available mining surfaces and underground mining volumes. The north-eastern portion of Obenemase D has been removed, since it overlaps with the Obenemase A and B deposit in that area. Resources are reported at 0.5 g/t Au cut-off for oxide and transitional and 1.0 g/t Au cut-off for sulphide. Note: Mineral Resources which are not Ore Reserves have not demonstrated economic viability. No Ore Reserves are defined at these deposits. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. Tonnage is reported in metric tonnes (t), grade as grammes per tonne gold (g/t Au) and contained gold in troy ounces (oz Au). Tonnages rounded to the nearest 1,000 t. Ounces rounded to the nearest 1,000 oz Au. Figures may not compute exactly due to rounding. In 2009, Signature acquired a 70% interest in the project from African Gold PLC via the acquisition of their 70% ownership of Owere Mines Ltd. In March 2012, LionGold acquired a 78% ownership in Signature. The net attributable to LionGold is thus 54.6%.
8.3.13 Model reconciliation

No new resource models were constructed for the selected deposits. Snowden numbers reported for these resources are based on the latest models available, all built by DataGeo during the period 2010 to 2012.
9 ORE RESERVES

There are currently no Ore Reserves at the selected deposits.
10 MINING

There is currently no mining at the selected deposits.
11 PROCESSING

There is currently no processing at the selected deposits or within the Konongo project. An operational processing plant exists, which is summarised in Section 7.
12 INFRASTRUCTURE

12.1 Mine Infrastructure

The infrastructure at Konongo was refurbished by Signature for commencement of operations in May 2011. The mining activities were suspended in March 2013, and the facility placed on care and maintenance. Mine infrastructure includes:

- A 325,000 t per annum capacity plant. The plant has been refurbished in anticipation of commencement of tailings reprocessing, and is fully operational. The plant is under lease from the State Gold Mining Company.
- A 100,000 litre oxygen plant under contract from Air Liquide.
- A 100 t per hour capacity Parker mobile crusher.
- 8 km of haul roads running the length of the main shear. The haul road is well maintained and functional.
- An existing TSF with 70,000 BCM remaining capacity. A new facility is in advanced planning.
- Supporting infrastructure (leased from the State Gold Mining Company).

Supporting infrastructure on site includes: administration block, staff bungalows, mosque, assay laboratory, security office, welfare office, archives, workshop, power house, compound settlement, football field, primary school, senior staff club house, lawn tennis club and junior staff club house.

12.2 Power

Owere has an existing bulk power supply agreement with the Volta River Authority for electrical power. The 145 Kva transmission lines cross the tenements. Grid Company and the Electricity Company of Ghana (ECG) have 11 Kva substations on the lease, located near the administration block. Transformers provide 440V three-phase power to the site. ECG is currently constructing an 11 Kva dedicated line to service the plant.

12.3 Water

Processing water for the plant is sourced from the Obenemase A pit. Potable water is sourced from the mains water supply or Apan pit. Three water bores have been drilled to augment supply, but are yet to be commissioned.

12.4 Transport

Eight km of haul roads run the length of the tenements. The haul road is well maintained and functional.

12.5 Staffing

There is currently 81 staff employed on the project. This includes five expatriate members. Beyond the security team, the largest department is that of Exploration which employs 22 geologists and samplers.

12.6 Accommodation

The junior staff quarters are located within 500 m of the administration block. It occupies an area of about 1.35 ha and contains 40 units. Each unit has six single rooms (181 rooms in total) with the kitchen, washroom and toilet facilities shared among the residents. The last rows of houses are situated about 25 m from the edge of the Boadedroo North Pit, which is to the north-west. There are 51 additional quarters for nurses, security, and other auxiliary staff. All buildings are in good structural condition.

Senior staff bungalows are located and interspersed around the office area. There are 23 bungalows, some of which are detached and others semi-detached. A unit consists of 2 to 3 bedrooms. Other facilities for the senior staff include a clubhouse, swimming pool, football field and a tennis court. A good road network interlinks these facilities. The boundaries of the office and the residential areas are not fenced because they are spread too far apart. There are three control posts, and the main one leading to the Konongo Township is manned round the clock by security personnel.
13 SOCIAL, ENVIRONMENTAL, HERITAGE AND HEALTH AND SAFETY MANAGEMENT

13.1 Social Management

Owere has a community policy which integrates its business operations and values with the interests of all stakeholders including investors, customers, employees, the community and the environment. The policy aims to continually improve company relationships, based on communication, recognition of culture and heritage. It operates in consultation with host communities, government authorities and other organisations. The company understands its responsibility to identify and facilitate opportunities for employment, training and business relationships directly and through our contractors and suppliers.

13.2 Environmental Management

Company management is committed to policies and responsible operating practices which promote the conservation or enhancement of the natural and social environments in which the company operates. The mine has policies which promote a culture of environmental responsibility, provides resources, personnel and training to develop employees and build competencies related to the environment.

The mine operations work against a rehabilitation plan and endeavour to adhere to the environmental schedule attached to, and condition of, the mining permit.

The company monitors environmental effects of its operations and its compliance with legal requirements and our environmental policies.

13.3 Heritage Management

Prior to the commencement of work at Konongo, Owere conducted a heritage assessment. The information was incorporated into the Corporate Social Responsibility policy, which includes the requirement for Owere to operate sympathetically and responsibly near culturally sensitive areas.

The data is based on a field survey of the archaeological and cultural heritage resources survey within the concession area and the surrounding communities. The field investigation was done over a period of nine days during February 2009. In all, fifteen town/village settlements were surveyed.

The report provided a baseline for assessing the significance of heritage resources and for their sustainable management. It also provides solutions for effective Corporate Social Responsibility and alternatives strategies for community development initiatives in the concession area.

13.4 Health and Safety Management

The company places great emphasis on continually improving the health and safety. The key driver for health and safety management in the company is the aspirational goal of “Zero Harm”, an accident free workplace environment.

Owere has developed an Occupational Health and Safety Management System, a framework that allows the company to consistently identify and control its health and safety risks, reduce the potential for accidents, aid legislative compliance and improve overall performance. The standard is based on OHSAS 18001:2007 to enable easier integration of environmental system into one. Key areas of the OHS management system include:

- risk management and safe work method statements
- occupational health and safety training
- site safety rules
- incident management
- measured performance improvement
14 MARKET STUDIES AND CONTRACTS

The mine is currently not operating. There are no contracts in place to sell gold. Once production re-commences, there is no expectation that the sale of gold will be problematic.
15 FINANCIAL ANALYSIS

The mine is currently not operating, so no financial analysis is appropriate.
16 RISK ASSESSMENT

Snowden has undertaken a risk assessment of risks identified for the Obenemase A and B Mineral Resource estimate. Risks have been assessed on the basis of likelihood of occurrence, and on the consequence of an event occurring. Tables 16.1, 16.2 and 16.3 define the categories used to assess likelihood, consequence, and risk rating.

**Table 16.1 Categories and definitions used to assess likelihood**

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost Certain</td>
<td>Event is expected to occur in most circumstances (easily); more than 1 event every year</td>
</tr>
<tr>
<td>Likely</td>
<td>Event will probably occur in most circumstances (should); about or less than 1 event per year but more than 1 event per 5 years</td>
</tr>
<tr>
<td>Possible</td>
<td>Event might occur at some time (conceivably); less than 1 event per 5 years but more than 1 event per 10 years</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Event could occur at some time (conceivable but rare); about or less than 1 event every 10 years</td>
</tr>
<tr>
<td>Remote</td>
<td>Event might occur only in exceptional circumstances (theoretical) or is unlikely to occur</td>
</tr>
</tbody>
</table>

**Table 16.2 Categories and definitions used to assess consequence. The US$ values given are nominal and should not be taken as definitive**

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe</td>
<td>Very large financial loss (&gt;US$50M) of total assets; death or serious injury to multiple persons; major loss of plant resulting in &gt;6 months loss of production capability; toxic environmental release off-site with serious detrimental effect</td>
</tr>
<tr>
<td>Major</td>
<td>Major financial loss (US$20-50M) of total assets; death or serious injury to multiple persons; extensive loss of plant resulting in 3-6 months loss of production capability; off-site environmental release with detrimental effect or on-site release with detrimental effect</td>
</tr>
<tr>
<td>Moderate</td>
<td>High financial loss (US$10-20M) of total assets; serious injury to multiple persons; moderate loss of plant resulting in 1 week to 3 month loss of production capability; on-site environmental release contained with assistance without causing long-term detrimental effect</td>
</tr>
<tr>
<td>Minor</td>
<td>Medium financial loss (US$1-10M) of total assets; minor injury to one or two persons; minor loss of plant resulting in 1 day to 1 week loss of production capability; on-site environmental release immediately contained without long-term detrimental effect</td>
</tr>
<tr>
<td>Insignificant</td>
<td>Low financial loss (&lt;US$1M) of total assets; no injuries; less than one day loss of production capability; no environmental impact</td>
</tr>
</tbody>
</table>

**Table 16.3 Risk rating**

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Severe</th>
<th>Major</th>
<th>Moderate</th>
<th>Minor</th>
<th>Insignificant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost Certain</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Likely</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Possible</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Unlikely</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Remote</td>
<td>Medium</td>
<td>Medium</td>
<td>Low Risk</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 16.4 shows the resource risk for selected Konongo resources.
Table 16.4: Selected Konongo Mineral Resource risk profile

<table>
<thead>
<tr>
<th>Factor</th>
<th>Risk</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk density</td>
<td>Low</td>
<td>The current oxide, transition and primary-sulphide values are reasonable and based on core measurements. Some local bias may exist where the proportions of host rock versus quartz change and minor effects of sulphides. Variability is unlikely to be greater than ±5%.</td>
</tr>
<tr>
<td>Sample representivity</td>
<td>Low-Medium</td>
<td>In-situ sample representivity is likely to be reasonable given the minimal coarse-gold nature of the mineralisation.</td>
</tr>
<tr>
<td>Sample collection, preparation and assaying</td>
<td>Medium</td>
<td>Sample types used to inform the resource were dominantly diamond drill core. A standard preparation approach was used to support fire assays. Historical protocols not verified.</td>
</tr>
<tr>
<td>QAQC</td>
<td>High-Medium</td>
<td>Recent QAQC indicates reasonable assay quality. Historical programmes show minimal or no QAQC.</td>
</tr>
<tr>
<td>Geological data and model</td>
<td>High</td>
<td>General geological control is reasonable, but on variably spaced drill sections. It is noted that some interpretations do not match grade along drillholes. There is lesser understanding of small-scale local continuity issues which control variability of tonnes and grade. Best resolution of geological continuity and ore zone complexity is only gained after development.</td>
</tr>
<tr>
<td>Grade estimate</td>
<td>High</td>
<td>The grade estimate bears uncertainty due to sampling and data uncertainties. The current estimate generally relies on a global grade for each domain based on relatively wide-spaced data. No local estimate is possible. Estimation block size is variable and is not based on QKNA. The application of cut-off grades is problematic. The ID2 with top-cut grade interpolation approach is sub-optimal. Same search ellipse applied across all deposits.</td>
</tr>
<tr>
<td>Tonnage estimate</td>
<td>High</td>
<td>The current global estimate bears uncertainty due to issues with input data. Block size makes the application of cut-off grades problematic.</td>
</tr>
<tr>
<td>Resource up-rating and addition to resource base</td>
<td>Medium</td>
<td>Resource up-rating will be based on further drilling and/or development. There is scope to increase the total resources through along strike and down-dip potential. Further drilling is required. There are no guarantees that resource upgrade will occur or that additional resources will be found.</td>
</tr>
<tr>
<td>Economic factors/reasonable prospects for economic extraction</td>
<td>High</td>
<td>No Ore Reserves are defined. The project has appropriate infrastructure in place. It is also noted that the historical pits are currently full of water. These will require dewatering and appropriate treatment/discharge in place prior to any mining operation. The CPs consider that the Konongo resources have reasonable prospects for eventual economic extraction as an open pit operation. A scoping study is required to investigate options.</td>
</tr>
<tr>
<td>Metallurgy/mineral processing</td>
<td>Medium-High</td>
<td>The current plant is optimised for oxide ore. Current resources include primary sulphide ore. Previous limited historical test work indicates that the primary-sulphide ore is refractory and requires special treatment. Further test work is required to prove extractability.</td>
</tr>
</tbody>
</table>
The accuracy of the grade and tonnage estimate for the Inferred Mineral Resources is considered to be within ±40-80% globally based on general experience of this style of mineralisation. Additional ‘high’ risk factors (see earlier) increase this global resource risk.

Social, legal, political and environmental risk

These risks are considered to be low, given the relatively stable and developed nature of Ghana. The country has a long history of gold mining. Signature has a mining lease in place and has been operating without issue for a number of years.

Overall rating

The current resource estimate carries “high” risk. Most issues can be ameliorated through additional drilling, test work and economic studies.

The selected resources carry an overall “high” risk. This risk principally relates to geological and grade variability, which should be resolved upon further drilling. Additionally, the historical sampling protocols and QAQC results show a ‘medium’ to medium-high” risk due to lack of documentation and/or acceptable QAQC results. Metallurgical test work is required to lower the current “medium” metallurgical risk pertaining to the refractory nature of the primary-sulphide ore. Most issues can be ameliorated through additional drilling, test work and economic studies. None are considered “fatal” to the project, but lead to the resource classification of Inferred being used for all resources.
17 INTERPRETATION AND CONCLUSIONS

The selected deposits are located within the Konongo licence. This is in close proximity to the village of Konongo (estimated population 40,000), approximately 200 km by road northwest of Accra and approximately 55 km east of the major regional centre of Kumasi, within the Ashanti region of southwest Ghana. The deposits at Konongo contain historical open pit and underground workings. The Konongo gold project comprises two leases totalling 195 km$^2$. The Mining Lease is valid through to 2023. The Prospecting Lease is renewed on a yearly basis, conditional on a 50% statutory reduction. The estimated production between 1903 and 1997 is 1.6 Moz Au. To date, a total of 68,318 m of drilling and 14,448 m of exploration trenching have been completed at the selected deposits.

Two styles of mineralisation are described at the selected deposits, an early disseminated sulphide phase and a later quartz vein phase. Gold mineralisation is associated with arsenopyrite, pyrite, and rare chalcopyrite. Gold occurs free, on fractures in sulphides as well as rimming sulphides. Quartz veins are 0.5 m to 0.8 m wide, and display evidence of repeated shearing and resealing. Laminated quartz is common, often with included wall fragments. Disseminated sulphide mineralisation forms a wide zone around quartz veins and in tuff.

Drilling to date has permitted the estimation for the selected deposits of a total Inferred Mineral Resource containing 378,000 oz Au (see Table 1.1). Based on geological logging, three domains were defined in each of these deposits. These were principally based on weathering, including oxide, transitional and primary types. All domains were estimated using inverse distance squared (ID$^2$) with a top-cut.

Snowden has reviewed the Mineral Resources for the selected Konongo projects and are of the opinion that none of the Resources conform to the requirements of the JORC (2012) reporting guidelines in order to be to be classified at the Indicated level of confidence. Snowden is of the opinion that the current Mineral Resources are at the Inferred level of confidence (Table 1.1).

The resources are deemed by the CPs to have reasonable prospects for eventual economic extraction. The selected deposits have the potential to be open-pit bulk-mineable deposits, though a scoping study is required to review options.

The selected resources carry an overall “high” risk. This risk principally relates to geological and grade variability, which should be resolved upon further drilling. Additionally, the historical sampling protocols and QAQC results show a ‘medium’ to medium-high” risk due to lack of documentation and/or acceptable QAQC results. Metallurgical test work is required to lower the current “medium” metallurgical risk pertaining to the refractory nature of the primary-sulphide ore. Most issues can be ameliorated through additional drilling, test work and economic studies. None are considered “fatal” to the project, but lead to the resource classification of Inferred being used for all resources.
18 RECOMMENDATIONS

Key recommendations for the selected deposits are:

- Review the data and re-estimate all resources.
- Based on review, plan and undertake additional drilling on some or all of the deposits, with the aim of:
  - Verifying geology and grade
  - Uprating the current Inferred resources
  - Extending the current resources
  - Collecting both geotechnical and metallurgical data (see below)
- Undertake a scoping study to review production options.
- To support the scoping study, an extensive metallurgical sampling and test work programme is suggested to review process options for the refractory primary-sulphide ore.
- Given QAQC issues with historical data, Signature should where possible re-assay remaining core or pulps as a verification process.
- On-going geological studies are recommended to further refine the geological models for mineralization and resource classification, and in particular to assist in targeting additional ore shoots.
19 REFERENCES


I, Dr Simon C Dominy, do hereby consent to the public reporting of the Mineral Resources for selected deposits at Konongo and release of the Qualified Persons Report entitled “Annual QPR for Selected Deposits, Konongo Gold Project for the Year Ended 31 March 2014”. I have given and have not withdrawn prior to lodgement, my written consent to be named in any Announcement as a person responsible for this Mineral Resources statement and to the inclusion of this statement in the form and context in which it appears.

I certify that I have read the Qualified Persons Report and that it fairly and accurately represents the work for which I am responsible.

Based on the requirements of the Singapore Exchange Practice Note #6.3, I am a Qualified Person. I am also a Competent Person as defined by the JORC Code (2012), having five years of experience that is relevant to the style of mineralisation and type of deposit described in the report, and to the activity for which I am accepting responsibility.

Dated: 22nd May 2014

Simon C Dominy.

Dr Simon C Dominy
FAusIMM(CP), FAIG(RPGeo), FGS(CGeol)

I, Dr Belinda Van Lente, do hereby consent to the public reporting of the Mineral Resources for selected deposits at Konongo and release of the Qualified Persons Report entitled “Annual QPR for Selected Deposits, Konongo Gold Project for the Year Ended 31 March 2014”. I have given and have not withdrawn prior to lodgement, my written consent to be named in any Announcement as a person responsible for this Mineral Resources statement and to the inclusion of this statement in the form and context in which it appears.

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Dated: 22nd May 2014

Belinda Van Lente.

Dr Belinda Van Lente
Pr. Sci. Nat.
21 GLOSSARY OF TERMS

Alteration
A change in mineralogical composition of a rock commonly brought about by reactions with hydrothermal solutions or by pressure changes.

Au
The chemical element gold.

Breccia
A rock mass composed of large, angular fragments of pre-existing rocks.

Chalcopyrite
The mineral copper iron sulphide.

Cleavage
A regular parting in rock formed as a result of compression. Typically seen in slate.

Development
Underground activity to access an orebody (vein) for evaluation and mining.

Diamond (core) drilling
Method of obtaining a cylindrical core of rock by drilling with a diamond impregnated bit. Produces a high quality sample.

Dip/dipping
Angle and direction of steepest slope on a planar surface.

Fault
A fracture plane in rocks showing significant movement between the two sides.

Galena
The mineral lead sulphide.

Grade
The relative quantity or percentage of mineral content. Gold grade is commonly expressed in the terms: g/t - grammes per tonne, ppb – parts per billion, ppm – parts per million.

Group
A major sequence of sedimentary rocks forming a distinctive unit by virtue of rocks and/or fossils present.

g/t
Grammes per tonne, used to express concentration of rare metals in rock. 1 g/t is equivalent to 1 ppm and 1,000 ppb.

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

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

**JORC / the JORC Code**


**Ma**

Millions of years

**Measured Mineral Resource**

A ‘Measured Mineral Resource’ is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaces closely enough to confirm geological and grade continuity.

**Metamorphism**

The process of recrystallisation of rock as result of increased temperature and pressure

**Micron (µm)**

A measurement of distance – 1,000 µm is equivalent to 1 mm. A µm is 1 x 10^-6 of a m

**Mineral Resource**

A technical term which is controlled in its use by the 2012 JORC Code. A ‘Mineral Resource’ is a concentration or occurrence of material of intrinsic economic interest in or on the Earth’s crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are subdivided, in order of increasing confidence, into Inferred, Indicated and Measured categories. The words ‘ore’ and ‘reserves’ must not be used in describing Mineral Resources as the terms imply technical feasibility and economic viability and are only appropriate when all relevant Modifying factors have been considered.

**Nugget effect**

A term that describes grade variability for samples at small distances apart (less than a few cm). A low nugget effect (<20%) indicates minimal grade variation, whereas a high nugget effect (>70%) indicates that grade is highly variable and potentially relatively unpredictable. Pure nugget effect (100%) indicates an almost random grade distribution.

**Ore Reserve**

A technical term which is controlled in its use by the 2012 JORC Code. An ‘Ore Reserve’ is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could be reasonably justified. Ore Reserves are sub-divided in order of increasing confidence into Probable...
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore shoot / shoot</td>
<td>A high grade zone within a mineral vein</td>
</tr>
<tr>
<td>Pyrite</td>
<td>The mineral iron disulphide</td>
</tr>
<tr>
<td>QAQC (for sampling and assaying)</td>
<td>There are two components to a QAQC system – quality assurance and quality control. Quality assurance (QA) refers to the protocols and procedures, which ensure that sampling and assaying is completed to the required quality. Quality control (QC), however, is the use of control samples and statistical analysis to ensure that the assay results are reliable.</td>
</tr>
<tr>
<td>Quartz</td>
<td>The mineral silicon dioxide</td>
</tr>
<tr>
<td>Strike</td>
<td>Trend of an horizontal line on any geological plane</td>
</tr>
<tr>
<td>Strike slip</td>
<td>Movement parallel to the strike of a fault plane</td>
</tr>
<tr>
<td>Sulphides</td>
<td>Minerals composed of metals combined with sulphur</td>
</tr>
<tr>
<td>Variogram</td>
<td>A graphic representation of spatial correlation between samples in a given orebody. The variogram allows the calculation of the nugget effect and the sphere of influence of samples (the range)</td>
</tr>
<tr>
<td>Vein</td>
<td>A relative thin (millimetres to 10 m scale) sheet of quartz or other minerals cutting across pre-existing rocks</td>
</tr>
</tbody>
</table>
Appendix A
Checklist of assessment and reporting criteria, based on Table 1 of the 2012 JORC Code
Section 1 Sampling techniques and data
(Criteria in this section apply to all succeeding sections)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>JORC Code explanation</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling techniques</td>
<td>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. Measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Whether sample sizes are appropriate to the grain size of the material being sampled.</td>
<td>Standard Operating Procedures (SOP) and manuals for sampling techniques are available on site, which include procedures for ensuring samples are representative. There are no SOP’s available for historical samples. Diamond core (DD), Reverse circulation (RC), Percussion drill (PERC) and Trench (TR) samples are collected according to international best practice. The average sample lengths are 1.0 m for all sampling methods.</td>
</tr>
<tr>
<td>Drilling techniques</td>
<td>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</td>
<td>DD (NQ, NQ2 and HQ for surface holes), RC (5.5 inch diameter holes) and PERC drilling; Trench sampling (trench dug by excavator or hand to bedrock; bedrock sampled into a PVC pipe). DD core is oriented.</td>
</tr>
<tr>
<td>Drill sample recovery</td>
<td>Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</td>
<td>Owere Mines measure drill sample recovery and record it in the database. Visual inspection of drilled core suggests good recovery.</td>
</tr>
<tr>
<td>Logging</td>
<td>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costeaus, channel, etc) photography. The total length and percentage of the relevant intersections logged.</td>
<td>Logging was undertaken by the various historical operators. Not all records exist. Geological logging only.</td>
</tr>
<tr>
<td>Sub-sampling techniques and sample preparation</td>
<td>If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled.</td>
<td>Sampling was undertaken at every 1 m interval. DD was half cored. RC, PERC and TR samples were split using a riffle splitter to collect a 4-5kg sample that would be send for analysis. Samples were collected in sampling bags which were labelled on site. Orientation line to prevent preferential sampling of core is described in the SOP. For historical samples minimal documentation of procedures, other than half core sampling was undertaken.</td>
</tr>
<tr>
<td>Quality of assay data and</td>
<td>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</td>
<td>Owere Mines sent all samples to ALS laboratories for preparation and analysis. Blanks, CRMs and field duplicates were inserted in the sample stream on site.</td>
</tr>
</tbody>
</table>
## Criteria | JORC Code explanation | Commentary
--- | --- | ---
Laboratory tests | For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. | For historical samples minimal documentation of procedures. Assays via 50 g fire assay.
Verification of sampling and assaying | The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data. | None recorded. Previous production confirms gold mineralisation.
Location of data points | Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control. | The surface topography was obtained from satellite data by Owere Mines in December 2012. The profile and the collar positions agree with one another. It is noted that the satellite DTM show the recent water table in the pit and does not reflect the deepest mining level. All possible historic collars were found and collars were re-surveyed. Owere Mines surveyed all new drilling down hole. The survey methodology and reporting is discussed the SOP.
Data spacing and distribution | Data spacing for reporting of Exploration Results. Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied. | DD and RC holes used in the estimation were drilled on a >100 m to 20 m grid, with a range of 1,100 m along strike and 350 m across strike. Most samples were collected on a 1 m interval and the dataset was thus composited to 1 m.
Orientation of data in relation to geological structure | Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. | All holes were drilled to intersect the orebody, bearing west to east, and east to west, at an average down dip of 60°.
Sample security | The measures taken to ensure sample security. | Chain of custody is not reported, but it has been observed that well-sealed sample bags leave the site to the preparation lab and sample tampering is unlikely. Chain of custody not verified for historical data. The CPs have no reason to consider any material issues.
Audits or reviews | The results of any audits or reviews of sampling techniques and data. | RSC conducted a full database review and audit, including a review of QAQC, during 2013. Snowden reviewed the QAQC and database as well.
### Section 2 Reporting of exploration results

(Criteria listed in the preceding section also apply to this section)

<table>
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<tr>
<th>Criteria</th>
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<tbody>
<tr>
<td>Mineral tenure and land tenure status</td>
<td>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</td>
<td>The current Mining Lease ML 749/03 was issued to Owere Mines on 25th June 2010 for a period of 13 years. The Kurofa Prospecting licence PL 6/296, covering 67 km², was issued to Owere Mines in August 2005, and was renewed in February 2010 for a period of 2 years.</td>
</tr>
<tr>
<td>Exploration done by other parties</td>
<td>Acknowledgment and appraisal of exploration by other parties.</td>
<td>Slate Gold Mining Corporation of Ghana (SGMC) carried out orientation geochemical surveys at Konongo in the 1970’s, as well as drilling a series of 15 DD holes under the Obenemase A Lode and a series of 128 short RC holes. Southern Cross Mining Limited (SCM) commenced exploration on the concession in 1987, drilling RC holes on section lines 40 m apart to a depth of 50 m. A total of 87 DD holes, 811 RC holes and 221 production &amp; exploration trenches are included in the database. Obenemase Gold Mines Limited (OGM) carried out drilling between 1994 and 1998 with a total of 216 DD holes, 1,132 RC holes, 111 RAB holes and 578 grade control trenches to support the open pit mining. Owere Mines Limited (OML) drilled a series of deeper DD holes between 2004 and 2005 for a total of 65 holes. Signature Metals Limited (Signature) (before investment by LionGold in 2011) drilled another 13 diamond holes and 58 RC holes between 2008 and 2011.</td>
</tr>
<tr>
<td>Geology</td>
<td>Deposit type, geological setting and style of mineralisation.</td>
<td>Konongo has two styles of mineralisation, an early disseminated sulphide phase and a later quartz vein phase. Host rocks consist primarily of tufts with basaltic and andesitic lithologies often present adjacent to the mineralised zones. The area is structurally complex with overturned isoclinal folding along the regional NE trend resulting in dips towards the NW. The Konongo deposits are regarded as a classic example of an orogenic mesothermal gold deposit.</td>
</tr>
<tr>
<td>Drill hole Information</td>
<td>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</td>
<td>All drill holes used across the six deposits reported. See Figures included in body of QPR.</td>
</tr>
<tr>
<td>Data aggregation methods</td>
<td>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.</td>
<td>All samples were collected at 1 m intervals and no aggregation of samples was undertaken.</td>
</tr>
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### Relationship

These relationships are particularly important in the reporting of Exploration Results.
### Criteria

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<tr>
<td>between mineralisation widths and intercept lengths</td>
<td>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg ‘down hole length, true width not known’).</td>
<td></td>
</tr>
<tr>
<td>Diagrams</td>
<td>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</td>
<td>A 3D view of drillhole locations is included in the report.</td>
</tr>
<tr>
<td>Balanced reporting</td>
<td>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</td>
<td>Statistical assessment of grade distribution of the samples is included in the report.</td>
</tr>
<tr>
<td>Other substantive exploration data</td>
<td>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</td>
<td>A default specific gravity (SG) of 1.9 g/cm³ was applied to oxide ore, and 1.7 g/cm³ to oxide waste. SG measurements were undertaken by Owere Mines for the transitional and sulphide core samples. These values were estimated into the model. The results averaged 2.80 g/cm³.</td>
</tr>
<tr>
<td>Further work</td>
<td>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</td>
<td>• Review the data and re-estimate all resources. • Based on review, plan and undertake additional drilling on some or all of the deposits, with the aim of: o Verifying geology and grade o Upgrading the current Inferred resources o Extending the current resources o Collecting both geotechnical and metallurgical data (see below) • Undertake a scoping study to review production options. • To support the scoping study, an extensive metallurgical sampling and test work programme is suggested to review process options for the refractory primary-sulphide ore. • Given QAQC issues with historical data, Signature should where possible re-assay remaining core or pulps as a verification process. • On-going geological studies are recommended to further refine the geological models for mineralization and resource classification, and in particular to assist in targeting additional ore shoots.</td>
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Appendix A - 5
### Section 3 Estimation and reporting of Mineral Resources

(Criteria listed in Section 1, and where relevant in Section 2, also apply to this section)

<table>
<thead>
<tr>
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<tr>
<td><strong>Database integrity</strong></td>
<td>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data validation procedures used.</td>
<td>Geological and sampling information is stored in Datashed. RSC audited and reviewed the database in 2013 and made corrections and recommendations to Owere Mines. These issues were addressed in the database and the data received by Snowden from Owere Mines for the Resource estimation did not show any significant discrepancies.</td>
</tr>
<tr>
<td><strong>Site visits</strong></td>
<td>Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case.</td>
<td>The site visit was undertaken by Dr Belinda van Lente (Senior Consultant at Snowden) between 23rd February and 1st March 2014. The open pit workings were visited, where the geology was reviewed and drilling procedures and sampling witnessed. Furthermore, the sample storage facility where the remainder core and samples are being kept was also assessed. Logging procedures, SG measurements and core orientation was observed. The database and storage was also discussed on-site. Dr Simon Dominy, the Resource CP, did not visit the site. He supervised Dr van Lente.</td>
</tr>
<tr>
<td><strong>Geological interpretation</strong></td>
<td>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.</td>
<td>The surface topography was obtained from satellite data by Owere Mines in December 2012. The profile and the collar positions agree with one another. It is noted that the satellite DTM show the recent water table in the pit and does not reflect the deepest mining level. The geology, weathering profiles and mineralised envelopes were modelled by RSC (2013/2014) based on drill hole data (grades, weathering and lithology).</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</td>
<td>This QPR covers six resources. Extents and widths are variable. Plans and sections are given in the QPR.</td>
</tr>
<tr>
<td><strong>Estimation and modelling techniques</strong></td>
<td>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. The assumptions made regarding recovery of by-products. Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. Any assumptions behind modelling of selective mining units. Any assumptions about correlation between variables. Description of how the geological interpretation was used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</td>
<td>Inverse distance (squared) weighting was applied across the resources. Estimations were constrained by the geological wireframes. A search dimension of 30 m by 15 m by 5 m was applied across the deposits. Top-cutting was used on five deposits. Block size varied from deposit to deposit, ranging from 4 m by 24 m by 24 m to 1 m by 5 m by 2.5 m. No QKNA was undertaken. Block sizes do not reflect SMU. Slicing analysis, visual inspection and average comparisons between the model and composites were done. All three methods showed the estimates to be represented well by the composites.</td>
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<tr>
<td>Moisture</td>
<td>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</td>
<td>Moisture content was determined during the specific gravity measurements.</td>
</tr>
<tr>
<td>Cut-off parameters</td>
<td>The basis of the adopted cut-off grade(s) or quality parameters applied.</td>
<td>Cut-off parameters for extreme grades were applied based on histogram grade distributions. See QPR text.</td>
</tr>
<tr>
<td>Mining factors or assumptions</td>
<td>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution.</td>
<td>It is assumed that all resources would be mined by open pit. No economic studies have been undertaken.</td>
</tr>
<tr>
<td>Metallurgical factors or assumptions</td>
<td>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</td>
<td>Metallurgical test work by previous operators shows that overall gold recovery within the flotation concentrate can be expected around 88%. Lee Process pre-treatment and cyanidation produced recoveries of between 82% and 92%. To date only oxide processing has been undertaken. The primary-sulphide ore (shown to be refractory in nature) will require a specialised plant circuit. Preliminary testing has given a recovery of gold via acid pressure oxidation at 94%. Further metallurgical sampling and test work is required to support design work.</td>
</tr>
<tr>
<td>Environmental factors or assumptions</td>
<td>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</td>
<td>The Konongo Project was granted an EPA permit in March 2012, which covers work at Obenemase.</td>
</tr>
<tr>
<td>Bulk density</td>
<td>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc); moisture and differences between rock and alteration zones within the deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td>
<td>A default specific gravity (SG) of 1.9 g/cm$^3$ was applied to oxide ore, and 1.7 g/cm$^3$ to oxide waste. SG measurements were undertaken by Owere Mines for the transitional and sulphide core samples. These values were estimated into the model. The results averaged 2.80 g/cm$^3$.</td>
</tr>
<tr>
<td>Classification</td>
<td>The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Person’s view of the deposit.</td>
<td>All resources were classified as Inferred Mineral Resources. This reflects the historical nature of the data; sub-optimal geological model and the estimation approach used.</td>
</tr>
<tr>
<td>Audits or reviews</td>
<td>The results of any audits or reviews of Mineral Resource estimates.</td>
<td>This resource estimate has been reviewed by the supervising CP, Dr Simon Dominy. No third party review has been undertaken.</td>
</tr>
<tr>
<td>Discussion of relative accuracy/</td>
<td>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the</td>
<td>The CPs believe the accuracy of the grade and tonnage estimate for Inferred Mineral Resources to be within ±40-80% globally based on general experience of this style of</td>
</tr>
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**Note:**
- **QPR:** Quarterly Progress Report
- **CP:** Competent Person
- **SG:** Specific Gravity
- **EPA:** Environmental Protection Agency
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<td>confidence</td>
<td>relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</td>
<td>mineralisation. In particular, it reflects the confidence in the data and model. No simulation studies have been undertaken to quantify accuracy. No well-documented production from the primary sulphide ore is available to validate the estimate.</td>
</tr>
</tbody>
</table>