

**FINANCIAL SERVICES GUIDE  
AND  
INDEPENDENT EXPERT'S  
REPORT  
SUB-SAHARA  
RESOURCES NL  
29 MAY 2009**



**BDO Kendalls**



## Financial Services Guide

29 May 2009

**BDO Kendalls Corporate Finance (WA) Pty Ltd** ABN 27 124 031 045 ("**BDO Kendalls**" or "**we**" or "**us**" or "**ours**" as appropriate) has been engaged by Sub-Sahara Resources NL ("**Sub-Sahara**") to provide an independent expert's report on the proposal to merge via a scheme of arrangement with Chalice Gold Mines Limited. You will be provided with a copy of our report as a retail client because you are a shareholder of Sub-Sahara.

### Financial Services Guide

In the above circumstances we are required to issue to you, as a retail client, a Financial Services Guide ("**FSG**"). This FSG is designed to help retail clients make a decision as to their use of the general financial product advice and to ensure that we comply with our obligations as financial services licensees.

This FSG includes information about:

- ◆ Who we are and how we can be contacted;
- ◆ The services we are authorised to provide under our **Australian Financial Services Licence, Licence No. 316158**;
- ◆ Remuneration that we and/or our staff and any associates receive in connection with the general financial product advice;
- ◆ Any relevant associations or relationships we have; and
- ◆ Our internal and external complaints handling procedures and how you may access them.

### Information about us

BDO Kendalls Corporate Finance (WA) Pty Ltd is a member firm of the BDO Kendalls network in Australia, a national association of separate partnerships and entities. The financial product advice in our report is provided by BDO Kendalls Corporate Finance (WA) Pty Ltd and not by BDO Kendalls or its related entities. BDO Kendalls and its related entities provide services primarily in the areas of audit, tax, consulting and financial advisory services.

We do not have any formal associations or relationships with any entities that are issuers of financial products. However, you should note that we and BDO Kendalls (and its related entities) might from time to time provide professional services to financial product issuers in the ordinary course of business.

### Financial services we are licensed to provide

We hold an Australian Financial Services Licence that authorises us to provide general financial product advice for securities to retail and wholesale clients.

When we provide the authorised financial services we are engaged to provide expert reports in connection with the financial product of another person. Our reports indicate who has engaged us and the nature of the report we have been engaged to provide. When we provide the authorised services we are not acting for you.

### General Financial Product Advice

We only provide general financial product advice, not personal financial product advice. Our report does not take into account your personal objectives, financial situation or needs.

You should consider the appropriateness of this general advice having regard to your own objectives, financial situation and needs before you act on the advice.

**Fees, Commissions and Other Benefits that we may receive**

We charge fees for providing reports, including this report. These fees are negotiated and agreed with the person who engages us to provide the report. Fees are agreed on an hourly basis or as a fixed amount depending on the terms of the agreement. The fee for this engagement is approximately \$25,000.

Except for the fees referred to above, neither BDO Kendalls, nor any of its directors, employees or related entities, receive any pecuniary benefit or other benefit, directly or indirectly, for or in connection with the provision of the report.

**Other Assignments**

We prepared an independent expert's report for Chalice Gold Mines Limited for an unrelated transaction in October 2008. We received a fee of approximately \$30,000 for our report, however, our report was never released to the market.

**Remuneration or other benefits received by our employees**

All our employees receive a salary. Our employees are eligible for bonuses based on overall productivity but not directly in connection with any engagement for the provision of a report.

We have received a fee from Sub-Sahara for our professional services in providing this report. That fee is not linked in any way with our opinion as expressed in this report.

**Referrals**

We do not pay commissions or provide any other benefits to any person for referring customers to us in connection with the reports that we are licensed to provide.

**Complaints resolution***Internal complaints resolution process*

As the holder of an Australian Financial Services Licence, we are required to have a system for handling complaints from persons to whom we provide financial product advice. All complaints must be in writing addressed to The Complaints Officer, BDO Kendalls Corporate Finance (WA) Pty Ltd, PO Box 7426 Cloisters Square, Perth WA 6850.

When we receive a written complaint we will record the complaint, acknowledge receipt of the complaint within 15 days and investigate the issues raised. As soon as practical, and not more than **45 days** after receiving the written complaint, we will advise the complainant in writing of our determination.

*Referral to External Dispute Resolution Scheme*

A complainant not satisfied with the outcome of the above process, or our determination, has the right to refer the matter to the Financial Ombudsman Service ("FOS"). FOS is an independent organisation that has been established to provide free advice and assistance to consumers to help in resolving complaints relating to the financial service industry. FOS will be able to advise you as to whether or not they can be of assistance in this matter. Our FOS Membership Number is 12561.

Further details about FOS are available at the FOS website [www.fos.org.au](http://www.fos.org.au) or by contacting them directly via the details set out below.

Financial Ombudsman Service  
GPO Box 3  
Melbourne VIC 3001  
Toll free: 1300 78 08 08  
Facsimile: (03) 9613 6399  
Email: [info@fos.org.au](mailto:info@fos.org.au)

**Contact details**

You may contact us using the details set out at the top of our letterhead on page 1 of this FSG.

**SUB-SAHARA RESOURCES NL**  
**INDEPENDENT EXPERT'S REPORT**  
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**APPENDIX 1 – Glossary**

**APPENDIX 2 – Independent valuation of Zara Gold Project prepared by Al Maynard and Associates Pty Ltd**

**APPENDIX 3 – Independent valuation of Chalice Gold Mines Limited's exploration assets prepared by SRK Consulting (Australasia) Pty Ltd**



29 May 2009

The Directors  
Sub-Sahara Resources NL  
PO Box 8260  
Perth Business Centre  
PERTH WA 6849

Dear Sirs

## INDEPENDENT EXPERT'S REPORT – SCHEME OF ARRANGEMENT

### 1. INTRODUCTION

BDO Kendalls Corporate Finance (WA) Pty Ltd ("**BDO Kendalls**") has been engaged by Sub-Sahara Resources NL ("**Sub-Sahara**") to prepare an Independent Expert's Report ("**our Report**") to express an opinion as to whether or not the proposal to merge with Chalice Gold Mines Limited ("**Chalice**") via a scheme of arrangement ("**the Scheme**") is in the best interests of non-associated shareholders ("**Shareholders**") of Sub-Sahara.

Our Report is to be included in the Scheme Document for Sub-Sahara to be sent to all Shareholders to assist them in deciding whether to approve the Scheme.

### 2. SUMMARY AND OPINION

#### 2.1 Opinion

We have considered the terms of the Scheme as outlined in the body of this report and have concluded that the Scheme is in the best interest of Shareholders in the absence of a higher offer.

In our opinion, if the Scheme had been in the form of a takeover bid we would have concluded that the proposal was not fair but reasonable. The Scheme is not fair because the value of 10.73 Sub-Sahara shares prior to the announcement of the Scheme is greater than the value of a Chalice share following the implementation of the Scheme. However, we consider the Scheme to be reasonable because the advantages of the Scheme to Shareholders are greater than the disadvantages. In particular, we have considered Sub-Sahara's need for cash to fund the development of the Zara Project.

RG 111.18 states that if an expert concludes a scheme is not fair but reasonable then it is still open to the expert to conclude that the scheme is in the best interests of members. Given Sub-Sahara's requirement for funding we consider that there are sufficient reasons for Shareholders to vote in favour of the Scheme.

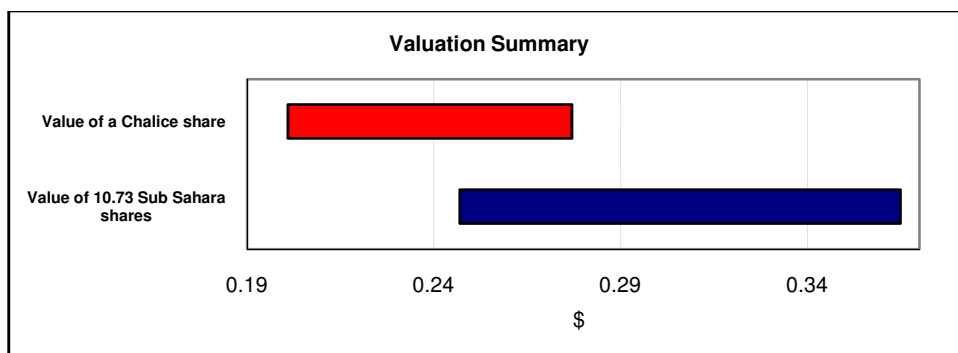
We believe that the Directors would be justified in recommending that Shareholders vote in favour of the Scheme, in the absence of a higher offer.

## 2.2 Fairness

In Section 12 we determined that the value of 10.73 Sub-Sahara shares prior to the Scheme compares to the value of a Chalice share following the Scheme, as detailed below.

	Ref	Low \$	Preferred \$	High \$
Value of a Chalice share	10	0.201	0.237	0.277
Value of 10.73 Sub-Sahara shares	11	0.247	0.311	0.365

The above valuation ranges are graphically presented as follows:



The above pricing indicates that the Scheme is not fair for Shareholders.

## 2.3 Reasonableness

We have considered the analysis in Sections 13 to 16 of this report, in terms of both:

- advantages and disadvantages of approving or not approving the Scheme; or
- alternatives, including the position of Shareholders if the Scheme does not proceed.

In our opinion, the position of Shareholders if the Scheme proceeds is more advantageous than the position if the Scheme does not proceed. Accordingly, we believe that the Scheme is reasonable for Shareholders.

The respective advantages and disadvantages if the Scheme is approved are summarised below:

ADVANTAGES AND DISADVANTAGES IF THE SCHEME IS APPROVED			
Section	Advantages	Section	Disadvantages
15.1.1	Access to substantial cash reserves	15.2.1	Dilution of Shareholders' interest in Sub-Sahara
15.1.2	Exposure to additional exploration assets		
15.1.3	Benefits of being a larger company		

The respective advantages and disadvantages if the Scheme is not approved are summarised below:

ADVANTAGES AND DISADVANTAGES IF THE SCHEME IS NOT APPROVED			
Section	Advantages	Section	Disadvantages
16.1.1	Retain current interest in Sub-Sahara and its assets	16.2.1	May not find a better offer
16.1.2	May find a better offer	16.2.2	Potential repayment of a loan from Chalice

### 3. OUTLINE OF SCHEME

Sub-Sahara and Chalice propose to merge via a scheme of arrangement. The Scheme involves Chalice acquiring all the issued shares of Sub-Sahara. Sub-Sahara Shareholders will receive shares in Chalice as consideration for their shares in Sub-Sahara. The Scheme provides for Sub-Sahara shareholders to receive one Chalice share for every 10.73 of their Sub-Sahara shares.

The options and partly paid shares of Sub-Sahara will be treated as follows:

Description	Treatment
Partly paid shares	Partly paid shareholders will be offered to convert to one Chalice share for the following Sub-Sahara partly paid shares: <ul style="list-style-type: none"> <li>\$0.0899 unpaid – 142.3 Sub-Sahara partly paid shares</li> <li>\$0.0649 unpaid – 25.5 Sub-Sahara partly paid shares</li> <li>\$0.1499 unpaid (payable 2 March 2011) – 33.9 Sub-Sahara partly paid shares</li> <li>\$0.0999 unpaid (payable 30 November 2012) – 15.0 Sub-Sahara partly paid shares</li> <li>\$0.0999 unpaid (payable 29 November 2011) – 32.4 Sub-Sahara partly paid shares</li> <li>\$0.1099 unpaid – 34.3 Sub-Sahara partly paid shares</li> <li>\$0.1299 unpaid – 38.2 Sub-Sahara partly paid shares</li> <li>\$0.1499 unpaid (payable 30 November 2012) – 16.4 Sub-Sahara partly paid shares</li> <li>\$0.1999 unpaid – 17.6 Sub-Sahara partly paid shares</li> </ul>
Listed options	These options will be allowed to lapse.
Unlisted options exercisable at \$0.15	These options are held by Anvil Mining Limited. The options may be cancelled for no consideration or Chalice could agree to purchase these options.
Unlisted options exercisable at \$0.11	These options will be converted to Chalice shares at a ratio of one Chalice share for 18.65 Sub-Sahara options or will be cancelled.
Unlisted options exercisable at \$0.10	These options will be converted to Chalice shares at a ratio of one Chalice share for 28.94 Sub-Sahara options or will be cancelled.

The Scheme is subject to the following:

- The merger implementation agreement executed on 29 April 2009 not being terminated;
- Any third party consents and approvals are received;
- The Scheme is approved by Shareholders;
- The Scheme is approved by the court;

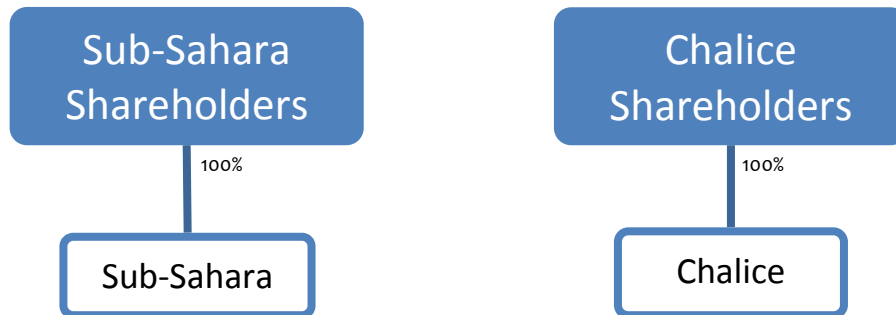
Sub-Sahara currently has 501,159,859 fully paid ordinary shares on issue. If the Scheme is approved then these shares will convert to approximately 46,702,892 Chalice shares (assuming there will be no fractional entitlements). Current Chalice shareholders hold 72,800,000 shares, which means Sub-Sahara shareholders will have an interest of approximately 39% in the merged entity. However, this does not take into account the possible effects of the Sub-Sahara partly paid shares and options being converted to Chalice shares. The table below demonstrates the potential shareholdings that Sub-Sahara shareholders will have in Chalice following the Scheme:

	Current				Proposed	
	Sub-Sahara Shares	Other Sub- Sahara Securities	Chalice Shares	Conversion Rate	Chalice Shareholders	Percentage
Chalice shareholders	-	-	72,800,000	-	72,800,000	60.11%
<b>Sub-Sahara</b>						
Shareholders	501,159,859			10.73	46,702,892	38.56%
Options (\$0.10)	-	400,000	-	28.9	13,820	0.01%
Options (\$0.11)	-	3,400,000	-	18.6	182,276	0.15%
Options (\$0.15)	-	25,000,000	-	-	-	-
Partly paid shares (\$0.0999)	-	4,500,000	-	32.4	138,838	0.11%
Partly paid shares (\$0.1099)	-	2,850,000	-	34.3	82,994	0.07%
Partly paid shares (\$0.1299)	-	450,000	-	38.2	11,790	0.01%
Partly paid shares (\$0.0899)	-	7,290,000	-	142.3	51,246	0.04%
Partly paid shares (\$0.0649)	-	5,750,000	-	25.5	225,277	0.19%
Partly paid shares (\$0.1499)	-	5,750,000	-	33.9	169,626	0.14%
Partly paid shares (\$0.0999)	-	4,000,000	-	15.0	267,083	0.22%
Partly paid shares (\$0.1499)	-	4,000,000	-	16.4	243,851	0.20%
Partly paid shares (\$0.1999)	-	4,000,000	-	17.6	226,926	0.19%
<b>Total</b>	<b>501,159,859</b>	<b>64,090,000</b>	<b>72,800,000</b>		<b>121,116,619</b>	<b>100.00%</b>

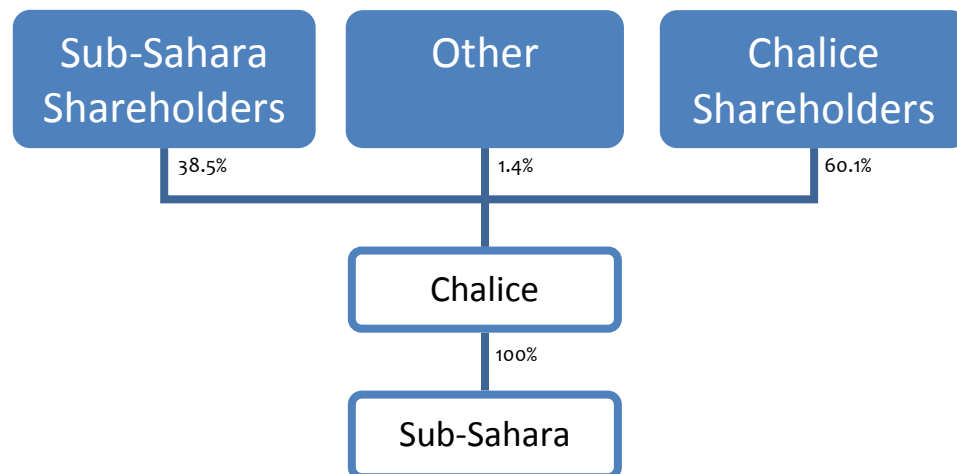


The changes in the shareholdings of Chalice and Sub-Sahara as a result of the implementation of the Scheme are set out graphically below:

Pre Scheme:



Post Scheme:



The tables above assume that no Chalice options are exercised prior to the implementation of the Scheme.

Simultaneously with the implementation of the Scheme Chalice will acquire Yolanda International Limited ("YIL") which owns an 11% interest in the Zara Gold Project.

#### 4. REPORT REQUIREMENTS

The Scheme is to be implemented pursuant to Section 411 of the Corporations Act Regulations ("**Section 411**"). Part 3 of Schedule 8 to the Corporations Regulations prescribes the information to be sent to shareholders in relation to members' schemes of arrangement pursuant to Section 411.

Schedule 8 of the Corporations Regulations requires an independent expert's report if:

- The corporation that is the other party to the Scheme has a common director or directors with the company which is the subject of the Scheme; or
- The corporation that is the other party is entitled to more than 30% of the voting shares in the subject company.

The criteria above do not apply to the Scheme. Accordingly, there is no requirement for this report pursuant to Section 411.

Notwithstanding the fact that there is no legal requirement to engage an independent expert to report on the Scheme, the directors of Sub-Sahara have requested that BDO Kendalls prepare this report as if it were an independent expert's report pursuant to Section 411, and to provide an opinion as to whether the directors of Sub-Sahara are justified in recommending the Scheme in the absence of a superior proposal.

## **5. BASIS OF EVALUATION**

### **5.1 Regulatory Guidance**

In determining whether the Scheme is in the best interests of Shareholders, we have had regard to the views expressed by the ASIC in Regulatory Guide 111: Content of Expert Reports. This Regulatory Guide suggests that an opinion as to whether transactions are fair and reasonable should focus on the purpose and outcome of the transaction, that is, the substance of the transaction rather than the legal mechanism to effect the transaction.

In our opinion the Scheme is a control transaction as defined by RG 111 because Chalice shareholders will retain 60.9% of the merged entity and the Chalice Board will only include one Sub-Sahara director. We have therefore assessed the Scheme to consider whether in our opinion it is in the best interests of Shareholders.

### **5.2 Adopted Basis of Evaluation**

RG 111 requires that the form of analysis performed by the independent expert to be substantially the same as for a takeover bid. If the expert would conclude that the proposal was "fair and reasonable" if it was in the form a takeover bid, it will be able to conclude the scheme is in the best interest, of the members of the Company. Having regard to RG 111, BDO Kendalls has completed this comparison in two parts:

- A comparison between the value of a Sub-Sahara share prior to the Scheme and the value of a Chalice share following the Scheme (fairness – see Section 12 "Is the Scheme Fair?"); and
- An investigation into other significant factors to which Shareholders might give consideration, prior to approving the resolution, after reference to the value derived above (reasonableness – see Sections 13 to 16).

If the Scheme is considered to be "not fair" but reasonable if it was in the form of a takeover bid, it is still open to the expert to conclude that the Scheme is in the best interest of the Shareholders.

## **6. PROFILE OF SUB SAHARA RESOURCES NL**

### **6.1 History**

Sub-Sahara is an Australian junior exploration company based in Perth, Western Australia focusing on exploration in Eritrea. Formerly known as Maiden Gold NL, the Company was formed in 1993 and listed on the ASX in 1994.

The Company's interest in Eritrea is the Zara Gold Project Joint Venture (JV) with Dragon Mining Ltd and Africa Wide Resources Ltd comprising four licences covering an

area of 147km<sup>2</sup>. Sub-Sahara's interest is 69% and the primary focus of this JV is the Koka gold deposit, expected to yield approximately 0.94 million ounces of gold. The Eritrean government recently awarded its first mining license prompting confidence in the potential for economic development of the site.

On 3 March 2009 Sub-Sahara completed the sale of its Tanzanian assets to Western Metals Limited in exchange for the following:

- \$900,000 in cash;
- \$250,000 deferred payment by the end of 2009 subject to assessment of final liabilities;
- \$100,000 payable subject to a pre-emptive right; and
- \$5 million on commencement of production at the Nyanzaga gold project.

## 6.2 Capital Structure

The quoted share capital of Sub-Sahara as at 17 April 2009 is outlined below:

	Number
Total Ordinary Shares on Issue	501,159,859
Top 20 Shareholders	307,014,115
Top 20 Shareholders - % of shares on issue	61.3%

Source: Computershare

The distribution of shareholdings in Sub-Sahara as at 31 March 2009 is as follows:

Range of Shares Held	No. of Ordinary Shareholders	No. of Ordinary Shares	% Issued Capital
1-1,000	53	18,083	0.0%
1,001-5,000	97	321,078	0.1%
5,001-10,000	241	2,049,900	0.4%
10,001-100,000	883	39,549,040	7.9%
100,001 – and over	385	459,221,758	91.6%
<b>TOTAL</b>	<b>1,659</b>	<b>501,159,859</b>	<b>100.0%</b>

Source: Computershare

The ordinary shares held by the most substantial shareholders as at 17 April 2009 is detailed below:

Name	No of Ordinary Shares Held	Percentage of Issued Shares (%)
Anvil Mining Limited	90,000,000	18.0%
ANZ Nominees Limited	52,801,387	10.5%
Sundowner International Limited	39,260,808	7.8%
Merrill Lynch (Australia) Nominees Pty Limited	27,747,500	5.5%
Total Top 4	209,809,695	41.8%
Others	291,350,164	58.2%
<b>Total Ordinary Shares on Issue</b>	<b>501,159,859</b>	<b>100.0%</b>

Source: Computershare

### 6.3 Historical Balance Sheets

Balance Sheets	As at 31 December 2008 \$	As at 30 June 2008 \$	As at 30 June 2007 \$
<b>CURRENT ASSETS</b>			
Cash assets	599,246	3,117,758	4,752,973
Trade and other receivables	640,484	282,305	760,719
Other financial assets	57,500	1,256,802	15,516,849
<b>TOTAL CURRENT ASSETS</b>	<b>1,297,230</b>	<b>4,656,865</b>	<b>21,030,541</b>
<b>NON-CURRENT ASSETS</b>			
Property, plant and equipment	564,168	644,845	252,555
Deferred exploration, evaluation and development costs	8,245,582	14,491,237	10,216,566
<b>TOTAL NON-CURRENT ASSETS</b>	<b>8,809,750</b>	<b>15,136,082</b>	<b>10,469,121</b>
<b>TOTAL ASSETS</b>	<b>10,106,980</b>	<b>19,792,947</b>	<b>31,499,662</b>
<b>CURRENT LIABILITIES</b>			
Trade and other payables	587,096	252,373	1,412,528
Provisions	19,249	53,222	5,977,682
<b>TOTAL CURRENT LIABILITIES</b>	<b>606,345</b>	<b>305,595</b>	<b>7,390,210</b>
<b>NON-CURRENT LIABILITIES</b>			
Provisions	44,331	-	-
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>44,331</b>	<b>-</b>	<b>-</b>
<b>TOTAL LIABILITIES</b>	<b>650,676</b>	<b>305,595</b>	<b>7,390,210</b>
<b>NET ASSETS</b>	<b>9,456,304</b>	<b>19,487,352</b>	<b>24,109,452</b>
<b>EQUITY</b>			
Contributed equity	33,763,421	33,763,421	31,049,982
Reserves	898,318	898,318	854,829
Accumulated losses	(25,205,435)	(15,174,387)	(7,795,359)
<b>TOTAL EQUITY</b>	<b>9,456,304</b>	<b>19,487,352</b>	<b>24,109,452</b>

Source: Source: Sub-Sahara Resources NL Financial Report for the year ended 30 June 2008 and reviewed financial report for the six months ended 31 December 2008.

Sub-Sahara wrote down the value of its exploration expenditure by approximately \$7.5 million during the six months ended 31 December 2008. The value of financial assets was also written down by approximately \$1.1 million for the same period. We note that Sub-Sahara's cash was predominantly utilised on exploration expenditure.

## 6.4 Historical Income Statements

Income Statement	Six months ended 31 December 2008 \$	Year ended 30 June 2008 \$	Year ended 30 June 2007 \$
<b>Revenue</b>			
Management fees	-	342,198	137,810
Profit from sale of investment	-	-	14,884,570
Proceeds from sale of prospects	-	647,415	-
Other	135,751	41,932	10,822
Interest Received- other corporations	-	77,148	130,683
<b>Total Revenue</b>	<b>135,751</b>	<b>1,108,693</b>	<b>15,163,885</b>
<b>Expenses</b>			
Depreciation and amortisation expenses	(98,112)	(152,910)	(137,066)
Salaries, directors and employee benefits expense	(626,675)	(1,336,637)	(1,492,153)
Exploration expenditure written down	(7,495,520)	(725,134)	(2,254)
Provision for diminution of investments	(552,318)	(42,892)	(88,623)
Cost of prospects sold	-	(383,178)	(48,427)
Annual report costs	-	(16,693)	(33,378)
ASX fees	-	(25,191)	(26,856)
Audit fees	-	(38,074)	(40,142)
Consulting fees	-	(64,295)	(96,081)
Insurance	-	(30,852)	(55,876)
Administration and accounting costs	(505,560)	(248,700)	(206,514)
Motor vehicle expenses	-	(3,862)	(9,051)
Public relations and conferences	-	(23,859)	(23,706)
Rent	-	(88,961)	(66,007)
Security costs	-	(13,308)	(13,884)
Telephone	-	(31,552)	(33,033)
Travel-corporate and project	(58,091)	(229,859)	(169,346)
Share registry costs	-	(37,094)	(26,429)
Other expenses from ordinary activities	(277,892)	(410,795)	(319,149)
Loss from sale of investment	(541,803)	(5,624,357)	-
<b>Profit before income tax expense</b>	<b>(10,020,220)</b>	<b>(8,419,510)</b>	<b>12,275,910</b>
Income tax expense	-	1,016,161	(5,953,828)
<b>Net profit</b>	<b>(10,020,220)</b>	<b>(7,403,349)</b>	<b>6,322,082</b>

Source: Source: Sub-Sahara Resources NL Financial Report for the year ended 30 June 2008 and reviewed financial report for the six months ended 31 December 2008.

We note that some of the items included in the income statement for the six months ended 31 December 2008 have been classified differently to prior periods.

Approximately \$14.9 million of revenue for the year ended 30 June 2007 was from the sale of a project in Eritrea during that financial year. Sub-Sahara wrote down a significant value of exploration expenditure during the six months ended 31 December 2008.

## **7. PROFILE OF CHALICE**

### **7.1 History**

Chalice is a gold focused exploration and development company formed in 2005. The company commenced trading on the Australian Securities Exchange in March 2006 after a successful initial public offering raised \$7.5 million.

The primary business objective of Chalice is to create shareholder wealth through the discovery and development of economic gold deposits, principally in Western Australia.

The company has both direct and joint venture interests in three major projects located in the West Pilbara, Laverton and Murchison Regions of Western Australia. Initially Chalice held the Chalice and Higginsville Projects in the Eastern Goldfields, however these were sold to Avoca Resources Limited in May 2007. Consideration comprised 3.5 million Avoca ASX listed shares and 2 million 3-year unlisted options with a second and final tranche of 483,335 shares settled in February 2009 upon finalisation of tenement matters.

The Board of Chalice consists of the following directors:

- Timothy Goyder – Executive Director

Tim has over 35 years experience in the resource industry and has been involved in the formation and management of a number of publicly listed companies.

- Douglas Jones – Non-Executive Director

Doug has 30 years experience in international mineral exploration in Australia, Africa, South America and Europe. Doug's career has covered exploration for volcanic and sediment-hosted zinc-copper-gold, gold and IOCG style copper-gold.

- Anthony Kiernan – Non-Executive Director

Anthony is a solicitor and is experienced in the administration and operation of listed public companies.

Chalice's major projects are as follows:

#### **Yandearra Project**

The Yandearra Project is located in the West Pilbara and consists of a tenement package of around 1,300 km<sup>2</sup> contiguous with Range River Gold Limited's Indee Gold Project and De Grey Mining Limited's Turner Gold River Belt.

Atlas Iron Limited may acquire iron ore rights over the project for \$1 million, having paid an option fee of \$250,000.

Chalice's ongoing field work at Yandearra has included aircore, RAB, RC and vacuum drilling programs which have so far outlined 17 significant gold in soil anomalies. The bulk of this work was undertaken in the Mallina Basin. In addition to this, geological and reconnaissance sampling has confirmed high tenor gold in soil and multi element base metal anomalies across the tenement. These discoveries are of varying size potential and further sampling will be undertaken to ascertain development viability.

### Wilga Project

The Wilga Project covers approximately 20km<sup>2</sup> and is located 55km south of Laverton in the mineral rich Laverton Tectonic Zone. In September 2008 Chalice entered an agreement with AngloGold Ashanti Australia Limited whereby AngloGold may earn a 75% interest in the project for \$2 million expenditure within the next 4 years.

The geological setting of the project area consists of outcropping Archaean basalts, peridotite and thin banded iron formation. Within the basaltic sequences the area is hosted by banded iron formations quartz veining and shear zones. Historic exploration of the area defined an extensive gold anomalous zone centred on the banded iron formation and as such Chalice considers further exploration warranted.

The project is still in its very early stages.

### Gnaweeda Project

The Gnaweeda Project is located at Gnaweeda in the Murchison Region of Western Australia. Chalice has entered into a joint venture with Teck Cominco Australia Limited granting a 70% interest for \$1.5 million expenditure over three years. At present Teck Cominco has earned 51% of the project which covers 190km<sup>2</sup> of tenements.

To date Teck Cominco has completed ten RC holes, mostly intersecting coarse-grained mafic or dolerite rocks with pervasive carbonate alteration, localised quartz-carbonate veining and disseminated pyrite. Three holes returned narrow high grade gold intercepts within broader anomalous gold mineralisations. Additional diamond and RC drilling is planned to test the extent of mineralisations discovered to date and to provide further structural information.

## 7.2 Share Structure

The quoted share capital of Chalice as at 28 April 2009 is outlined below:

	Number
Total Ordinary Shares on Issue	72,800,000
Top 20 Shareholders	41,232,581
Top 20 Shareholders - % of shares on issue	56.6%

Source: Computershare

The distribution of shareholdings in Chalice as at 31 March 2009 is as follows:

Range of Shares Held	No. of Ordinary Shareholders	No. of Ordinary Shares	%Issued Capital
1-1,000	66	27,359	0.0%
1,001-5,000	257	742,822	1.0%
5,001-10,000	181	1,532,197	2.1%
10,001-100,000	284	10,228,577	14.0%
100,001 – and over	92	60,269,045	82.8%
<b>TOTAL</b>	<b>880</b>	<b>72,800,000</b>	<b>100.0%</b>

Source: Computershare

The ordinary shares held by the most substantial shareholders as at 28 April 2009 is detailed below:

Name	No of Ordinary Shares Held	Percentage of Issued Shares (%)
Plato Prospecting Pty Ltd	16,202,452	22.2%
Balfes (QLD) Pty Ltd	5,000,000	6.9%
Calm Holdings Pty Ltd	2,842,170	3.9%
Nefco Nominees Pty Ltd	2,619,501	3.6%
Total Top 4	26,664,123	36.6%
Others	46,135,877	63.4%
<b>Total Ordinary Shares on Issue</b>	<b>72,800,000</b>	<b>100.0%</b>

Source: Computershare

### 7.3 Historical Balance Sheets

Balance Sheets	As at 31 December 2008 \$	As at 30 June 2008 \$	As at 30 June 2007 \$
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	9,393,534	9,972,766	2,323,949
Trade and other receivables	1,067,225	84,085	5,919,204
Financial assets	-	-	20,701
Assets held for sale	-	164,064	153,189
<b>TOTAL CURRENT ASSETS</b>	<b>10,460,759</b>	<b>10,220,915</b>	<b>8,417,043</b>
<b>NON-CURRENT ASSETS</b>			
Financial assets	13,442	74,698	70,193
Exploration and evaluation assets	1,838,391	2,033,937	3,134,600
Property, plant and equipment	263,712	207,781	208,491
<b>TOTAL NON-CURRENT ASSETS</b>	<b>2,234,545</b>	<b>2,316,416</b>	<b>3,413,284</b>
<b>TOTAL ASSETS</b>	<b>12,695,304</b>	<b>12,537,331</b>	<b>11,830,327</b>
<b>CURRENT LIABILITIES</b>			
Trade and other payables	159,839	60,782	152,179
Employee benefits	21,710	19,565	22,688
Other	51,104	-	-
<b>TOTAL CURRENT LIABILITIES</b>	<b>232,653</b>	<b>80,347</b>	<b>174,867</b>
<b>NON-CURRENT LIABILITIES</b>			
Other	-	51,976	54,326
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>-</b>	<b>51,976</b>	<b>51,326</b>
<b>TOTAL LIABILITIES</b>	<b>232,653</b>	<b>132,323</b>	<b>229,193</b>
<b>NET ASSETS</b>	<b>12,462,651</b>	<b>12,405,008</b>	<b>11,601,134</b>
<b>EQUITY</b>			
Issued capital	13,974,454	13,974,454	13,974,454
Accumulated losses	(2,121,649)	(2,140,356)	(2,875,202)
Reserves	609,846	570,910	501,882
<b>TOTAL EQUITY</b>	<b>12,462,651</b>	<b>12,405,008</b>	<b>11,601,134</b>

Source: Chalice Gold Mines Limited Financial Report for the year ended 30 June 2008 and reviewed financial statements for the six months ended 31 December 2008.



During the year ended 30 June 2008 Chalice exercised its options and sold its shares in Avoca Resources Limited that it received following the sale of its Chalice and Higginsville projects. This resulted in a significant increase in cash at bank and a reduction in trade and other receivables.

## 7.4 Historical Income Statements

Income Statements	6 months ended 31 December 2008 \$	Year ended 30 June 2008 \$	Year ended 30 June 2007 \$
<b>Revenue</b>			
Net gain/(loss) on sale of exploration/evaluation assets	674,486	(1,681)	1,581,271
Net gain on sale of securities	-	556,852	-
Changes in fair value of available for sale assets	1,499	1,996,631	-
Other income	524,911	748,586	452,305
<b>Total Revenue</b>	<b>1,200,896</b>	<b>3,300,388</b>	<b>2,033,576</b>
<b>Expenses</b>			
Impairment losses on exploration and evaluation expenditure	-	(1,355,640)	(1,556,950)
Project transaction costs expensed	(280,118)	-	-
Exploration costs not capitalised	(74,414)	(41,783)	(68,211)
Corporate administrative expenses	(827,657)	(1,168,055)	(1,593,107)
Finance costs	-	(64)	(2,784)
<b>Profit before income tax expense</b>	<b>18,707</b>	<b>734,846</b>	<b>(1,187,476)</b>
Income tax expense	-	-	-
<b>Net profit</b>	<b>18,707</b>	<b>734,846</b>	<b>(1,187,476)</b>

Source: Chalice Gold Mines Limited Financial Report for the year ended 30 June 2008 and reviewed financial statements for the six months ended 31 December 2008.

The income statements above reflect the income generated from the sale of exploration assets. Exploration assets were impaired for the years ended 30 June 2007 and 30 June 2008, however, there was no impairment of exploration assets for the six months ended 31 December 2008.

## 8. INDUSTRY ANALYSIS

### 8.1 Current Economic Conditions

It is of general consensus that the prolonged economic crisis will impact global economic activity beyond levels that were previously anticipated. According to a recent forecast from the International Monetary Fund ("IMF"), the global economy will shrink by between 0.5 and 1 percent on an annual average basis in 2009, before recovering gradually during the course of 2010. Following several years of strong economic conditions in the major global economies including the US, Europe and China, if forecasts eventuate it will be the first global contraction in 60 years.

Since the later months of 2007, the global economy has been characterised by sinking confidence and trade volumes, negative macroeconomic data and unrelenting financial turmoil. Governments and central banks have reacted with expansionary fiscal and monetary policy while the banking sector has been leveraging their balance sheets to

reduce exposure the risky and emerging market assets. To date, the effect of expansionary monetary policy measures has been limited by the space available for reductions in the cash rate, stringent lending conditions by commercial banks, higher perceived default rates being priced into lending rates and the collapse of many traditional funding sources. Expansionary fiscal policy in the form of government stimulus packages have been well below the 2% of GDP that has been recommended by the IMF and this also looks to be the case in the immediate future.

The IMF has forecast that there is a real risk of deflationary pressures, especially in Japan and the US, potentially resulting in a further reduction in economic growth. Commodity and oil prices are expected to remain low while the current economic conditions persist.

In the past decade, growth in the Australian economy has been sustained predominantly by demand for commodities from developing countries such as China and India. Risk aversion has resulted in the global deleveraging of risky assets and assets in emerging markets due to the perceived risk associated with these economies. This is a concern for corporate entities sourcing funding in these economies. The IMF has anticipated that capital flows to emerging markets are likely to continue to be scaled back, meaning that entities in these economies will have to become proactive in sourcing funds domestically. Lower economic activity in these countries is likely to affect the demand for Australian commodities.

## **8.2 Gold Industry analysis**

### **8.2.1 Supply and demand**

Gold is both a commodity and a monetary asset. All gold that has been mined continues to exist indefinitely in some form. According to precious metals research house GFMS Limited, at the end of 2007 the above ground stocks of gold were approximately 161,000 tonnes.

Demand for gold is satisfied from both mine production and the recycling of previously mined gold. Approximately two-thirds of annual demand for gold is driven by jewellery fabrication, with the remainder driven by industrial use and investment.

Demand for gold increased considerably towards the end of 2008. The increase was triggered by a fall in gold prices which coincided with escalated levels of economic and financial uncertainty. The biggest contributor to the increase in demand was identifiable investment in gold, which increased by 56% relative to prior year levels.

Demand for gold consistently exceeds supply. World gold production in 2007 was approximately 2,476 tonnes. Production for the first three quarters of 2008 was 1,791 tonnes, down 3% on the corresponding period for 2007.

### **8.2.2 Gold prices**

As Gold is an internationally traded commodity its price fluctuates daily based on global supply and demand. The gold price at 18 May 2009 was approximately USD\$930 per ounce.

The turmoil in global capital markets in the latter half of 2008 has had an influence on the price of gold. Although volatility has increased as a result of the credit crisis, gold has remained less volatile than other commodities, and has been more resilient to the decline in commodity prices. The price of gold exceeded USD\$1,000 per ounce in February 2009 and has traded between USD\$850 and US\$950 since February.

### 8.2.3 Outlook

Despite the intensification of financial market turmoil which usually boosts demand for Gold, a strengthening US dollar and increased volatility in the gold price has decreased its attractiveness as an alternative investment. Global jewellery demand has increased and is set to continue and this is expected to offset the impact of the decrease in investment demand.

Consensus forecasts from the major broking houses predict the gold price will be in the region of US\$855 to US\$870 for the remainder of 2009.

Because gold has vast quantities of above-ground stocks, forward prices almost invariably (but not always) rise as the maturity of the contract extends. The table below summarises the gold future prices as at 18 May 2009:

Date	Future Gold Price (\$USD/ounce)
May 2009	930.9
June 2009	931.3
July 2009	931.9
August 2009	933.1
October 2009	934.6
December 2009	936.0

Source: NYMEX.com

## 9. VALUATION METHODOLOGIES

### 9.1 Methodologies Commonly Used for Valuing Assets and Businesses

#### 9.1.1 Capitalisation of future maintainable earnings ("FME")

This method places a value on the business by estimating the likely FME, capitalised at an appropriate rate which reflects business outlook, business risk, investor expectations, future growth prospects and other entity specific factors. This approach relies on the availability and analysis of comparable market data.

The FME approach is the most commonly applied valuation technique and is particularly applicable to profitable businesses with relatively steady growth histories and forecasts, regular capital expenditure requirements and non-finite lives.

The FME used in the valuation can be based on net profit after tax or alternatives to this such as earnings before interest and tax ("EBIT") or earnings before interest, tax, depreciation and amortisation ("EBITDA"). The capitalisation rate or "earnings multiple" is adjusted to reflect which base is being used for FME.

### **9.1.2 Discounted future cash flows (“DCF”)**

The DCF methodology is based on the generally accepted theory that the value of an asset or business depends on its future net cash flows, discounted to their present value at an appropriate discount rate (often called the weighted average cost of capital). This discount rate represents an opportunity cost of capital reflecting the expected rate of return which investors can obtain from investments having equivalent risks.

A terminal value for the asset or business is calculated at the end of the future cash flow period and this is also discounted to its present value using the appropriate discount rate.

DCF valuations are particularly applicable to businesses with limited lives, experiencing growth, that are in a start up phase, or experience irregular cash flows.

### **9.1.3 Net tangible asset value on a going concern basis (“NTA”)**

Asset based methods estimate the market value of an entity’s securities based on the realisable value of its identifiable net assets. Asset based methods include:

- Orderly realisation of assets method
- Liquidation of assets method
- Net assets on a going concern method

The orderly realisation of assets method estimates fair market value by determining the amount that would be distributed to entity holders, after payment of all liabilities including realisation costs and taxation charges that arise, assuming the entity is wound up in an orderly manner.

The liquidation method is similar to the orderly realisation of assets method except the liquidation method assumes the assets are sold in a shorter time frame. Since wind up or liquidation of the entity may not be contemplated, these methods in their strictest form may not be appropriate. The net assets on a going concern method estimates the market values of the net assets of an entity but does not take into account any realisation costs.

Net assets on a going concern basis are usually appropriate where the majority of assets consist of cash, passive investments or projects with a limited life. All assets and liabilities of the entity are valued at market value under this alternative and this combined market value forms the basis for the entity’s valuation.

Often the FME and DCF methodologies are used in valuing assets forming part of the overall Net assets on a going concern basis. This is particularly so for exploration and mining companies where investments are in finite life producing assets or prospective exploration areas.

These asset based methods ignore the possibility that the entity’s value could exceed the realisable value of its assets as they do not recognise the value of intangible assets such as management, intellectual property and goodwill. Asset based methods are appropriate when entities are not profitable, a

significant proportion of the entity's assets are liquid or for asset holding companies.

#### **9.1.4 Quoted Market Price Basis**

Another alternative valuation approach that can be used in conjunction with (or as a replacement for) any of the above methods is the quoted market price of listed securities. Where there is a ready market for securities such as the ASX, through which shares are traded, recent prices at which shares are bought and sold can be taken as the market value per share. Such market value includes all factors and influences that impact upon the ASX. The use of ASX pricing is more relevant where a security displays regular high volume trading, creating a "deep" market in that security.

### **9.2 Valuation Approach Adopted for Sub-Sahara**

The value of Sub-Sahara is reflected in the value of its assets, therefore, we consider the net asset valuation methodology to be most appropriate for valuing the shares of Sub-Sahara. We have also considered the quoted market price valuation methodology as a comparison to the net asset value methodology. For the quoted market price valuation to be considered reasonable the shares of Sub-Sahara must demonstrate an adequate depth and liquidity in trading.

We do not consider the DCF and FME valuation methodologies to be appropriate for Sub-Sahara because the Company is not able to make reliable forecasts based on current projects and it does not have a history of trading profits.

### **9.3 Valuation Approach Adopted for Chalice after the Scheme**

Following the Scheme, Sub-Sahara Shareholders will have an interest in Chalice, who will hold 100% of Sub-Sahara. Therefore, we have considered the value of Chalice and Sub-Sahara as a combined entity and have taken into account any transactions or changes in assets that will occur as a result of the Scheme and any transaction costs. We have utilised the net asset valuation methodology when considering the value of a Chalice share after the Scheme.

## 10. VALUATION OF SUB SAHARA PRIOR TO THE SCHEME

### 10.1 Net Asset Value of Sub-Sahara Shares

The value of Sub-Sahara's assets on a going concern basis is reflected in our valuation below:

	Ref	Reviewed as at 31 December 2008 \$	Low valuation \$	Preferred valuation \$	High valuation \$
<b>Assets</b>					
Cash assets	10.1.1	599,246	2,049,246	2,049,246	2,049,246
Trade and other receivables		640,484	640,484	640,484	640,484
Other financial assets		57,500	57,500	57,500	57,500
Property, plant and equipment	10.1.2	564,168	507,751	564,168	564,168
Deferred exploration, evaluation and development costs	10.1.3	8,245,582	9,600,000	12,500,000	15,000,000
<b>Total Assets</b>		<b>10,106,980</b>	<b>12,854,981</b>	<b>15,811,398</b>	<b>18,311,398</b>
<b>Liabilities</b>					
Trade and other payables	10.1.4	587,096	1,037,096	1,037,096	1,037,096
Provisions		63,580	63,580	63,580	63,580
<b>Total Liabilities</b>		<b>650,676</b>	<b>1,100,676</b>	<b>1,100,676</b>	<b>1,100,676</b>
<b>Net Assets</b>		<b>9,456,304</b>	<b>11,754,305</b>	<b>14,710,722</b>	<b>17,210,722</b>
Shares on issue			501,159,859	501,159,859	501,159,859
<b>Value of a Sub-Sahara share</b>			<b>0.023</b>	<b>0.029</b>	<b>0.034</b>

We have been advised that except for points noted below, there has not been a material change in the net assets of Sub-Sahara since 31 December 2008. The table above indicates the net asset value of a Sub-Sahara share is between \$0.023 and \$0.034, with a preferred value of \$0.029.

The following adjustments were made to the net assets of Sub-Sahara as at 31 December 2008 in arriving at our valuation.

#### 10.1.1 Cash

We have increased the cash balance of Sub Sahara by \$1 million as a result of the proceeds from the conclusion of the sale of its Tanzanian assets. We have also increased cash by \$450,000 as a result of the proceeds from a loan received from Chalice.

#### 10.1.2 Property, plant and equipment

We have adjusted the low value of property, plant and equipment held by Sub-Sahara by 10% to reflect a potential lower market value when compared to book value. We have not adjusted the preferred or high values as we consider the value of property, plant and equipment to be reasonable.

### 10.1.3 Deferred exploration, evaluation and development costs

We instructed Al Maynard and Associates Pty Ltd (“**AMA**”) to provide an independent specialist market valuation of the exploration assets held by Sub-Sahara. AMA considered a number of different valuation methods when valuing the mineral assets of Sub-Sahara. The valuation methodologies selected by AMA were the empirical method and the multiple of exploration expenditure method. The empirical method involves the application of the technical expert’s knowledge of the value of similar projects in arriving at a dollar value per inferred and indicated resource. The multiple of exploration expenditure method involves applying a multiple to historic expenditure that reflects the development stage of the assets and resource quality and amount of resource defined. Given the development stage of the exploration assets held by Sub-Sahara we consider these methods to be reasonable. AMA’s valuation is attached as Appendix 2.

AMA selected a range of values of between \$9.6 million and \$15 million, with a preferred value of \$12.5 million.

### 10.1.4 Trade and other payables

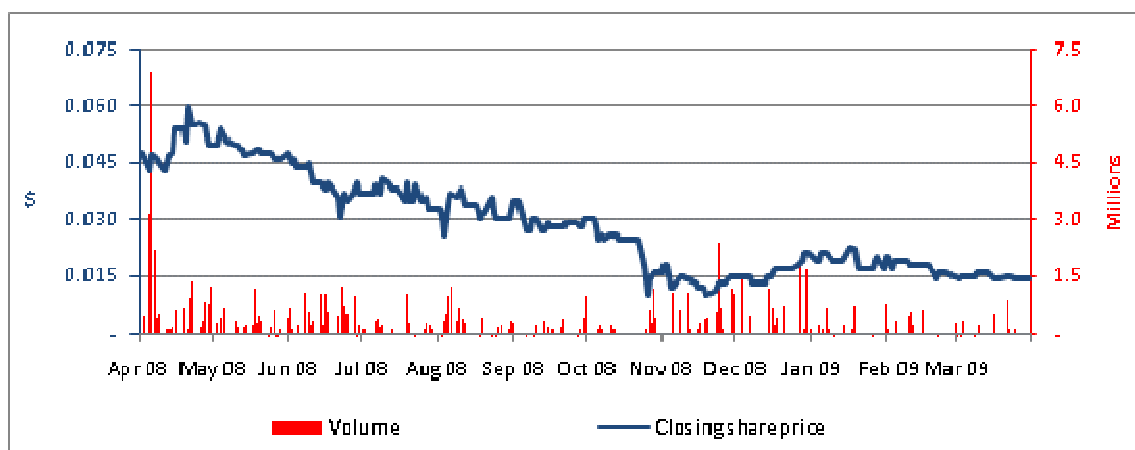
On 26 May 2009 Sub-Sahara entered into a loan agreement with Chalice. Under the terms of the loan, Chalice has lent Sub-Sahara \$450,000. Therefore, we have increased the value of trade and other payables by the amount of this loan.

## 10.2 Quoted Market Prices for Sub-Sahara Shares

### 10.2.1 Pre announcement share price

To provide a comparison to the Net Asset Valuation of Sub-Sahara in Section 10.1, we have also assessed the market price for Sub-Sahara shares.

The following chart provides a summary of the share price movement over the period from 3 April 2008 to 2 April 2009, being the last date prior to the announcement of the Scheme.



Source: Bloomberg

The daily price of Sub-Sahara shares has ranged from a high of \$0.06 on 24 April 2008 to a low of \$0.01 on 24 November 2008.

There was a substantial fall in the share price in November 2008. This fall coincided with a general fall in the value of shares listed on the ASX. There were no announcements around the period of the decline but we note that Sub-Sahara’s AGM was held on 28 November 2008.

To provide further analysis of the market prices for Sub-Sahara shares, we have also considered the weighted average market price for 10, 30, 60 and 90 day periods to 2 April 2009.

	2 April 2009	10 Days	30 Days	60 Days	90 Days
Closing price	\$0.014				
Weighted Average price		\$0.015	\$0.015	\$0.017	\$0.017

Source: Bloomberg

The above weighted average prices are prior to the date of the announcement of the Scheme to avoid the influence of any increase in price of Sub-Sahara shares that has occurred since the offer was announced.

Our assessment of the pre announcement value of a Sub-Sahara share based on the quoted market price is between \$0.014 and \$0.017.

In order to demonstrate the liquidity of Sub-Sahara's shares we have analysed the volume of trading in Sub-Sahara shares for the period to 2 April 2009 as set out below:

	Cumulative volume	% Issued capital
1 Trading Day	-	0.00%
10 Trading Days	1,227,165	0.24%
30 Trading Days	2,756,665	0.55%
60 Trading Days	7,251,900	1.45%
90 Trading Days	19,633,114	3.92%
180 Trading Days	41,598,927	8.30%

Source: Bloomberg

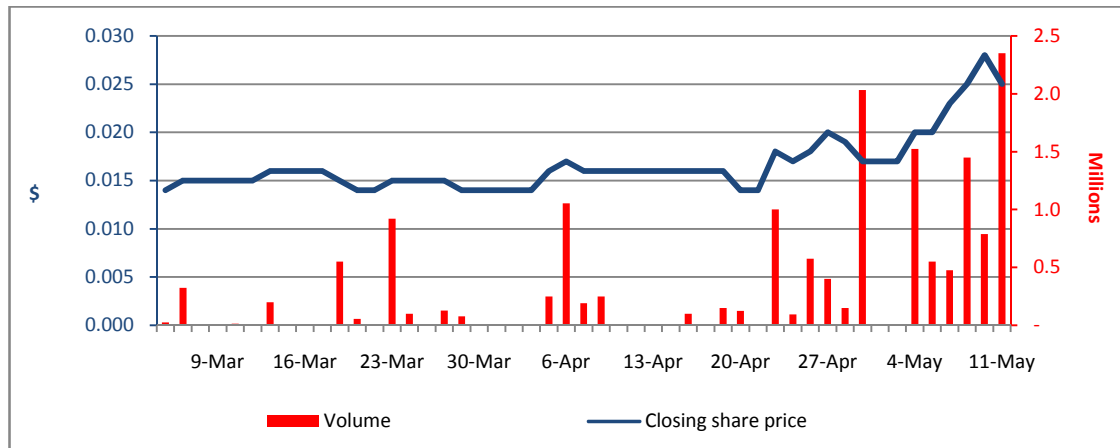
This table indicates that Sub-Sahara shares display a low level of liquidity, with 3.92% of the Company's current issued capital being traded over 90 trading days.

For the QMP method to be reliable there needs to be a 'deep' market in a company's shares. We do not consider that there is a deep market in Sub-Sahara's shares. As such, we believe it is not appropriate to rely on this valuation method considering the illiquidity of the shares.



### 10.2.2 Post announcement share price

On 1 May 2009 Sub-Sahara announced a revision to the resource estimate for the Zara Project. This resulted in a significant increase in Sub-Sahara's share price. The graph below demonstrates the movement in Sub-Sahara's share price since the announcement of the Scheme.



Source: Bloomberg

The graph above shows that Sub-Sahara's share price did not fluctuate greatly following the announcement of the Scheme. However, following the announcement on 1 May 2009 of the revised resource for the Zara Project, the share price increased significantly. We consider that this increase is reflective of the value of Sub-Sahara and does not include a material value of the potential for a combined Sub-Sahara and Chalice following the implementation of the Scheme. Therefore, we have considered it reasonable to consider the post announcement value of Sub-Sahara when considering the pre announcement value.

We have set out the weighted average share prices of Sub-Sahara to 11 May 2009 below:

	11 May 2009	10 Days	30 Days	60 Days	90 Days
Closing price	\$0.025				
Weighted Average price		\$0.022	\$0.021	\$0.020	\$0.020

Source: Bloomberg

The weighted average share price ranges between \$0.020 and \$0.022. We consider this to be a reasonable indication of the value of a Sub-Sahara shares. However, we have provided a range of values that incorporates the high value of the price of a Sub-Sahara share prior to the announcement of the Scheme. Therefore, our range is between \$0.017 and \$0.022, with a preferred value of \$0.020.

### 10.3 Conclusion of Value of Sub-Sahara Shares

In Sections 10.1 and 10.2 we have discussed the net asset value and quoted market price value of a Sub-Sahara share. These values are summarised below:

	Low value per share \$	Preferred value per share \$	High value per share \$
Net asset value	0.023	0.029	0.034
Quoted market price value	0.017	0.020	0.022

The table above indicates that the net asset value of a Sub-Sahara share is greater than the quoted market price of a Sub-Sahara share. We have selected the net asset value as our preferred valuation methodology because the accuracy of the quoted market price value requires a deep and liquid market in shares, which we do not consider applicable in the case of Sub-Sahara. Therefore, we consider the value of a Sub-Sahara share to be between \$0.023 and \$0.034, with a preferred value of \$0.029.

### 11. VALUATION OF CHALICE AFTER THE SCHEME

The value of Chalice on a going concern basis after the implementation of the Scheme is reflected below. Our valuation includes the assets and liabilities of Sub-Sahara and Chalice and also includes any other transactions that will affect the assets and liabilities of Sub-Sahara and Chalice that will occur as a result of the Scheme.

	Ref	Consolidated as at 31 December 2008 \$	Low valuation \$	Preferred valuation \$	High valuation \$
<b>Assets</b>					
Cash assets	11.1	9,992,780	9,169,780	9,169,780	9,169,780
Trade and other receivables	11.2	1,707,709	922,709	922,709	922,709
Other financial assets		189,942	189,942	189,942	189,942
Property, plant and equipment	11.3	827,880	745,092	827,880	827,880
Deferred exploration, evaluation and development costs	11.4	10,083,973	13,770,000	18,000,000	22,865,000
<b>Total Assets</b>		<b>22,802,284</b>	<b>24,797,523</b>	<b>29,110,311</b>	<b>33,975,311</b>
<b>Liabilities</b>					
Trade and other payables	11.5	746,935	292,935	292,935	292,935
Provisions		85,290	85,290	85,290	85,290
Other		51,104	51,104	51,104	51,104
<b>Total Liabilities</b>		<b>883,329</b>	<b>429,329</b>	<b>429,329</b>	<b>429,329</b>
<b>Net Assets</b>		<b>21,918,955</b>	<b>24,368,194</b>	<b>28,680,982</b>	<b>33,545,982</b>
Shares on issue			121,116,619	121,116,619	121,116,619
<b>Value of a Chalice share</b>			<b>0.201</b>	<b>0.237</b>	<b>0.277</b>

The balance sheet above reflects the combination of Sub-Sahara and Chalice's assets and liabilities. The consolidated balance sheet included in the first column does not reconcile to the Sub-Sahara and Chalice balance sheets included in Section 4 of Appendix 8 because subsequent event adjustments were made to the Sub-Sahara and Chalice balance sheets prior to making merger adjustments, however, we have included all adjustments in our low, preferred and high valuation columns and not in the consolidated accounts column.

Except for any changes included in the table above, we have been advised that there has not been a significant change in the net assets of either company since 31 December 2008. The table above indicates the net asset value of a Chalice share following the implementation of the Scheme is between \$0.201 and \$0.277, with a preferred value of \$0.237.

The following adjustments were made to the net assets of the combined entity following the implementation of the Scheme based on the 31 December 2008 balance sheet.

### 11.1 Cash assets

We have reduced the combined entity cash balance by \$0.8 million. These adjustments relate to the following:

Description	Amount \$
Payment to YIL for additional 11% interest in the Zara Project	(1,664,000)
Employee and contract termination and redundancy costs	(235,000)
Proceeds from sale of Sub-Sahara's Tanzanian assets	1,000,000
Sale of Avoca Resources Limited shares	841,000
Approximate expense costs of the merger	(765,000)
<b>Total</b>	<b>(823,000)</b>

### 11.2 Trade and other receivables

Trade and other receivables have been adjusted to reflect the receipt of shares and options in Avoca Resources Limited to settle the amount that was recorded as a receivable as at 31 December 2008 in the accounts of Chalice.

### 11.3 Property, plant and equipment

We have adjusted the low value of property, plant and equipment held by the combined entity following the implementation of the Scheme by 10% to reflect a potential lower market value when compared to book value. We have not adjusted the preferred or high values as we consider the value of property, plant and equipment to be reasonable.

### 11.4 Deferred exploration, evaluation and development costs

In Section 10.1.2 we discussed the adjustments made to the value of the Zara Project as a result of the independent valuation prepared by AMA. This value has been included in the combined balance sheet. However, we have increased the value of the Zara Project to the combined entity because, as part of the Scheme, Chalice will acquire the 11% interest in the Zara Project held by YIL.

In addition to the Zara Project, we have also included the market value of the exploration assets held by Chalice. We have instructed SRK Consulting (Australasia) Pty Ltd ("SRK") to prepare a specialist valuation of the exploration assets held by Chalice. SRK used a number of different methodologies to value the exploration assets. These methods include the comparable market value, the geoscience ratings method and the value per square kilometre method. The comparable market value

method involves applying the cost of earning an interest in a joint venture as the value of that interest. This is because the cost of an earn in reflects the value paid for the interest earned. The cost per kilometre method involves applying a value to the square kilometres included in a tenement. The cost is based on comparable transactions and the specialist expert's experience with similar tenements and is similar to the empirical method discussed in Section 10.1.2. The geoscience ratings method involves estimating the value that a project is expected to generate should it achieve production. This value is then discounted based on a number of different criteria such as the likelihood of sufficient resource existing, the characteristics of the ore and the stage of development. SRK's independent specialist valuation report is attached as Appendix 3.

We consider that the methods used by SRK to be appropriate for valuing Chalice's exploration assets. The table below summarises the value of Chalice's exploration assets:

Project	Low Value \$	Preferred Value \$	High Value \$
Yandearra	1,210,000	1,710,000	2,675,000
Gnaweeda	1,030,000	1,190,000	2,040,000
Wilga	430,000	600,000	750,000
<b>Total</b>	<b>2,670,000</b>	<b>3,500,000</b>	<b>5,465,000</b>

SRK has indicated a range of value for the exploration assets of Chalice of between \$2.7 million and \$5.5 million, with a preferred value of \$3.5 million. SRK's report is attached as Appendix 3.

The table below summarises the value of the combined entity's exploration, evaluation and development assets:

Project	Low Value \$	Preferred Value \$	High Value \$
Sub-Sahara assets (Section 10.1.2)	9,600,000	12,500,000	15,000,000
Value of Zara Project acquired from YIL	1,500,000	2,000,000	2,400,000
Chalice assets	2,670,000	3,500,000	5,465,000
<b>Total</b>	<b>13,770,000</b>	<b>18,000,000</b>	<b>22,865,000</b>

The table above indicates a value of the exploration, evaluation and development assets for the combined entity following the implementation of the Scheme of between \$13.8 million and \$22.9 million, with a preferred value of \$18.0 million.

## 11.5 Trade and other payables

We have adjusted trade and other payables by \$454,000 which is the amount Sub-Sahara owes to YIL for previous expenditure on the Zara Project and which was included in the accounts of Sub-Sahara. If the Scheme is implemented then this amount will be repaid to YIL.

## 12. IS THE SCHEME FAIR?

Chalice is offering one Chalice share for every 10.73 Sub-Sahara shares. Therefore, in order to assess fairness we need to compare the value of one Chalice share with the value of 10.73 Sub-Sahara shares. We have assessed the value of 10.73 Sub-Sahara shares below:

	Low \$	Preferred \$	High \$
Value of a Sub-Sahara share (section 10.3)	0.023	0.029	0.034
Shares exchanged	10.73	10.73	10.73
<b>Value of Sub-Sahara shares to be exchanged</b>	<b>0.247</b>	<b>0.311</b>	<b>0.365</b>

The value of Sub-Sahara shares to be exchanged for each Chalice share is compared below:

	Ref	Low \$	Preferred \$	High \$
Value of a Chalice share	10	0.201	0.237	0.277
Value of 10.73 Sub-Sahara shares	11	0.247	0.311	0.365

The above table indicates that the value of a Chalice share is less than the value of 10.73 Sub-Sahara shares. Therefore, the Scheme is not fair.

## 13. OTHER CONSIDERATIONS

### 13.1 Alternative Proposal

We are unaware of any alternative proposal that might offer the non-associated shareholders of Sub-Sahara a premium over the value ascribed to that resulting from the Scheme.

### 13.2 Implications of the Scheme not being approved

If the Scheme is not approved then it is likely that Sub-Sahara will be required to source additional funding to continue exploration and development activities. Sourcing additional funds in the current market environment is difficult. It is likely that any additional finance would be raised at a cost to Shareholders. This is because an exploration company is unlikely to obtain debt finance. Therefore, funds would need to be raised through the issue of equity. Any equity issue is likely to be at a discount to share price, will take additional time and will dilute the interests of Shareholders in Sub-Sahara.

The loan entered into between Sub-Sahara and Chalice on 26 May 2009 provides that if the Scheme is not approved by 30 September 2009 then Sub-Sahara can be required to repay the loan amount. The loan amount is \$450,000. Sub-Sahara can elect to repay the loan in cash or shares. If Sub-Sahara elects to repay the loan in shares then the shares will be issued at a price of \$0.013. Based on the loan amount of \$450,000 this would result in approximately 34.6 million Sub-Sahara shares being issued to Chalice.

### 13.3 Tax Implications

The Scheme will be considered a taxable event by the Australian Taxation Office. This means that, depending on the circumstances of individual Shareholders, a capital gain may be realised during that financial year. However, depending on the circumstances

of Shareholders, they may be able to access rollover relief which means that they will not be subject to capital gains tax as a result of the Scheme.

In brief, rollover relief is obtained when a company acquires more than 80% of another company and all of the shareholders of the company being acquired are entitled to receive shares in the acquiring company.

Shareholders are advised to seek expert taxation advice when considering the Scheme.

#### **14. IS THE SCHEME REASONABLE?**

We have considered the position of Shareholders if the Scheme is approved and have taken into account the following advantages and disadvantages in this assessment.

#### **15. ADVANTAGES AND DISADVANTAGES IF THE SCHEME IS APPROVED**

We have considered the following advantages and disadvantages to the Shareholders if the Scheme is approved.

##### **15.1 Advantages**

###### **15.1.1 Access to substantial cash reserves**

Sub-Sahara has limited cash reserves. It is likely that Sub-Sahara will be required to raise additional capital if the Company is to continue exploration activities.

It is likely that Sub-Sahara would not be able to raise debt funding to assist in exploration. This means that if Sub-Sahara needed to raise capital it would be through the issue of equity. It is likely that any capital raising would be at a discount to Sub-Sahara's share price which would dilute Shareholders interest in Sub-Sahara. Our research has found that the average capital raising for 2009 was done at a discount of approximately 14%. Any share issue at a discount to a company's share price will dilute the interests of that company's shareholders. We note that the high value of a Chalice share following the implementation of the Scheme is within the range of the values for a Sub-Sahara share prior to the Scheme.

Chalice had approximately \$9.4 million in cash as at 31 December 2008. This cash will be made available to develop Sub-Sahara's Zara Gold Project.

###### **15.1.2 Exposure to additional exploration assets**

Chalice owns a number of exploration assets. If the Scheme is approved then Shareholders will be exposed to any potential gain from successful exploration results from Chalice's assets.

Chalice's exploration assets are in early stages of exploration and development. However, Chalice has entered into earn in agreements with other parties to explore these assets.

###### **15.1.3 Benefits of being a larger company**

Following the merger Sub-Sahara Shareholders will have an interest in a company with a higher market capitalisation and sufficient cash to develop its exploration assets. This may result in improved negotiating abilities for the

company and could also result in increased liquidity in the merged company's shares.

## **15.2 Disadvantages**

### **15.2.1 Dilution of Shareholders**

Sub-Sahara shareholders currently own 100% of the Company. If the Scheme becomes effective Sub-Sahara shareholders will hold approximately 39% of Chalice. Shareholders' control and influence on decisions in the merged entity will diminish. The original Chalice shareholders will hold more than 50% but less than 75% of the merged entity which means they will be able to pass general resolutions but will not be able to pass special resolutions without the support of the original Sub-Sahara shareholders.

## **16. ADVANTAGES AND DISADVANTAGES IF THE SCHEME IS NOT APPROVED**

We have considered the following advantages and disadvantages to Shareholders if the Scheme is not approved.

### **16.1 Advantages**

#### **16.1.1 Retain current interest in Sub-Sahara**

If the Scheme is not approved then Shareholders will retain their current interest in Sub-Sahara. This means that Shareholders will continue to be exposed to the full returns, if any, of the Zara Project.

#### **16.1.2 Source a better offer**

Sub-Sahara may be able to source a better offer than the Scheme. This may be in the form of a higher value provided for Sub-Sahara shares. However, there is no guarantee that Sub-Sahara would be able to source a better offer and we are not aware of any current better offer.

### **16.2 Disadvantages**

#### **16.2.1 May not find a better offer**

If the Scheme is not approved then it is possible that Sub-Sahara may not find a better offer. A worse offer may provide a lower value for Sub-Sahara's shares or have worse advantages and disadvantages. If the directors of Sub-Sahara can't find an alternative offer at all, then it is possible that Sub-Sahara could be forced into administration.

We note that our assessed high value of a Chalice share following the implementation of the Scheme is within the range of the values for a Sub-Sahara share prior to the Scheme.

#### **16.2.2 Potential repayment of loan from Chalice**

Sub-Sahara has agreed to borrow \$450,000 from Chalice. This loan is to assist Sub-Sahara in advancing the Zara Project to feasibility stage. The loan is repayable if the Scheme is not completed by 30 September 2009. The loan can be repaid in cash or shares at the discretion of Sub-Sahara. The repayment of the loan could result in Sub-Sahara requiring to raise additional funds to repay the loan if it is repaid in cash or the dilution of Shareholders if it



repaid in shares. If Sub-Sahara elected to repay the loan in shares then it would be required to issue shares at \$0.013 per share. Based on the \$450,000 borrowed this would result in 34.6 million shares being issued.

## **17. CONCLUSION**

We have considered the terms of the Scheme as outlined in the body of this report and have concluded that the Scheme is in the best interest of the non-associated shareholders.

## **18. SOURCES OF INFORMATION**

This report has been based on the following information:

- Draft Scheme Document on or about the date of this report;
- Audited financial statements of Sub-Sahara and Chalice for the years ended 30 June 2007 and 30 June 2008;
- Reviewed financial statements of Sub-Sahara and Chalice for the six months ended 31 December 2008;
- Merger Implementation Agreement between Sub-Sahara and Chalice;
- Independent specialist geologist's valuation prepared by SRK on the exploration assets held by Chalice;
- Independent specialist geologist's valuation prepared by AMA on the Zara Gold Project;
- Share registry information
- Information in the public domain; and
- Discussions with Directors and Management of Sub-Sahara.

## **19. INDEPENDENCE**

BDO Kendalls Corporate Finance (WA) Pty Ltd is entitled to receive a fee of \$25,000 (excluding GST and reimbursement of out of pocket expenses). Except for this fee, BDO Kendalls Corporate Finance (WA) Pty Ltd has not received and will not receive any pecuniary or other benefit whether direct or indirect in connection with the preparation of this report.

BDO Kendalls Corporate Finance (WA) Pty Ltd has been indemnified by Sub-Sahara in respect of any claim arising from BDO Kendalls Corporate Finance (WA) Pty Ltd's reliance on information provided by the Sub-Sahara, including the non provision of material information, in relation to the preparation of this report.

BDO Kendalls Corporate Finance (WA) Pty Ltd is wholly owned by BDO, a member of BDO International. Prior to accepting this engagement BDO Kendalls Corporate Finance (WA) Pty Ltd considered its independence with respect to Sub-Sahara and Chalice and any of their respective associates with reference to ASIC Regulatory Guide 112 "Independence of Experts". In BDO Kendalls Corporate Finance (WA) Pty Ltd's opinion it is independent of Sub-Sahara and Chalice and their respective associates.

A draft of this report was provided to Sub-Sahara and its advisors for confirmation of the factual accuracy of its contents. No significant changes were made to this report as a result of this review.



## **20. QUALIFICATIONS**

BDO Kendalls Corporate Finance (WA) Pty Ltd has extensive experience in the provision of corporate finance advice, particularly in respect of takeovers, mergers and acquisitions.

BDO Kendalls Corporate Finance (WA) Pty Ltd holds an Australian Financial Services Licence issued by the Australian Securities and Investment Commission for giving expert reports pursuant to the Listing rules of the ASX and the Corporations Act.

The persons specifically involved in preparing and reviewing this report were Sherif Andrawes, Matt Giles and Peter Gray of BDO Kendalls Corporate Finance (WA) Pty Ltd. They have significant experience in the preparation of independent expert reports, valuations and mergers and acquisitions advice across a wide range of industries in Australia.

Sherif Andrawes is a Fellow of the Institute of Chartered Accountants in England & Wales and a Member of the Institute of Chartered Accountants in Australia. He has over twenty years experience working in the audit and corporate finance fields with BDO Kendalls and its predecessor firms in London and Perth. He has been responsible for around 100 public company independent expert's reports under the Corporations Act or ASX Listing Rules. These experts' reports cover a wide range of industries in Australia.

Matt Giles is a Fellow of the Chartered Association of Certified Accountants and an associate member of the Australian Institute of Chartered Accountants. Matt's career spans 20 years in the Audit and Assurance and corporate finance areas.

## **21. DISCLAIMERS AND CONSENTS**

This report has been prepared at the request of Sub-Sahara for inclusion in the Scheme Document which will be sent to all Sub-Sahara Shareholders. Sub-Sahara engaged BDO Kendalls Corporate Finance (WA) Pty Ltd to prepare an independent expert's report to consider the merger with Chalice.

BDO Kendalls Corporate Finance (WA) Pty Ltd hereby consents to this report accompanying the above Scheme Document. Apart from such use, neither the whole nor any part of this report, nor any reference thereto may be included in or with, or attached to any document, circular resolution, statement or letter without the prior written consent of BDO Kendalls Corporate Finance (WA) Pty Ltd.

BDO Kendalls Corporate Finance (WA) Pty Ltd takes no responsibility for the contents of the Scheme Document other than this report.

BDO Kendalls Corporate Finance (WA) Pty Ltd has not independently verified the information and explanations supplied to us, nor has it conducted anything in the nature of an audit of Sub-Sahara or Chalice. However, we have no reason to believe that any of the information or explanations so supplied are false or that material information has been withheld.

With respect to taxation implications it is recommended that individual Shareholders obtain their own taxation advice, in respect of the Scheme, tailored to their own particular circumstances. Furthermore, the advice provided in this report does not constitute legal or taxation advice to the Shareholders of Sub-Sahara, or any other party.

The taxation implications addressed are based on the Income Tax Assessment Act 1997 (Cth) (as amended), the Income Tax Assessment Act 1936 (Cth) (as amended), and the established interpretations of those Acts at the date of this report.

BDO Kendalls Corporate Finance (WA) Pty Ltd has also considered and relied upon independent valuations for the exploration assets held by Sub-Sahara and Chalice.

The specialist valuers engaged for the valuations possess the appropriate qualifications and experience to make such assessments. The approaches adopted and assumptions made in arriving at their valuations are appropriate for this report. We have received consents from the valuers for the use of their valuation reports in the preparation of this report.

The statements and opinions included in this report are given in good faith and in the belief that they are not false, misleading or incomplete.

The terms of this engagement are such that BDO Kendalls Corporate Finance (WA) Pty Ltd has no obligation to update this report for events occurring subsequent to the date of this report.

Yours faithfully

**BDO KENDALLS CORPORATE FINANCE (WA) PTY LTD**



**Sherif Andrawes**  
Director



**Matt Giles**  
Director

## Appendix 1 – Glossary of Terms

Reference	Definition
The Act	The Corporations Act
AMA	Al Maynard and Associates Pty Ltd
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
BDO Kendalls	BDO Kendalls Corporate Finance (WA) Pty Ltd
The Company	Sub-Sahara Resources NL
DCF	Discounted Future Cash Flows
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, tax, depreciation and amortisation
FMD	Future Maintainable Dividends
FME	Future Maintainable Earnings
IMF	International Monetary Fund
NTA	Net Tangible Assets
Our Report	This Independent Expert's Report prepared by BDO Kendalls
RG 111	Regulatory Guide 111 "Content of expert reports"
The Scheme	The proposal to merge with Chalice
Section 411	Section 411 of the Corporations Act
Shareholders	Shareholders of Sub-Sahara not associated with the Scheme
SRK	SRK Consulting (Australasia) Pty Ltd
Sub-Sahara	Sub-Sahara Resources NL
YIL	Yolanda International Limited

# Appendix 2

Independent valuation of Zara Gold  
Project prepared by Al Maynard  
and Associates Pty Ltd

# **AL MAYNARD & ASSOCIATES Pty Ltd**

## **Consulting Geologists**

[www.geological.com.au](http://www.geological.com.au)

**ABN 75 120 492 435**

9/280 Hay Street,  
SUBIACO, WA, 6008  
Australia

Tel: (+618) 9388 1000  
Fax: (+618) 9388 1768

Mob: 04 0304 9449  
A/h: (618) 9443 3333  
[al@geological.com.au](mailto:al@geological.com.au)

***Australian & International Exploration & Evaluation of Mineral Properties***

### **INDEPENDENT VALUATION OF THE KOKA GOLD DEPOSIT, ZARA GOLD PROJECT IN ERITREA**

**PREPARED FOR**

**BDO KENDALLS CORPORATE FINANCE (WA) PTY LTD**

Authors: Brian J Varndell BSc(Spec Hons Geol), FAusIMM  
Allen J. Maynard BAppSc(Geol), MAIG, MAusIMM  
Company: Al Maynard & Associates Pty Ltd  
Date: 8<sup>th</sup> May, 2009: Revised 20<sup>th</sup> May, 2009

## EXECUTIVE SUMMARY

This independent valuation has been prepared by Al Maynard & Associates (“AM&A”) at the request of Mr. Sherif Andrawes, Director, of BDO Kendalls Corporate Finance (WA) Pty Ltd (“BDOK”) to provide an assessment of the market value of the Sub-Sahara Resources NL (“Sub-Sahara” or “SBS”) Eritrean tenement portfolio as described in Table 1.

The Koka Gold Deposit from within the Zara Project is situated in the State of Eritrea. The project is controlled by a joint venture between Sub-Sahara (69%), Dragon Mining Limited (“Dragon”) (20%) and Africa Wide Resources Limited (“AWR”) (11%).

The Koka Gold Deposit contains a high grade resource of approximately 0.94Moz grading 5.8g/tAu with no other economic minerals identified in the resource to date.

The Zara Gold project area is valued by AM&A at A\$12.5 million from within a range of A\$9.6 million to A\$15.0 million.



**Figure 1: Koka Gold Project, Zara District, Eritrea - Location Map.**

Chalice Gold Mines Limited (“Chalice”) and Sub-Sahara propose a merger whereby Chalice is offering one of its shares for each 10.73 shares of SBS. Chalice has also entered into an agreement with AWR to acquire a company which holds its 11% interest in the Zara Gold Project, which will result in the newly merged group holding 80% of the Zara Gold Project.

Chalice will acquire the additional 11% interest in the project for \$1.2 million plus a cash payment of \$454,503 for reimbursement of previous expenditure.

Dragon will hold the balance of 20% and the combined group is considering the most effective method to form one united group that will further explore and evaluate the project area with the aim of elevating the resource status and conducting a bankable feasibility study on the Koka gold deposit.

There are other zones of gold anomalism within the project area that require further work to assess the mineralisation potential.

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The Directors  
BDO Kendalls Corporate Finance (WA) Pty Ltd,  
Level 8, 256 St Georges Terrace,  
Perth, WA, 6000.  
Attn: Sherif Andrawes.

20<sup>th</sup> May, 2009

Dear Sirs,

## **1.0 Introduction**

This report has been prepared by AM&A at your request to provide an independent appraisal of the current market value of Sub-Sahara's Eritrean tenement portfolio as listed in Table 1.

### **1.1 Scope and Limitations**

This independent valuation and its accompanying geological description have been prepared at the request of Mr. Sherif Andrawes, Director of BDOK to provide the writers' opinion of the current value of the SBS licences in Eritrea as described in this report.

This valuation has been prepared in accordance with the requirements of the Valmin code (2005) as adopted by the Australian Institute of Geoscientists ('AIG') and the Australasian Institute of Mining and Metallurgy ('AusIMM').

This valuation is valid as at 20<sup>th</sup> May, 2009 and refers to the writers' opinion of the value of the mineral assets at this date. This valuation can be expected to change over time having regard to political, economic, market and legal factors. The valuation can also vary due to the success or otherwise of any mineral exploration that is conducted either on the properties concerned or by other explorers on prospects in the near environs. The valuation could also be affected by the consideration of other exploration data, not in the public domain, affecting the properties which have not been made available to the author.

In order to form an opinion as to the value of any property, it is necessary to make assumptions as to certain future events, which might include economic and political factors and the likely exploration success. The writer has taken all reasonable care in formulating these assumptions to ensure that they are appropriate to the case. These assumptions are based on the writer's technical training and experience in the mining industry. The opinions expressed represent the writers' fair professional opinion at the time of this report. These opinions are not however, forecasts as it is never possible to predict accurately the many variable factors that need to be considered in forming an opinion as to the value of any mineral property.

The valuation methodology of mineral properties is exceptionally subjective. If an economic reserve or resource is subsequently identified then this valuation will be dramatically low relative to any later valuations, or alternatively if further exploration is unsuccessful it is likely to decrease the value of the tenements.

The valuation presented in this document is restricted to a statement of the fair value of the tenement package. The values obtained are estimates of the amount of money, or cash equivalent, which would be likely to change hands between a willing buyer and a willing seller in an arms length transaction, wherein each party had acted knowledgeably, prudently and without compulsion. This is the required basis for the estimation to be in accordance with the provisions of the Valmin Code.

There are a number of generally accepted procedures for establishing the value of mineral properties with the method employed depending upon the circumstances of the property. When relevant, AM&A uses the appropriate methods to enable a balanced analysis. Values are presented as a range and the preferred value is identified.

The readers should form their own opinion as to the reasonableness of the assumptions made and the consequent likelihood of the values being achieved. The information presented in this report is based on technical reports provided by Sub-Sahara supplemented by our own inquiries. At the request of AM&A copies of relevant technical reports and agreements were made available.

Sub-Sahara will be invoiced and expected to pay a fee for the preparation of this report. This fee comprises a normal, commercial daily rate plus expenses. Payment is not contingent on the results of this report or the success of any subsequent public fundraising. Except for these fees, neither the writer nor his family nor associates have any interest neither in the property reported upon, nor in Sub-Sahara. Sub-Sahara has confirmed in writing that all technical data known to the public domain is available to the writer.

It should be noted that in all cases, the fair valuation of the mineral properties presented is analogous with the concept of “valuation in use” commonly applied to other commercial valuations. This concept holds that the properties have a particular value only in the context of the usual business of the company as a going concern. This value will invariably be significantly higher than the disposal value, where, there is not a willing seller. Disposal values for mineral assets may be a small fraction of going concern values.

In accordance with the Valmin Code, we have prepared the “Range of Values” as shown in Table 7, section 10.4. Regarding the project, it is considered that sufficient geotechnical data has been provided from the reports covering the previous exploration of the area to enable an understanding of the geology. This, coupled with knowledge of the area provides sufficient information to form an opinion as to the current value of the mineral assets.

## **1.2 Statement of Competence**

This report has been prepared by Brian J. Varndell BSc (Spec. Hons. Geol) FAusIMM, a geologist with over 35 years experience in the exploration and mining industry and 25 years in mineral asset valuation and Allen J. Maynard BAppSc(Geol.), MAIG, MAusIMM, a geologist with over 30 years in the industry and 25 years in mineral asset valuation.

The writers hold the appropriate qualifications, experience and independence to qualify as an “Independent Expert” under the definitions of the Valmin Code. Consulting geologist Mr G Blackburn (OAM) has conducted numerous field trips to the site and environs.

## **2.0 Valuation of the Mineral Assets – Methods and Guides**

Without proven ore reserves it is not possible to realistically place a singular, unique dollar value on any mining tenement. However, with due regard to the guidelines for assessment and valuation of mineral assets and mineral securities as adopted by the AusIMM Mineral Valuation Committee on 17 February 1995 – the Valmin Code (updated 1998 & 2005) – we have derived the estimates listed below using the appropriate method for the current technical value of the mineral exploration properties as described. No market premium or discount is applied.

The following ASIC publications have also been duly referred to and considered in relation to the valuation procedure: ‘Regulatory Guidelines’ 111 & 112.

The subjective nature of the valuation task is kept as objective as possible by the application of the guideline criteria of a “fair value”. This is a value that an informed, willing, but not anxious, arms length purchaser will pay for a mining (or other) property in a transaction devoid of “forced sale” circumstances.

### **2.1 General Valuation Methods**

The Valmin Code identified various methods of valuing mineral assets, including:-

- Discounted cash flow,
- Capitalisation of earnings,
- Joint Venture and farm-in terms for arms length transactions,
- Precedents from similar asset sales/valuations,
- Multiples of exploration expenditure,
- Ratings systems related to perceived prospectivity,
- Real estate value and,
- Rule of thumb or yardstick approach.

### **2.2 Discounted Cash Flow/Net Present Value**

This method provides an indication of the value of a property with identified reserves. It utilises an economic model based upon known resources, capital and operating costs, commodity prices and a discount for risk estimated to be inherent in the project. The discount is very subjective but it is common to use a range from 2% to 7.5% of measured resources, 1.5% to 2.5% of indicated resources and 0.5% to 1.5% of inferred gold resources.

The percentages used will vary according to the details of any particular deposit such as grade, waste:ore ratio, metallurgical recovery and other relevant factors. Alternatively a value can be assigned on a royalty basis commensurate with the in situ contained metal value.

Net present value (“NPV”) is determined from discounted cash flow (“DCF”) analysis where reasonable mining and processing parameters can be applied to an identified ore reserve. It is a process that allows perceived capital costs, operating costs, royalties, taxes and project financing requirements to be analysed in conjunction with a discount rate to reflect the perceived technical and financial risks and the depleting value of the mineral asset over time. The NPV method relies on reasonable estimates of capital requirements, mining and processing costs.

### **2.3 Joint Venture Terms**

The terms of a proposed joint venture agreement may be used to provide a market value based upon the amount an incoming partner is prepared to spend to earn an interest in part or all of the property. This pre-supposes some form of subjectivity on the part of the incoming party when grass roots properties are involved.

### **2.4 Similar Transactions**

When commercial transactions concerning properties in similar circumstances have recently occurred, the market value precedent may be applied in part or in full to the property under consideration.

### **2.5 Multiple of Exploration Expenditure**

The multiple of exploration expenditure method (“MEE”) is used whereby a subjective factor (also called the prospectivity enhancement multiplier or “PEM”) is based on previous expenditure on a tenement with or without future committed exploration expenditure and is used to establish a base value from which the effectiveness of exploration can be assessed. Where exploration has produced documented positive results a MEE multiplier can be selected that takes into account the valuer's judgment of the prospectivity of the tenement and the value of the database. MEEs can typically range between 0 to 3 and occasionally up to 5.0 applied to previous exploration expenditure to derive a dollar value.

### **2.6 Ratings System of Prospectivity (Kilburn)**

The most readily accepted method of this type is the modified Kilburn Geological Engineering/Geoscience Method and is a rating method based on the basic acquisition cost (“BAC”) of the tenement that applies incremental, fractional or integer ratings to a BAC cost with respect to various prospectivity factors to derive a value. Under the Kilburn method the valuer is required to systematically assess four key technical factors which enhance, downgrade or have no impact on the value of the property. The factors are then applied serially to the BAC of each tenement in order to derive a value for the property. The factors used are; off-property attributes on-property attributes, anomalies and geology. A fifth factor that may be applied is the current state of the market.

## **2.7 Empirical Methods (Yardstick – Real Estate)**

The market value determinations may be made according to the independent expert's knowledge of the particular property. This can include a discount applied to values arrived at by considering conceptual target models for the area. The market value may also be rated in terms of a dollar value per unit area or dollar value per unit of resource in the ground. This includes the range of values that can be estimated for an exploration property based on current market prices for equivalent properties, existing or previous joint venture and sale agreements, the geological potential of the properties, regarding possible potential resources, and the probability of present value being derived from individual recognised areas of mineralisation. This method is termed a "Yardstick" or a "Real Estate" approach. Both methods are inherently subjective according to technical considerations and the informed opinion of the valuer.

## **2.8 General Comments**

The aims of the various methods are to provide an independent opinion of a "fair value" for the property under consideration and to provide as much detail as possible of the manner in which the value is reached. It is necessarily subjective according to the degree of risk perceived by the property valuer in addition to all other commercial considerations. Efforts to construct a transparent valuation using sophisticated financial models are still hindered by the nature of the original assumptions where a known resource exists and are not applicable to properties without an identified resource.

The values derived for this report have been concluded after taking into account:-

- The general geological environment of the property under consideration is taken into account to determine the exploration potential;
- Current market values for properties in similar or analogous locations;
- Current commodity prices:

## **2.9 Environmental implications**

Data collection for all matters required for Environmental assessment has been on going for over 18 months and final reports are being prepared by independent consultants.

## **2.10 Native Title Claims**

There is no Native Title in Eritrea as all land is owned by the State and all land is leased from the government by tribal groups and individuals so there is no provision in the statutes for any "Native Title Claim".

## **2.11 Commodities-Metal prices**

Where appropriate, current metal prices used are sourced from the usual metal market publications. Current gold prices were considered during this valuation.

### **2.12 Resource/Reserve Summary**

JORC compliant resources have been identified. Further drilling for elevation to Measured Resource status is required.

### **2.13 Previous Valuations**

No previous valuations have been declared within the last two years.

### **2.14 Encumbrances/Royalty**

There is a NPI royalty of 4.0% payable to Mr. A. Perry and also a 1.0% NPI royalty to Mr. A. Woldu. State rates are apparently yet to be agreed but may be retained at 5%.

## **3.0 Background Information**

### **3.1 Introduction**

This valuation has been provided by way of a detailed study of information provided by SBS for the project.

The area under review comprises four granted Exploration Licences that host gold mineralisation at an advanced exploration stage.

### **3.2 Specific Valuation Methods**

There are several methods available for the valuation of a mineral prospect ranging from the most favoured DCF analysis of identified Reserves/Resources to the more subjective rule-of-thumb assessments such as the Yardstick or Empirical methods or Comparative Value/Similar Transactions method. These methods are discussed above in Section 2.0.

For the Koka Gold Deposit, the Empirical and Multiple of Exploration Expenditure Methods are used to derive a current value range.



## **4.0 Koka Gold Project**

### **4.1 Introduction**

The Koka Gold Deposit, part of the Zara Project is situated in the State of Eritrea. The project is controlled by a joint venture between Sub-Sahara (69%), Dragon (20%) and AWR (11%); both Sub-Sahara and Dragon are listed on the Australian Securities Exchange while AWR is a private company controlled by Mr H.D. Kennedy.

The Koka Gold Deposit contains a high grade resource of approximately 0.94Moz grading 5.8g/tAu with no other economic minerals identified in the resource to date. The resource is presently being worked by artisanal miners who mine near surface high grade shoots of the mineralisation.

The Joint Venture has agreed to the Government's request to tolerate such mining on the understanding that the activity is illegal and that the JV accepts no liabilities for the actions of the artisanal miners. Furthermore, the Government has also agreed that as development proceeds they will re-locate the Artisanal miners. It is estimated that between 4-5kg of gold per month has been extracted from the deposit (<150 oz).

Eritrea has little mining history apart from some sporadic mining when it was an Italian colony (1896-1941) and a joint venture between the Japanese and the Government of Ethiopia before Eritrea became an independent state. Since independence in 1993 there has been renewed interest in the exploration potential of the country by Western, Chinese mining and other exploration companies which resulted in the discovery of world class VMS deposits such as the Bisha Au, Cu, Zn deposit by Nevsun Resources in 2000.

At the completion of the BFS, SBS will enter into negotiations with the Eritrean Government to determine the equity and participation of the Eritrean Government in the project. The Eritrean Government has the automatic right to a free carried interest of 10% in the project and can purchase an additional 30% of the project from the joint venture by agreement.

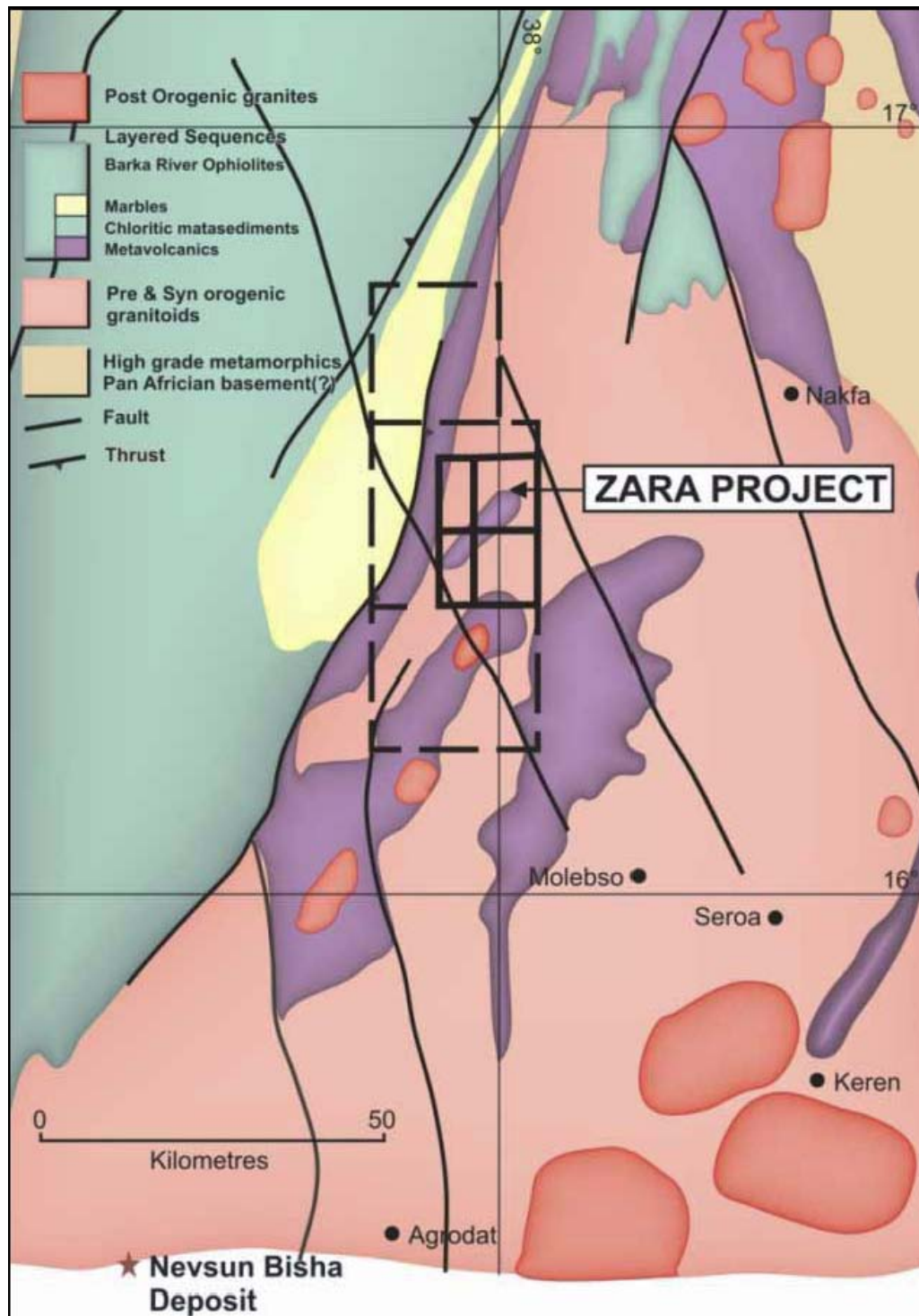
### **4.2 Tenure**

The Zara Project is currently held in Trust for the Joint Venture by Dragon Mining (Eritrea) Ltd ("DME").

The original prospecting license was issued by the Department of Mines at the Eritrean Ministry of Energy and Mines on the 2<sup>nd</sup> October 1998, and converted to 4 exploration licenses for a period of 5 years on the 20<sup>th</sup> October 2000 and reduced by 204km<sup>2</sup> to a total of 196km<sup>2</sup>. In November 2008, the JV reduced its holding to 147km<sup>2</sup>.

SBS on behalf of the JV has applied for and been granted a further 12 months extension expiring on the 25<sup>th</sup> May 2010. An additional 468km<sup>2</sup> is under application covering the northern and southern extensions.





**Figure 2: Zara Project Tenement over Geology.**

Sub-Sahara currently holds 69% of the Zara Project. On application for a mining license, the Eritrean Government is entitled to a 10% free carried interest and, in addition, the Government has the right, by agreement, to purchase a further 30% equity participation interest at market value in any mining project. The previous case where this occurred involved the State paying a substantial deposit (\$40M) initially and then the balance upon production.

The details of the Exploration Licences over the Koka Gold Deposit are listed in Table 1 below.

Project Name	Ten ID	Area km <sup>2</sup>	SBS Interest	Holder/Applicant
Zara Gold Project	Zara 1	21	69%	Dragon Mining (Eritrea) Ltd
	Zara 2	28	69%	Dragon Mining (Eritrea) Ltd
	Zara 3	49	69%	Dragon Mining (Eritrea) Ltd
	Zara 4	49	69%	Dragon Mining (Eritrea) Ltd

**Table 1: Tenement Information Summary.**

### 4.3 Property Location

The Zara Project is situated approximately 165km to the north west of Asmara, the capital of the State of Eritrea in the north eastern corner of the African continent. The project is located in a range of mountains running parallel to the Zara River which drains north into Sudan.

The 147km<sup>2</sup> property comprises a block consisting of four unequal but contiguous exploration licences bounded by the following external UTM coordinates 386000E/1827000N, 397000E/1827000N, 397000E/1813000N, 387000E/1813000N, 387000E/1820000N and 386000E/1820000N (Figs 1 &2).

### 5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Zara Property is situated on the edge of the western lowlands in semi arid mountainous terrain approximately 165km north-north-west of the capital of Eritrea, Asmara. The project area varies in elevation from approximately 650m at the Zara River to over 1,700m at the summit of Debre Konate. Typically, rains fall between June to September (330-500 mm) and often cause flash floods on the numerous creeks and tributaries of the Zara River. Temperatures often exceed 40°C during the summer months.

Approximately 8km to the west of the Koka Gold Deposit is the town of Rikeb that accommodates a significant portion of the illegal artisanal miners working in the areas surrounding the Project and the JV allow these artisanal activities to continue on the basis that the government has agreed to assist the JV to re-locate all illegal artisanal miners when their presence is dangerous or detrimental to the development of the project. Surrounding the project area are several small nomadic encampments that have been drawn to the area due to employment opportunities and the provision of potable water supplies.

The project area has limited infrastructure with no reticulated power and limited access. The project can be accessed via two routes, the northern route which runs almost directly NNW to the Zara Property from Asmara via Keren or a longer western route. There is potential to construct an airstrip near the town of Rikeb.

## **6.0 History**

### **6.1 Joint Venture Agreement: Dragon – Sub-Sahara**

In February 2003, SBS entered into a Joint Venture Agreement with DME to acquire a 70% (65% of Zara) interest in the DME equity interest in the Zara Joint Venture (“JV”) detailed below:

- Stage 1: SBS had an exclusive option period of 9 months to evaluate the Zara property during which time it had a spend US\$50,000.
- Stage 2: SBS could earn a 51% interest in DME equity portion of the JV by spending US\$200,000 within a period of 18 months through to June 2005. At this time SBS would have a 39.99% interest in the Zara Property.
- Stage 3: SBS could earn a further 19% of DME interest in the project by producing a BFS or spending US\$3.3M on the property ie: DME is carried through to the completion of the BFS.
- Therefore the total possible equity in the project which SBS could acquire through this agreement with DME is 46.66%.

As of June 2008, SBS exploration expenditure for Zara exceeds US\$3.3M and SBS has acquired its 46.66% interest in the project.

### **6.2 Joint Venture Sub-Sahara – AWR**

On the 26<sup>th</sup> September 2006, SBS entered into an agreement with AWR to acquire a 22.35% equity interest in the Zara property under the following conditions:

- SBS agreed to free carry AWR’s remaining 11% interest in the Zara property through to the completion of a bankable feasibility study.
- SBS agreed that if it failed to do this it would forfeit its rights to the 22.35% equity interest in the project and it would be returned to AWR.
- At a decision to mine SBS would pay to AWR a sum of US\$454,503 (AWR cost to the 30<sup>th</sup> January 2006).
- SBS will join AWR into any third party finance arrangements to develop the Zara Project.
- If AWR is required by a third party to contribute equity for the development of Zara then SBS will provide a loan to AWR to enable it to contribute its share of the required equity. The loan will be on commercial terms and payable out of 50% of AWR share of future earnings.

If a BFS is completed on the Zara project then the final equity interests in the project will be SBS 69%, DME 20% and AWR 11%. Both AWR and DME are carried through to the completion of a BFS and AWR are effectively carried through to production since SBS is required to provide a loan to AWR to cover any equity interests in the development of the project.

If SBS does not complete a BFS on the project then the equity interest in the project for the various parties will be SBS 46.6%, DME 20% and AWR 33.4% which would be unworkable since the project is not big enough to support such an equity structure.

## **7.0 Geology**

### **7.1 Introduction**

Due to the amount of exploration work carried out by SBS and its predecessors, the regional and local geology of the Koka area is well understood. The Koka deposit is only part of a more extensive mineralised corridor and the exploration potential of the area is classed as significant.

### **7.2 Regional Geology**

Eritrea is underlain by Neoproterozoic basement metamorphic rocks which are in turn overlain by Mesozoic and Quaternary sedimentary rocks. The basement Neoproterozoic rocks that are part of the Arabian-Nubian Shield, comprise at least four accretionary terrains separated by large regional shear zones. All these terrains have been sutured together and 'welded' to the African continent by plate tectonic processes associated with the collision of East and West Gondwana.

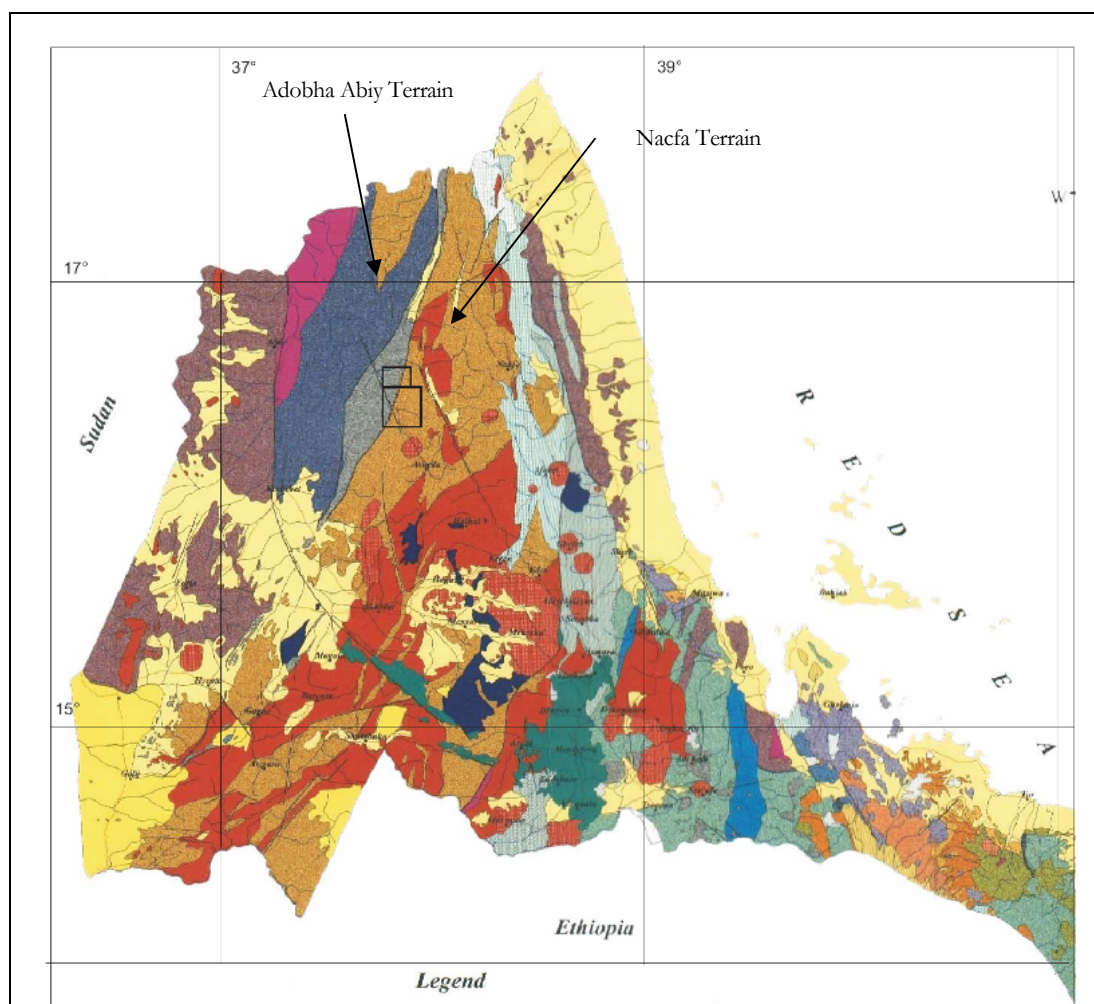
The configuration of the Barka, Hagar, Adobha Abiy and Nakfa terrains is illustrated in Figure 5. The western Barka terrain probably represents older continental crust onto which the other terrains have been tectonically welded.

As far as base metal and gold mineralisation potential is concerned, the most important of the terrains is the Nakfa Terrain that consists of continental-margin and juvenile, intra-oceanic and magmatic arc rocks. It contains assemblages of volcanic and sedimentary rocks formed in the ocean-floor and island arc environments in which VMS deposits typically form.

The Bisha deposit being developed by Nevsun Resources and related satellite deposits occur along the NE trending, western edge of the Nakfa terrain, the Asmara VMS deposits occur along the NW trending, eastern edge of the Nakfa terrain. The Zara Property is situated astride the suture between the Adobha Abiy and the Nakfa terrains.

Beside the two known VMS camps of the western Bisha area and the eastern Asmara area there are also numerous occurrences of gold mineralisation associated with quartz veins in shear zones throughout the Nakfa Terrain. Historically these have generally proven to be small to medium scale prospects with erratically distributed, high grade, gold values. The total historical production of gold in Eritrea amounts to less than 100,000oz. The Koka Gold Deposit is a significant maiden deposit in what has been described as a new gold camp.





**Figure 3: Regional Geology Map of Eritrea.**

### 7.3 Project Area Geology

The Zara Property is situated approximately 165km north-northwest of Asmara, the capital of Eritrea, within rocks assigned to the Nacfa and Adobha Abiy terrains and contains a number of Gold prospects, of which Koka Prospect is currently the most important. Significantly this prospect lies close to a flexure in the Elababu Shear Zone, which separates the Adobha Abiy and Nacfa terrains, where there is an abrupt change in azimuth from NE to NNE.

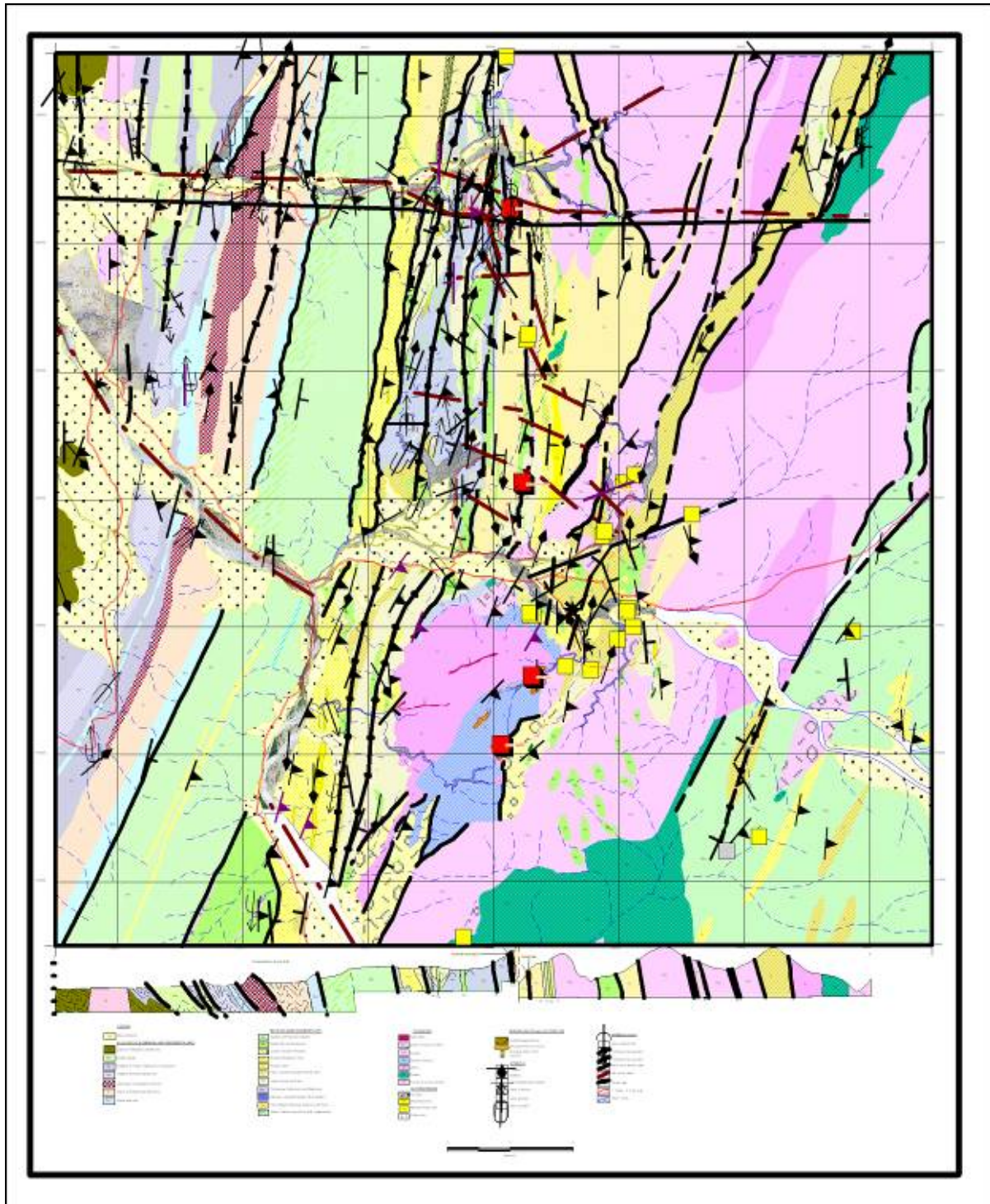
The eastern and central portions of the property are underlain by meta-volcanic and meta-sedimentary rocks, metamorphosed to Greenschist Facies, together with post-tectonic granitoids, assigned to the Nacfa Terrain, whereas the western portion is underlain by predominantly siliciclastic rocks, together with minor meta-chemical sedimentary rocks, basalt and syn-tectonic granitoids, assigned to the Adobha Abiy Terrain.

The Koka mineralised zone has a total strike length of more than 700m and lies adjacent the sheared and altered contact between a sequence of meta-sedimentary and meta-basaltic rocks in the west (footwall) and a meta-volcanic and meta-volcaniclastic sequence, intruded by granitoid bodies, to the east (hangingwall) within to the Nacfa Terrain.

The meta-sedimentary rocks comprise tuffaceous greywackes-siltstones-shales, logged in the diamond drillholes as GWK/STS/SHL, together with minor mafic intrusive rocks that are logged as basalt (“BAS”) and occasionally dolerite (“DOL”). This sequence is isoclinally folded.

The meta-volcanic and meta-volcaniclastic sequence comprises more massive, principally intermediate and acidic, pyroclastic rocks logged as FE/TUF and intrusions of microgranite/micrographic microgranite logged as MGT (altered microgranite) and PGT (pink microgranite – unaltered) together with minor rhyolite and dacite, logged as RHY and DAC respectively.

The contact between these two major sequences is linear, sharp and sub-vertical to steeply, easterly dipping and orientated approximately north-south. It is strongly sheared and mylonitised (“MYL”). This contact is sub-parallel to a pervasive regional fabric developed, particularly in the finer grained rocks, that also dips steeply to the east. A shallow, southerly plunging, regional lineation is also evident.



**Figure 4: Zara Project Area Geology.**

#### **7.4 Mineralisation**

Low-grade regional metamorphism in the lower Greenschist Facies is considered to have affected the volcanogenic rocks, producing foliated metamorphic assemblages dominated by mats of sericite, with micro-granular albite and quartz.

The mineralisation is developed principally within an elongate, lensoid body of microgranite intruded along the western margin of the meta-volcanic and meta-



volcaniclastic succession. This unit has been strongly silicified and brecciated and is cut by a stockwork of quartz veins.

There is a considerable competence contrast between this unit and the meta-sedimentary and meta-basaltic sequence immediately to the west. This competence contrast is believed to be significant in locating both deformation and mineralisation. The meta-sedimentary rocks behave competently, whereas the meta-volcanic and meta-volcaniclastic sequence behaves incompetently, the latter resulting in brecciation and multiple phases of quartz veining.

The western contact of the microgranite is the conduit for a <20m wide zone of intense alteration, chiefly carbonation and sericitization.

Multi-element geochemical patterns indicate that this zone is enriched in Ca, Mg, K and Fe. 50-80m east of this major contact, the multi-element geochemical patterns outline a second zone of intense alteration, also enriched in Ca, Mg, K and Fe, within the microgranite, which is only 10m wide. To the east of this second zone of intense alteration the microgranite is pinkish in hue due to the appearance of K-spar and shows less evidence of alteration. It is cut by later basaltic intrusives.

The footwall contact of the microgranite, which hosts the gold mineralisation at Koka is, therefore, the contact between the meta-sedimentary rock and the microgranite. To date, no anomalous gold mineralisation has been intersected in any of the footwall rocks.

The hanging wall contact is taken as the first appearance of unaltered, pinkish, potash feldspar-bearing microgranite. The mineralisation lies within this 50-80m wide zone. It is preferentially located closer to the footwall contact and is intimately associated with a stockwork of quartz veins. In some of the wider intersections eg ZARD010, the higher grades and more contiguous mineralisation are found closer to the sharp footwall contact, whereas the hangingwall contact of the mineralisation is more diffuse.

Fracturing, veining and mineralisation particularly affected the microgranite, possibly because it behaved as a structurally competent unit which readily suffered fracturing in response to deformation. Thin brittle fractures and open fractures encouraged invasion of the rock body by abundant mineralising hydrothermal fluid composed mainly of H<sub>2</sub>O and CO<sub>2</sub>, with minor other dissolved components including S, Zn, Pb, Cu, Au and possible Sb.

Thin fracture networks were sealed by fine-grained foliated sericite ± carbonate (dolomite), and are now observed as thin pale yellowish green fracture fillings in white host rock which suffered selective pervasive replacement by the alteration assemblage albite + minor sericite + carbonate (dolomite) + opaques (pyrite ± inclusions of sphalerite, galena) + trace leucoxene (possibly rutile).

Primary quartz and zircon are invariably preserved, and primary potash-feldspar has survived in pale, pinkish-cream rocks that have suffered lower intensity of alteration. Rare small grains of native gold formed adjacent to veins.

In the open fractures, hydrothermal fluid crystallised to form massive vein assemblages of coarse grained quartz + sulphides (pyrite >> sphalerite > galena >> chalcopyrite >>tetrahedrite) ± carbonate (dolomite, calcite) ± native gold.



The native gold formed mostly as inclusions in pyrite, but also as discrete grains in galena, in quartz and in calcite. In places, small ragged to ovoid fragments of host rock were captured in the veins, and have suffered strong replacement by albite, sericite, carbonate (dolomite), and minor pyrite.

The Koka Prospect is considered to represent a Greenschist Facies, lode-gold deposit in which most of the gold is hosted by quartz-sulphide veins, with only minor gold associated with the altered wall rocks.

## 8.0 Recent Work

### 8.1 Drilling

All drilling at Koka was supervised by SBS and carried out by a single contractor. The total number of holes drilled and metreage is summarized in Table 2 below:

Method	Number	Average Length	Total Metres
DDH -Koka	122*	96.4	11,763.5
DDH -Konate	5	146.3	731.7
Total	127		12,495.2

**Table 2: Summary of Drilling and Sampling Statistics.**

\*Note: 8 of these holes (totalling 1,078m) not assayed as they were drilled for metallurgical test work.

The drill program was designed to test the mineralised zone on a 40 m x 20 m grid. The vast number of drillholes in the steeply east dipping Koka deposit were collared with an azimuth of approximately 100° (UTM). A smaller number of holes completed during the initial phase of exploration when the true dip of the deposit was unknown were collared at an azimuth of approximately 280°.

All drill hole collars were surveyed using a DGPS and down hole surveys have been completed on approximately 30m downhole intervals using a Reflex EZ-Shot tool. All core was routinely orientated using the spear technique.

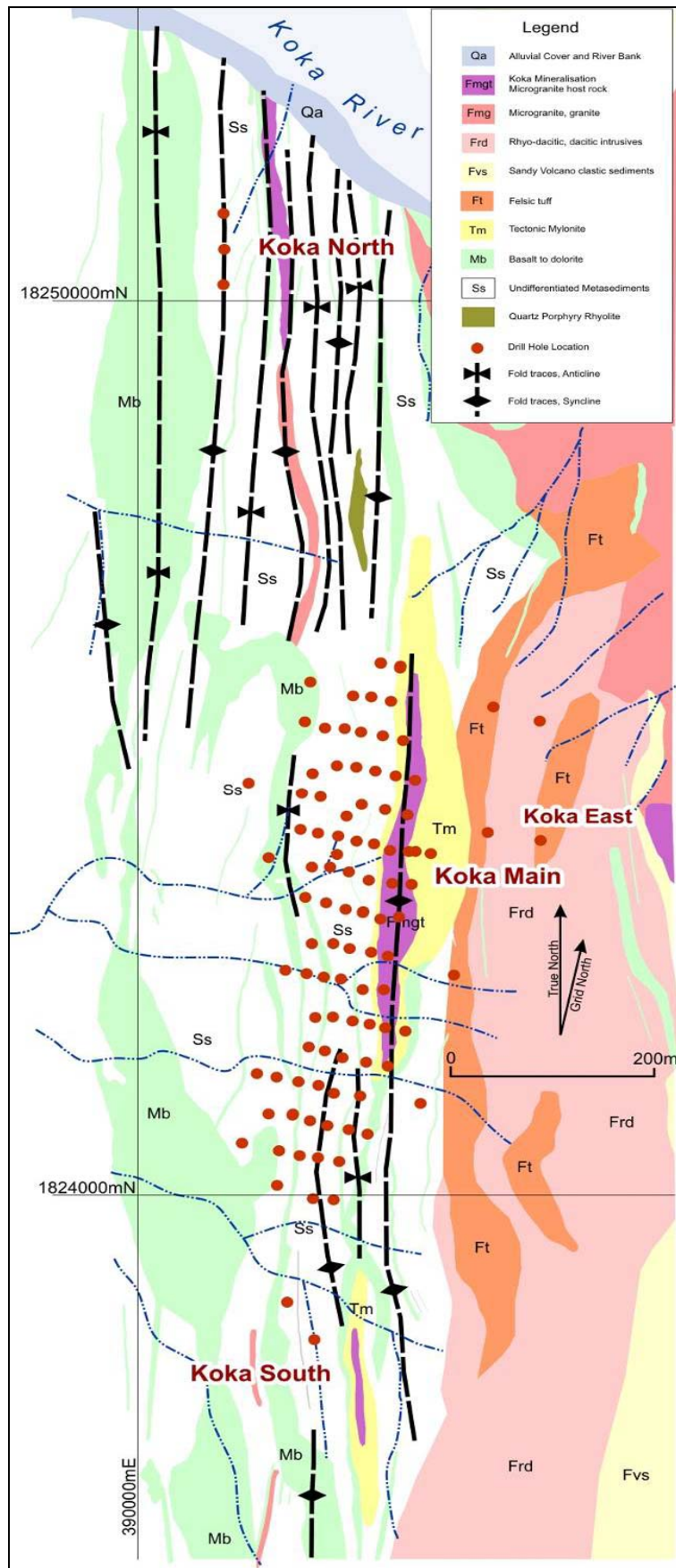


Figure 5: Koka Deposit Drillhole Collar Map.

Hole	Depth (m)	North (UTM)	East (UTM)	Azimuth (°)	Dip (°)	From (m)	To (m)	Interval (m)	Gold (g/t)
ZARD067	151.45	1,824,392	390,230	102	-56	33	37	4	21.37
						134	138	4	59.89
ZARD068	147.40	1,824,043	390,156	102	-53	135	136	1	88.78
ZARD069	160.30	1,824,351	390,225	102	-53	148	159	11	172.95
ZARD070	101.50	1,824,469	390,251	102	-45	38	51	13	57.24
			including			40	43	3	170.94
			including			44	50	6	33.30
ZARD071	140.70	1,824,081	390,166	102	-52	130	134	4	41.62
ZARD073	154.00	1,824,431	390,241	102	-55	105	108	3	49.05
ZARD075	101.10	1,824,147	390,222	102	-53	31	61	30	38.01
						69	86	17	13.79
ZARD079	90.60	1,824,072	390,205	102	-50	75	76	1	78.19
ZARD081	96.90	1,824,110	390,217	102	-50	37	47	10	76.82
						65	69	4	28.71
ZARD083	115.00	1,824,190	390,226	102	-52	38	44	6	69.50
						48	49	1	76.82
ZARD084	155.25	1,824,160	390,181	102	-52	96	102	6	17.46
ZARD085	129.00	1,824,310	390,255	102	-50	10	14	4	20.55
ZARD088	105.00	1,824,229	390,240	102	-50	52	58	6	89.62
ZARD095	122.75	1,824,384	390,265	102	-50	8.5	11.5	3	34.98

**Table 3: Significant Assay Results from Diamond Drilling.**

*Note: The metres quoted are down-hole metres and the gold grades are uncut with up to 2m of internal dilution (<0.25g/t gold). All samples are prepared at the Africa Horn Laboratory in Asmara, Eritrea and then analysed by Genalysis Laboratories in Perth, Western Australia. All samples are diamond drill core.*

Drill holes ZARD107 and ZARD110 were used to test for a possible southerly strike extension to Koka Main. The holes intersected significant gold mineralisation up to 160m south of the existing drilling and confirm the potential to significantly increase the existing resource to the south from 600m to 760m. The most significant assay results returned from the Koka South drilling are given below (Table 4):

Hole	Depth (m)	North (UTM)	East (UTM)	Azimuth (°)	Dip (°)	From (m)	To (m)	Interval (m)	Gold (g/t)
ZARD107	160.00	1,823,878	390,144	102	-50	124	125	1	2.22
ZARD110	133.50	1,823,836	390,171	102	-50	66	67	1	12.51
						75	76	1	91.98

**Table 4: Significant Assay Results from Diamond Drilling – Koka South.**

*Note: The metres quoted are down-hole metres and the gold grades are uncut. All samples are prepared at the Africa Horn Laboratory in Asmara, Eritrea and then analysed by Genalysis Laboratories in Perth, Western Australia. All samples are diamond drill core.*

## **8.2 Sampling**

Sampling of the drill core was carried out on approximately 1.0m intervals under the supervision of SBS geologists. The core after being rotated away from the orientation line was cut in half with a diamond saw with half of the core retained for reference and half bagged for transportation to the sample preparation facility at Asmara prior to being shipped to internationally accredited labs for assay.

Sample recovery from the diamond drilling is reported to be good.

As part of the quality control procedures a blank sample was introduced for every 20 to 25 samples dispatched for analysis. Also certified reference samples were added at both the start and end of the sample batch to determine the accuracy of the analytical laboratory, these samples were sourced from Geostats in Perth. Other procedures implemented to check the quality of the analysis for the assay laboratories were:

- 5% of the returned coarse reject samples were submitted to an umpire laboratory as a check of relative precision.
- 5% of all returned pulps were resubmitted for assay.
- 5% of the returned pulps were wet sieved to test the consistency of the pulverization.

## **8.3 Bulk Density Measurement**

A total of 2,310 bulk density measurements were collected from diamond drill core and vary from 2.05-4.33 t/m<sup>3</sup> (average 2.74). Bulk density measurements were determined on site by the water immersion method prior to submission to the laboratory for sample preparation and assay.

## **8.4 Resource Estimate Calculations**

Coffey Mining Pty Ltd (“Coffey”) estimated the resource based on 114 diamond holes averaging 96m for a total of 10,990m drilled between August 2005 and late 2008. The resource model was derived via geological interpretation and modelling of the mineralised zone. Coffey staff did not complete a site visit to Koka and therefore relied on unpublished reports and data supplied by SBS and its consultants.

Multiple Indicated Kriging (“MIK”) estimation with direct log normal change of support to emulate mining selectivity was utilized as an appropriate estimation method based on the quantity and spacing of the available data, style of mineralisation, and interpreted geological controls.

The final “smallest mining unit” (“SMU”) model was generated from the MIK estimates to emulate assumed open pit grade control and mining selectivity and assumes a 5m E x 10m N x 5m RL SMU dimensions. A variance adjustment factor of 0.06 was applied to effect change of support.

## 9.0 Resource Estimate

The Koka Gold Deposit Mineral Resource estimate is reported above a 1.2g/t-Au lower cut-off and a high-grade cut of 60g/t Au has been applied to 3m downhole composites. The methodology employed MIK derived SMUs of 5x10x5m dimensions using a bulk density of 2.74t/m<sup>3</sup> to emulate assumed open pit mining selectivity.

Category	Tonnes (Mt)	Grade (g/t Au)	Au Metal (koz)
Indicated	4.55	5.9	867
Inferred	0.49	4.9	77
Totals	5.04	5.8	944

**Table 5: Resource Estimates.**

## 10.0 Valuation of the Project

### 10.1 Valuation Method Selection

To determine a fair market value several aspects need to be considered. As no JORC Reserves are available, only Inferred and Indicated Resources, the Discounted Cash Flow method is not applicable. The Kilburn method is considered to provide a range of values that is so wide that it is not realistic. Thus, the writer considers that the Empirical or Yardstick method is the most applicable with some weighting given to the MEE method.

### 10.2 Empirical Method

The resource mineralisation estimates have a suitable discount factor applied to them in order to derive a current cash value range. In this case a value range from A\$20 to \$30 per Indicated Resource ounce and \$10 to \$15 per Inferred Resource ounce is considered appropriate as we do not yet have any ounces in the Measured Resource category.

Further, as the percentage interest held by SBS will effectively be 69% then that fraction of the value range is applied to the initial number ranges to accurately reflect the Company's interests.

Lastly, an additional discount factor of 20% is applied across this second range. This factor comprises the 10% attributable to the Eritrean State before mining commences plus 10% to allow for risk factors such as sovereign, geological, mining and price risks. The last four risks are allocated 2.5% each.

Future royalty payments do not affect this current valuation and cannot do so until mining actually commences. By the time mining begins then a much better understanding of all 'Project Risks' will have been gained and may then be accounted for.

May 09 Data	Sub Sahara Resources NL			Koka Gold Project Ind/Inf \$/oz Au (A\$M)		
Zara Gold JV	Mt	Au g/t	Au oz	25/12.5	20/10	30/15
Indicated	4.55	5.9	867000	21.7	17.3	26.0
Inferred	0.49	4.9	77000	1.0	0.8	1.2
<b>TOTAL</b>	5.04	5.8	944000	22.6	18.1	27.2
<b>SBS Share A\$M</b>				15.6	12.5	18.7
<b>20% discount (10% Gov + 10% Sov Risk)</b>				12.5	10.0	15.0
				Preferred	Low	High

**Table 6: Gold Resource Discounted Values.**

The "Preferred" or "Most Likely" current cash value by this method is the average of the Low & High which is \$12.5 million.

### 10.3 Multiple of Exploration Expenditure Method

Approximately A\$15 million have been expended on exploration on the project area in the last three years of activity to December 2008. There were several 'gap periods' when moratoriums were in place due to border wars with Ethiopia. As the majority of this work (80% = \$12.0M) was effective in outlining gold resources an MEE factor range from 0.8 to 1.2 is deemed appropriate to apply to this effective expenditure (\$12.0M) to derive a current cash value by this method.

Thus the value range by the MEE method is \$9.6M to \$14.0M and the preferred value is ascribed at A\$12.5M. Because of the successful outlining of gold resources at the Zara Project the most likely or preferred value is adjusted slightly upwards from the mean figure of \$11.8M to \$12.5M.

## 10.4 Valuation Conclusions

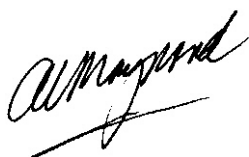
The final valuation is derived from within the ranges provided by the two different methods as listed in Table 7 below.

Method	Value as at May 2009		
	Low A\$M	High A\$M	Preferred A\$M
Discounted Indicated & Inferred Resources	10.0	15.0	12.5
MEE	9.6	14.0	12.5
<b>Range</b>	<b>9.6</b>	<b>15.0</b>	<b>12.5</b>

**Table 7: Range of Values.**

Thus, it is the writers' opinion that the current cash value of the SBS 69% share of the Koka Gold Deposit is A\$12.5 million from within the ranges of \$9.6 million to A\$15.0 million.

Yours faithfully,



Allen J. Maynard

BAppSc(Geol), MAIG, MAusIMM.



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# Appendix 3

Independent valuation of Chalice  
Gold Mines Limited's exploration  
assets prepared by SRK  
Consulting (Australasia) Pty Ltd

# **Valuation of the Yandearra, Gnaweeda and Wilga Exploration Assets of Chalice Gold Mines Ltd**

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**Report Prepared for  
BDO Kendalls Corporate Finance (WA) Pty Ltd**

**Prepared by**



**BDO001**

**May 2009**

# Valuation of the Yandearra, Gnaweeda, and Wilga Exploration Assets of Chalice Gold Mines Ltd

## BDO Kendalls Corporate Finance (WA) Pty Ltd

Level 8, 256 St Georges Terrace PERTH WA 6000  
PO Box 7426 Cloisters Square Perth WA 6850

SRK Consulting (Australasia) Pty Ltd  
Level 8, 20 Queen Street MELBOURNE VIC 3000

Dr Louis Bucci, [lbucci@srk.com.au](mailto:lbucci@srk.com.au)

BDO001

May 2009

Compiled by:		Peer Reviewed by:	
Dr Louis Bucci Principal Consultant		Dr Peter Williams & Deborah Lord Principal Consultants	
Authors:			
Deborah Lord, Dr Kate Bassano			

## Executive Summary

BDO Kendalls Corporate Finance (WA) Pty Ltd (BDO) contacted SRK Consulting (Australasia) Pty Ltd (SRK) to review SRK's previous valuation report for Chalice Gold Mines Limited (Chalice) completed in October 2008. This reviewed report is intended to form part of an Independent Expert's Report being compiled by BDO in relation to the proposed merger of Sub Sahara Resources NL (Sub Sahara) and Chalice.

SRK has considered a large exploration package incorporating tenements in the Pilbara Craton, Murchison Province and Laverton District, all in Western Australia, for this valuation, across projects deemed prospective for Au, Fe-ore, Cu, U and Ta.

The valuation is dated at 8 May 2009.

The main value of this project was contributed by Chalice's Au exploration assets at Yandeearra and Gnaweeda.

Three different methods were utilised to determine an appropriate value for the Chalice assets, namely an analysis of joint venture (JV) conditions as applied to specific minerals for particular projects, Comparable Transactions valuation method, and a Geological Risk valuation method. The results of the valuation as based on these analyses are presented below.

Area	Unit	Low (A\$)	Preferred (A\$)	High (A\$)
Yandeearra	Au	980,000	1,000,000	1,300,000
	Fe (BIF OR CID)	115,000	420,000	725,000
	Cu	115,000	290,000	650,000
	U	0	0	0
	Ta	0	0	0
	<b>Sub-total</b>	<b>1,210,000</b>	<b>1,710,000</b>	<b>2,675,000</b>
Gnaweeda	Au	860,000	1,000,000	1,800,000
	Cu	170,000	190,000	240,000
	<b>Sub-total</b>	<b>1,030,000</b>	<b>1,190,000</b>	<b>2,040,000</b>
Wilga	Au	430,000	600,000	750,000
<b>Total</b>		<b>2,670,000</b>	<b>3,500,000</b>	<b>5,465,000</b>

**It is SRK's opinion that the exploration assets, which are the subject of this review, should be valued between A\$2.7M and A\$5.5M, with an SRK preferred value of A\$3.5M.**

This estimation must be considered in the context of the caveats discussed in the Report.

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Appendix 1: BDO Kendalls' Instruction Letter to SRK
Appendix 2: Costs and Default Probabilities Utilised in Geological Risk Method Calculations

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## Disclaimer

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The opinions expressed in this Report have been based on the information supplied to SRK Consulting (Australasia) Pty Ltd (SRK) by Chalice Gold Mines Ltd (Chalice) and Sub Sahara Resources NL (Sub Sahara). The opinions in this Report are provided in response to a specific request from BDO Kendalls (BDO) to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequent liability arising from commercial decisions or actions resulting from them.

## List of Abbreviations

Abbreviation	Meaning
Au	Chemical symbol for gold
BIF	Banded Iron Formation
BFS	Bankable Feasibility Study
DFS	Definitive Feasibility Study
Cu	Chemical symbol for copper
E	east
EW	east-west
Fe	Chemical symbol for Iron
ha	hectare
JORC Code	Australia Code for Reporting of Mineral Resources and Ore Reserves, prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC), September 1999. Internationally accepted.
k	thousand
kg	kilogram
km	kilometre
km <sup>2</sup>	square kilometre
m	metre
M	million
m RL	metres reduced level
mE	metre east
mN	metres north
Mt	million tonnes
NE	north-east
NPV	net present value
NW	north-west
OPEX	operating expenditure
oz	Ounce
pa	per annum
PGE	Platinum Group Elements
PFS	Pre-Feasibility Study
REE	Rare Earth Elements
SE	south-east
SRK	SRK Consulting
t	tonnes
Ta	Chemical symbol for tantalum
tpa	tonnes per annum
U	Chemical symbol for uranium
VHMS	Volcanic Hosted Massive Sulphide
W	west

# 1 Introduction and Scope of Report

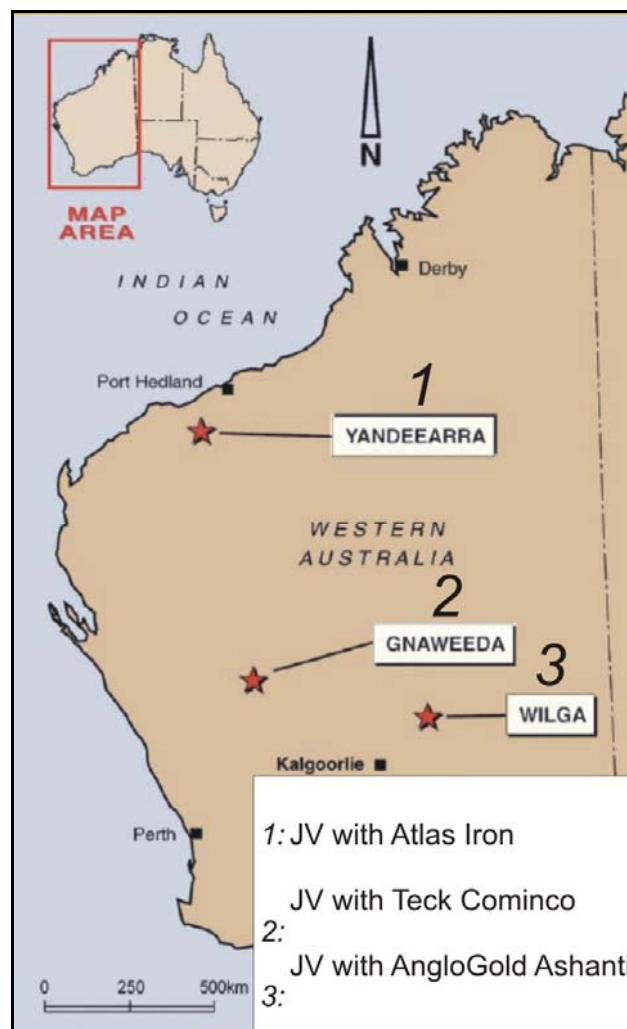
## 1.1 Programme Objectives

BDO Kendalls Corporate Finance (WA) Pty Ltd (BDO) contacted SRK Consulting (Australasia) Pty Ltd (SRK) to review SRK's previous valuation report for Chalice Gold Mines Limited (Chalice, ASX: CHN) completed in October 2008 (SRK, 2008). This reviewed report is intended to form part of an Independent Expert's Report being compiled by BDO in relation to the proposed merger of Sub Sahara Resources NL (Sub Sahara, ASX: SBS, Frankfurt, Stuttgart Munich & Berlin Exchange Code: 895112) and Chalice.

SRK has undertaken a valuation of the following exploration assets:

- Yandearra Project
- Gnaweeda Project
- Wilga Project

The assets are located in Western Australia, within the West Pilbara (Yandearra), Murchison (Gnaweeda), and Laverton (Wilga) Districts (Figure 1-1).



**Figure 1-1: Location of the exploration assets valued in this report**

SRK understands that no resources, as defined under the Joint Ore Reserves Committee (JORC) Code of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia, are defined on any of the exploration assets reviewed herein.

SRK will provide an opinion as to the value of the exploration potential of the tenements, based on the technical information provided by Chalice and Sub Sahara. Review of the provided data indicates that Chalice and their joint venture (JV) partners consider the projects prospective for the commodities/mineralisation style as presented in Table 1-1. This will be considered in the Geological Risk Method valuation (see Section 4.3).

**Table 1-1: Commodities/Mineral Systems considered by Chalice as prospective in their project areas**

Project	Mineralisation style	Commodity(ies)
Yandeearra	Orogenic Lode Gold	Au
	Intrusion-related	Ta, U
	Volcanic Hosted Massive Sulphide	Base metals
	BIF hosted or Channel Iron Deposit (CID)	Fe
Gnaweeda	Orogenic Lode Gold	Au
	Volcanic Hosted Massive Sulphide	Base metals
Wilga	Orogenic Lode Gold	Au
	Volcanic Hosted Massive Sulphide	Cu

No statement will be made by SRK on the effect of development capital expenses, tax or other statutory costs that may affect the project(s) value.

This valuation is dated at 8 May 2009.

## 1.2 Purpose of the Report

BDO contacted SRK to review SRK's previous valuation report for Chalice completed in October 2008 (SRK, 2008). This reviewed report is intended to form part of an Independent Expert's Report being compiled by BDO in relation to the proposed merger of Sub Sahara and Chalice. The Independent Expert's Report will be a public document, and as such, this reviewed valuation report has been prepared in accordance with the VALMIN Code (2005).

A decision was made to not conduct a site visit to the Chalice tenements, as it was considered that the projects are at such an early stage of development that nothing of material geological interest could be identified on site.

The purpose of the Report is to provide BDO with an opinion on the value of the Yandeearra, Gnaweeda and Wilga Project assets as further described in the body of this Report. This valuation includes an outline of the approach adopted by SRK, including any assumptions involved in determining the value.

A summary of similar market transactions will be incorporated to 'benchmark' SRK's methodology. SRK concentrated on the valuation aspects and has relied on project information and exploration data provided by Chalice on the tenements to support SRK's valuation. The majority of this information was publically available on Chalice's and their JV partners' websites at the date of the valuation.

BDO's Instruction Letter to SRK to undertake the Valuation update is presented as Appendix 1.

## **1.3 Reporting Standard**

This Report is considered by SRK to be a Valuation Report under the guidelines of the VALMIN Code. The VALMIN Code is the code adopted by the Australasian Institute of Mining and Metallurgy and the standard is binding upon all AusIMM members. The VALMIN code incorporates the JORC Code for the reporting of Mineral Resources and Ore Reserves.

This Report is a Valuation Report and expresses an opinion as to the value of mineral assets, based on the technical aspects of the Projects. Aspects reviewed in this Report relate to the prospectivity of the areas under review for commodities related to the mineralisation styles as presented in Table 1-1, provided to SRK by Chalice as listed in the References section of this Report.

### **Note on Tenement Status and Material Contracts**

Aspects of land tenure, environment, native title, sovereign risk and other socio-political issues have not been reviewed. SRK has not independently verified ownership and the current standing of the tenements and is not qualified to make legal representations in this regard. Instead, SRK has relied on information provided by Chalice. SRK has prepared this Report on the understanding that all Chalice tenements are currently in good standing and that there is no cause to doubt the eventual granting of any tenement applications. SRK has not attempted to establish the legal status of tenements with respect to Native Title or potential environmental and access restrictions.

Chalice also has a number of JV agreements with third parties on several of their project areas. SRK has not independently verified the terms of these agreements and is not qualified to make legal representations in this regard. SRK has however considered the conditions of the JV agreements in the valuation. Legal due diligence should be conducted by BDO on any material contracts in relation to these agreements.

## **1.4 Statement of SRK Independence and Consents**

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK. SRK has no beneficial interest in the outcome of the technical assessment and valuation being capable of affecting its independence.

SRK's fee for completing this Report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the Report.

SRK has been informed that Sub Sahara has been given access to SRK's original report (SRK, 2008) and that Chalice has provided permission for this to be utilised by SRK for the purposes of this update.

SRK consents to this report being included in material supplied to Sub Sahara shareholders, within the context that it has been prepared.

## **2 Background and Brief**

### **2.1 Background of the Project**

The request to undertake the valuation was made to SRK by BDO, in response to Sub Sahara's request of BDO to supply them with an Independent Experts Report. BDO's Instruction Letter to SRK is presented as Appendix 1.

### **2.2 Nature of the Brief**

This Report summarises Chalice's exploration assets and their exploration history as a basis for our valuation as outlined below, rather than providing a detailed review. As such, it should be considered in conjunction with the technical reports reviewed to compile this Report, for a more thorough understanding.

The original report (SRK, 2008) was compiled over a limited number of days in September and October 2008. Exploration valuation work was undertaken by Dr Louis Bucci, Dr Kate Bassano and Ms Deborah Lord, with input by Dr Peter Williams all of SRK. Peer review was completed by Dr Peter Williams and Ms Deborah Lord. The report update was completed in late April / early May 2009 by the same SRK personnel.





### 3.1.2 Ownership

The Yandearra Project comprises forty five (45) tenements, of which fourteen are granted tenements (Table 3-1), and thirty one (31) are applications (Table 3-2). Chalice currently has a joint venture with Atlas Iron at its Yandearra Project.

**Table 3-1: Chalice gold mines granted tenement schedule for the Yandearra project as at 31 March 2009**

Manager	Holder	ID No.	Area	Unit	Grant Date	Expiry Date	Rent Date	Rent
CGM	CGM	E47/0590	28	SB	30-Jul-99	29-Jul-08	29-Jul-09	A\$12,745.04
CGM	CGM	E47/0591	45	SB	30-Jul-99	29-Jul-08	29-Jul-09	A\$20,483.10
CGM	CGM	E47/0755	7	SB	30-Jul-99		29-Jul-09	A\$3,186.26
CGM	CGM	E47/1041	12	SB	12-Jul-06	11-Jul-11	11-Jul-09	A\$2,125.50
CGM	CGM	E47/1161	4	SB	16-Apr-03	15-Apr-10	15-Apr-10	A\$961.40
CGM	CGM	E47/1162	8	SB	14-Mar-03	13-Mar-10	13-Mar-10	A\$3,641.44
CGM	CGM	E47/1163	35	SB	23-Jan-06	22-Jan-11	22-Jan-11	A\$6,198.50
CGM	CGM	E47/1164	39	SB	14-Mar-03	13-Mar-10	13-Mar-10	A\$17,752.02
CGM	CGM	E47/1165	46	SB	14-Mar-03	13-Mar-10	13-Mar-10	A\$20,938.28
CGM	CGM	E47/1166	63	SB	14-Mar-03	13-Mar-10	13-Mar-10	A\$28,676.34
FMCM	CGM	M47/0561	502	HA	05-Jul-06	04-Jul-27	04-Jul-09	A\$7,509.92
CGM	CGM	P47/1245	64	HA	27-Jan-06	26-Jan-10	26-Jan-10	A\$140.80
CGM	CGM	P47/1298	150	HA	23-Aug-07	22-Aug-11	22-Aug-09	A\$330.00
CGM	CGM	P47/1299	125	HA	23-Aug-07	22-Aug-11	22-Aug-09	A\$ 275.00

CGM = Chalice Gold Mines Ltd; FMCM = Farno McMahan

**Table 3-2: Chalice Gold Mines application tenement schedule for the Yandearra project as at 31 March 2009**

Manager	Holder	ID No.	Area	Unit	Rent
CHGM	UREL	E47/1207	35	SB	\$3,984.75
CHGM	CHGM	E47/1748	70	SB	\$7,969.50
CHGM	CHGM	E47/1749	7	SB	\$796.95
FMCM	CHGM	M47/0560	676	HA	\$10,112.96
CHGM	CHGM	M47/0783	958	HA	\$14,331.68
CHGM	CHGM	M47/0784	319	HA	\$4,772.24
CHGM	CHGM	M47/0785	958	HA	\$14,331.68
CHGM	CHGM	M47/0994	640	HA	\$9,574.40
CHGM	CHGM	M47/0995	825	HA	\$12,342.00
CHGM	CHGM	M47/0996	777	HA	\$11,623.92
CHGM	CHGM	M47/0997	957	HA	\$14,316.72
CHGM	CHGM	M47/0998	960	HA	\$14,361.60
CHGM	CHGM	M47/0999	901	HA	\$13,478.96
CHGM	CHGM	M47/1000	978	HA	\$14,630.88
CHGM	CHGM	M47/1001	969	HA	\$14,496.24
CHGM	CHGM	M47/1002	991	HA	\$14,825.36
CHGM	CHGM	M47/1003	984	HA	\$14,720.64
CHGM	CHGM	M47/1004	999	HA	\$14,945.04
CHGM	CHGM	M47/1005	959	HA	\$14,346.64
CHGM	CHGM	M47/1114	959	HA	\$14,346.64
CHGM	CHGM	M47/1115	991	HA	\$14,825.36
CHGM	CHGM	M47/1116	991	HA	\$14,825.36
CHGM	CHGM	M47/1117	959	HA	\$14,346.64
CHGM	CHGM	M47/1118	991	HA	\$14,825.36
CHGM	CHGM	M47/1119	991	HA	\$14,825.36
CHGM	CHGM	M47/1120	998	HA	\$14,930.08
CHGM	CHGM	M47/1121	959	HA	\$14,346.64
CHGM	CHGM	M47/1122	985	HA	\$14,735.60
CHGM	CHGM	M47/1123	982	HA	\$14,690.72
CHGM	CHGM	M47/1124	959	HA	\$14,346.64
CHGM	CHGM	M47/1125	1000	HA	\$14,960.00

CGM = Chalice Gold Mines Ltd; FMCM = Farno McMahan, UREL = Uranium Equities Ltd

Atlas Iron Ore Limited (Atlas) entered an option agreement with Chalice in November 2007 relating to the iron ore rights over certain leases at Yandearra (Table 3-3). The terms of the agreement included Atlas Iron making an initial payment of \$250,000 in cash or Atlas Iron shares to Chalice within 60 days of signing a formal agreement between parties. Thereafter Atlas Iron is required to:

- Make a further payment of \$1,000,000 in cash or Atlas Iron shares upon exercising its option to purchase the iron ore rights, which will occur no later than 12 months after the date of the formal agreement.
- Atlas is also required to spend \$200,000 on exploration for iron ore on this project within the option period.

Chalice retain a one-off right to claw-back a 30% interest on definition of an iron ore resource exceeding 5 million tonnes at a cost of four times total exploration expenditure or in the absence of this claw-back, will retain a 2% Gross Sales Royalty.

As the Atlas Iron JV agreement has yet to pass the first earn in / option period, Chalice effectively retains 100% ownership at this time. It will be on this basis that the valuation of the Yandearra Project will be estimated.

**Table 3-3: Tenements included in the Chalice – Atlas Iron JV**

Manager	Holder	ID No.	Area	Unit	Rent (A\$)
CGM	CGM	E47/0590	28	SB	12,745.04
CGM	CGM	E47/0591	45	SB	20,483.10
CGM	CGM	E47/0755	7	SB	3,186.26
CGM	CGM	E47/1041	12	SB	1,366.20
CGM	CGM	E47/1161	7	SB	1,682.45
CGM	CGM	E47/1162	25	SB	6,008.75
CGM	CGM	E47/1163	70	SB	12,397.00
CGM	CGM	E47/1164	70	SB	16,824.50
CGM	CGM	E47/1165	70	SB	16,824.50
CGM	CGM	E47/1166	70	SB	16,824.50
CGM	UREL	E47/1207	35	SB	3,984.75
CGM	UREL	E47/1318	1	SB	274.12
CGM	UREL	E47/1459	11	SB	1,252.35
CGM	CGM	E47/1748	70	SB	7,969.50
CGM	CGM	E47/1749	7	SB	796.95
FMCM	CGM	M47/0560	676	HA	10,112.96
CGM	CGM	M47/0783	958	HA	14,331.68
CGM	CGM	M47/0784	319	HA	4,772.24
CGM	CGM	M47/0785	958	HA	14,331.68
CGM	CGM	M47/0994	640	HA	9,574.40
CGM	CGM	M47/0995	825	HA	12,342.00
CGM	CGM	M47/0996	777	HA	11,623.92
CGM	CGM	M47/0997	957	HA	14,316.72
CGM	CGM	M47/0998	960	HA	14,361.60
CGM	CGM	M47/0999	901	HA	13,478.96
CGM	CGM	M47/1000	978	HA	14,630.88
CGM	CGM	M47/1001	969	HA	14,496.24
CGM	CGM	M47/1002	991	HA	14,825.36
CGM	CGM	M47/1003	984	HA	14,720.64
CGM	CGM	M47/1004	999	HA	14,945.04
CGM	CGM	M47/1005	959	HA	14,346.64
CGM	CGM	M47/1114	959	HA	14,346.64
CGM	CGM	M47/1115	991	HA	14,825.36
CGM	CGM	M47/1116	991	HA	14,825.36
CGM	CGM	M47/1117	959	HA	14,346.64
CGM	CGM	M47/1118	991	HA	14,825.36
CGM	CGM	M47/1119	991	HA	14,825.36
CGM	CGM	M47/1120	998	HA	14,930.08
CGM	CGM	M47/1121	959	HA	14,346.64
CGM	CGM	M47/1122	985	HA	14,735.60
CGM	CGM	M47/1123	982	HA	14,690.72
CGM	CGM	M47/1124	959	HA	14,346.64
CGM	CGM	M47/1125	1000	HA	14,960.00

CGM = Chalice Gold Mines Ltd; FMCM = Farno McMahan, UREL = Uranium Equities Ltd

### 3.1.3 Geological Setting of the Yandearra Project Area

The Yandearra Project is located in the Archean Pilbara Craton of Western Australia (Figure 3-1). The Pilbara Craton is divided into a northern granite-greenstone terrane, and the unconformably over-lying Hamersley Basin to the south. The granite-greenstone terrane has been further divided into the East and West Pilbara Terranes, which are separated by the Central Pilbara Tectonic Zone (CPTZ; Smithies and Farrell, 2000).

Thick sequences of turbidite and mass-flow deposits of the Mallina Basin form the major component to the CPTZ (Smithies and Farrell, 2000). The East and West Pilbara Terranes are characterised by large ovoid granitoid-gneiss complexes, which are partly surrounded by highly deformed belts of volcanic and sedimentary rocks. The Yandearra Project is located at the boundary of the CPTZ and the East Pilbara Terrane.

The south eastern part of the Project area incorporates the north easterly trending Pilbara Well greenstone belt, which has undergone multiple phases of ductile deformation and metamorphism, and consists of basalts and ultramafic rocks, with silicified sedimentary rocks (Cary, 2006). Late stage brittle deformation has resulted in the formation of a series of north easterly trending faults with interpreted dextral offsets. The greenstone belt rocks are overlain by chert of the Cleaverville Formation to the northeast.

The north eastern part of the project area is predominately composed of Mallina Formation turbiditic sedimentary rocks, with numerous interbedded, differentiated mafic/ultramafic intrusives of the Millindinna Intrusion complex, and the Satirist Gabbro suite. Granitic rocks of the East Pilbara Granite-Greenstone Terrane occur to the south east of the Project area, and Hamersley Basin basaltic volcanic rocks outcrop to the south of the tenements.

#### 3.1.3.1 Regional Endowment

In terms of endowment for the District, Range River Gold's 529,000 ounce Indee Project is located immediately north of the project area. Main prospects for that Project are the Camel 1 and Withnell Prospects (combined Measured, Indicated and Inferred Resource of 7.6 Mt at 1.7 g/t Au containing 400,000 oz Au above a 0.5 g/t Au cut-off; Cary, 2006), and the Calvert and Towerana Prospects (combined Indicated and Inferred Resource of 2.8 Mt at 1.4 g/t Au for 129,000 oz Au; Cary 2006). The mineralisation is associated with the regional-scale Mallina Shear Zone, and is characterised by a gold-pyrite-arsenopyrite association developed within zones of shearing and quartz veining within Mallina Basin turbiditic sedimentary rocks.

Similar deposits to those developed at Indee are the main targets within the Yandearra Project area for Chalice and De Grey Mining. Currently, there is no active mining at the Indee Project, and production is now restricted to heap-leaching of stockpile material. As of 14 July 2008, the Indee heap leach operation had produced 29,337 oz of gold from 851,836 tonnes (t) of ore grading at 1.5 g/t Au (Range River Gold, 2008).

Drilling at De Grey Mining's Wingina Well Prospect to the northeast of Yandearra has defined a combined Measured, Indicated and Inferred Resource of 3.4 Mt at 1.8 g/t Au containing 203,000 oz of gold above a 0.5 g/t Au cut-off (De Grey Mining Ltd, 2008c). Gold and PGE exploration is continuing on numerous other prospects, and no production has commenced at Wingina Well.

Tantalum is mined from the Wodgina deposit (30 km east of Yandearra) on the eastern extension of the Pilbara Well Greenstone Belt. However, similar host rocks to those at Wodgina have not yet been identified at Yandearra. Annual production at Wodgina is ~1.3 to 1.4 Mlb Ta<sub>2</sub>O<sub>5</sub> (Mining Journal, 2007).

### **3.1.4 Exploration History**

A moratorium on mining and exploration within the Yandearra Aboriginal Reserve was only recently lifted. Following the lifting of the exploration moratorium and the granting of a number of exploration licences, the Farno Group (Farno) undertook initial geological mapping, stream sediment sampling, grid soil sampling and first pass RAB drilling targeting gold and base metals in the Pilbara Well Greenstone Belt. Pursuant to a joint venture with Farno, Bullion Minerals Ltd (Bullion) completed further soil sampling and aircore, RAB, RC and vacuum drilling programmes at several prospects within the project area, mostly in the Mallina Basin. This work outlined 17 significant gold in-soil anomalies, which are currently under investigation by Chalice.

In the 2006, Chalice completed a 12,601 m aircore programme, testing for Indee-style gold deposits in Mallina Formation turbiditic sedimentary rocks. Six geochemical anomalies (Holly, Fir, Aspen, Connolly, Magda and Hogan) along the Central Shear Zone and a seventh target at Woomerina were tested (Chalice Gold Mines, 2006c). Best results are presented in Table 3-4. Drilling returned low level gold anomalism in several drill holes, associated with variably quartz veined zones in a sequence of sandstone and siltstone.



**Table 3-4: Best Results of Chalice's Aircore 2006 programme at Yandearra**

Prospect	Hole	North	East	Width (m)	Interval (m)	Au (ppm)	Comments
Holly	CYAC007	7683405	633303	5	68–73	0.66	
<b>Including 1 m @ 1.15 g/t from 70 to 71 m</b>							
Holly	CYAC018	7683496	633413	1	10–11	1.75	
Holly	CYAC019	7683497	633393	2	11–1	1.82	
Holly	CYAC024	7683496	633234	1	26–2	2.1	
Holly	CYAC035	7683303	633298	7	40–47	0.73	EOH
<b>Including 3 m @ 1.32 g/t from 41 to 44 m</b>							
Holly	CYAC007	7683405	633303	5	68–73	0.66	
<b>Including 1 m @ 1.15 g/t from 70 to 71 m</b>							
Holly	CYAC018	7683496	633413	1	10–11	1.75	
Holly	CYAC019	7683497	633393	2	11–13	1.82	
Connolly	CYAC102	7678795	631166	1	31–32	0.69	
Connolly	CYAC105	7678796	631072	1	32–33	1.43	
Connolly	CYAC120	7678397	630917	1	15–16	0.84	
Connolly	CYAC128	7678396	630671	1	52–53	0.51	
Connolly	CYAC132	7678003	630898	3	33–36	1.08	
Connolly	CYAC133	7678003	630870	3	47–50	2.11	
Connolly	CYAC134	7677998	630841	1	2–3	1.43	
Connolly	CYAC135	7677999	630821	2	52–54	3.15	
Connolly	CYAC137	7678005	630760	1	49–50	0.72	
Connolly	CYAC138	7678003	630735	1	5–6	0.63	
Connolly	CYAC144	7678003	630576	1	13–14	0.5	
Woomerina	CYAC197	7672027	641605	5	4–9	0.80	veined siltstone
<b>Including 1 m @ 2.25 g/t from 8 to 9 m</b>							
Woomerina	CYAC198	7672050	641601	1	7–8	0.78	Lower saprolite
Woomerina	CYAC201	7672135	641600	1	37–38	0.57	Sandy siltstone
Woomerina	CYAC202	7672159	641600	2	8–10	0.92	siltstone

Source: Chalice Gold Mines, 2006c

In 2007, preliminary review of the available radiometric data for the Yandearra Project area outlined at least one priority uranium target in the southern part of the project area. The target was defined by a discrete uranium channel radiometric anomaly associated with a small area of mapped sediment outcrop in the Pilbara Well Greenstone Belt north of the Yule Granite. Rock chip sample results from follow up work are presented in Table 3-5.

**Table 3-5: Significant Rock Chip Sampling Results from Yandearra**

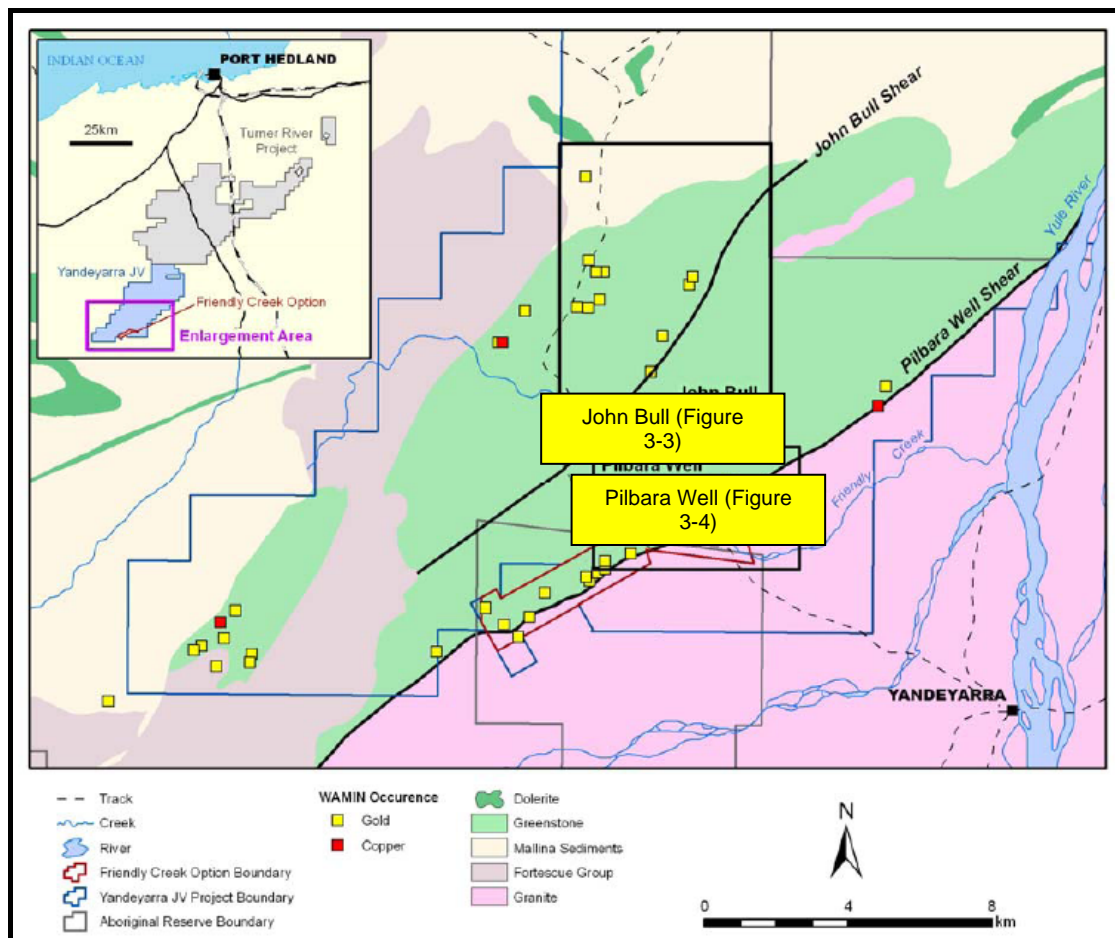
Sample Number	Easting	Northing	Au (Average; ppb)	Au 1 (ppb)	U (ppm)
114501	608966	7652030	4	4	4.82
114503	608772	7652249	39	47	2.55
114509	631233	7659220	9	9	4.33
114511	630158	7659754	<1	<1	3.49
114520	628125	7653058	<1	<1	9.18
114521	627927	7653198	<1	<1	34.25
114526	627994	7651508	15	15	23.90
114527	628047	7651563	1069	1138	50.71
114528	628020	7651540	14640	16360	920.70
114529	635029	7649350	74	79	24.98
114530	635269	7649524	65	70	22.71
114531	636895	7652122	12	12	14.76
114532	636909	7650560	4	4	34.85
114533	634280	7652260	<1	<1	4.29
114534	614530	7646288	5	5	5.66
114536	629123	7652209	164	164	
114537	629101	7652198	25	25	
114538	628015	7651547	4	4	45.24
114539	628002	7651532	69	69	28.2
114540	627983	7651513	46	46	30.23
114541	628022	7651545	1567	1567	4.39
114542	628069	7651567	57	57	18.37
114543	628073	7651564	1911	1833	8.77
114544	628592	7652525	32	32	
114547	628420	7652029	215	230	
114548	628427	7652019	10	10	
114549	628105	7651881	8	8	
114550	628388	7652018	4	4	
114551	628321	7651996	4	4	
114552	628021	7652004	5	5	
114553	628185	7651899	6	6	
114554	628181	7651929	12	12	
114555	628255	7652027	16	16	
114556	628295	7652014	5	5	
114557	628617	7652492	7	7	

Source: De Grey Mining Ltd (2008a)

In 2008, further compilation of data from previous explorers, in conjunction with field reconnaissance, highlighted two regional-scale gold mineralised structures; the John Bull and Pilbara Well Shear Zones (Figure 3-2).

The John Bull Shear can be traced over a strike length of at least 7 km (De Grey Mining Ltd, 2008a). Samples from the Princess May and John Bull historic workings, which have never been drilled, assayed up to 71.4 g/t and 33.2 g/t Au (De Grey Mining Ltd, 2008a). Work by previous explorers includes only eight drill holes elsewhere along a 530 m strike length of the John Bull Shear Zone. Those holes returned intercepts including 9 m at 1.99g/t Au, 4m at 2.67 g/t Au and 7 m at 1.84 g/t Au (De Grey Mining Ltd, 2008a).

Gold mineralisation is reported as hosted by quartz veining and pyrite within basalt and felsic dykes intruded along the structure. High grade gold assays up to 45.5 g/t and 14.9 g/t (De Grey Mining Ltd, 2008a; Table 3-6) were also returned from sampling at the Foochow, Hong Kong and Empress Well North workings located 3 km west of the John Bull Shear Zone (Figure 3-3). Gold there is hosted by laminated quartz carbonate veins within extensively chlorite-carbonate altered dolerite and basalt, extending over at least 300 m strike.



**Figure 3-2: Location of the John Bull and Pilbara Well shear zones at Yandearra**

The Pilbara Well Shear Zone is an 800 m wide structure of highly foliated greenstone and granite, along the south eastern margin of the greenstone belt. Gold workings extend over more than 10 km strike and were the site of alluvial and bedrock mining in the late nineteenth century (De Grey Mining Ltd, 2008b). Sampled vein quartz collected by De Grey, from old workings that have never been drilled, returned assays up to 14.4 g/t Au and 2.67% Cu (De Grey Mining Ltd, 2008b; Table 3-6).

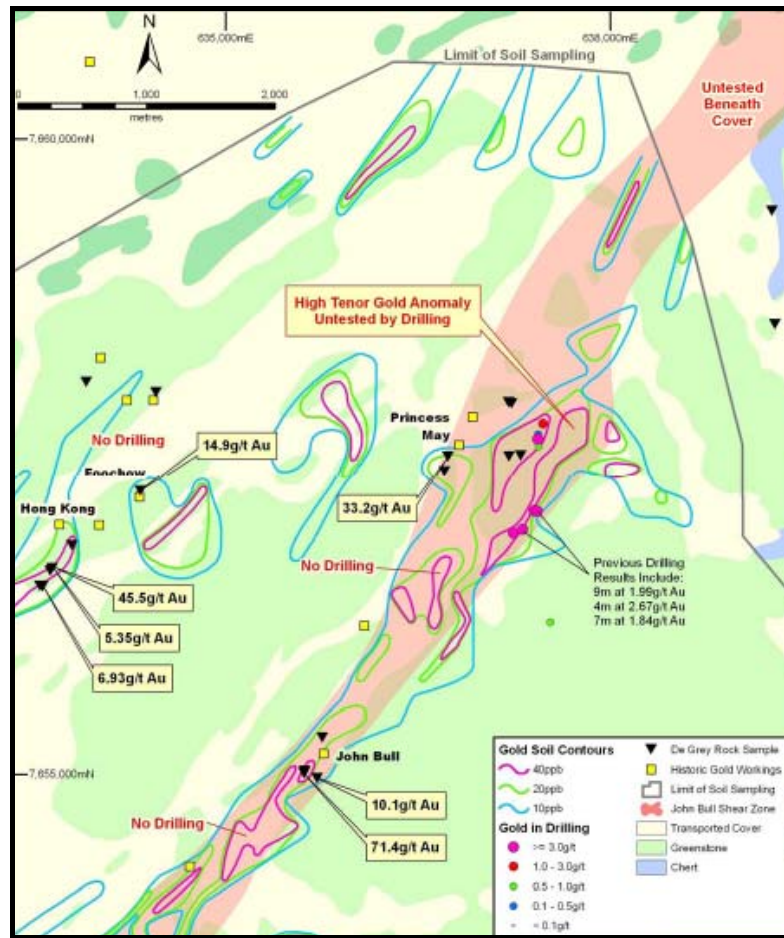


Figure 3-3: Results from the John Bull shear zone

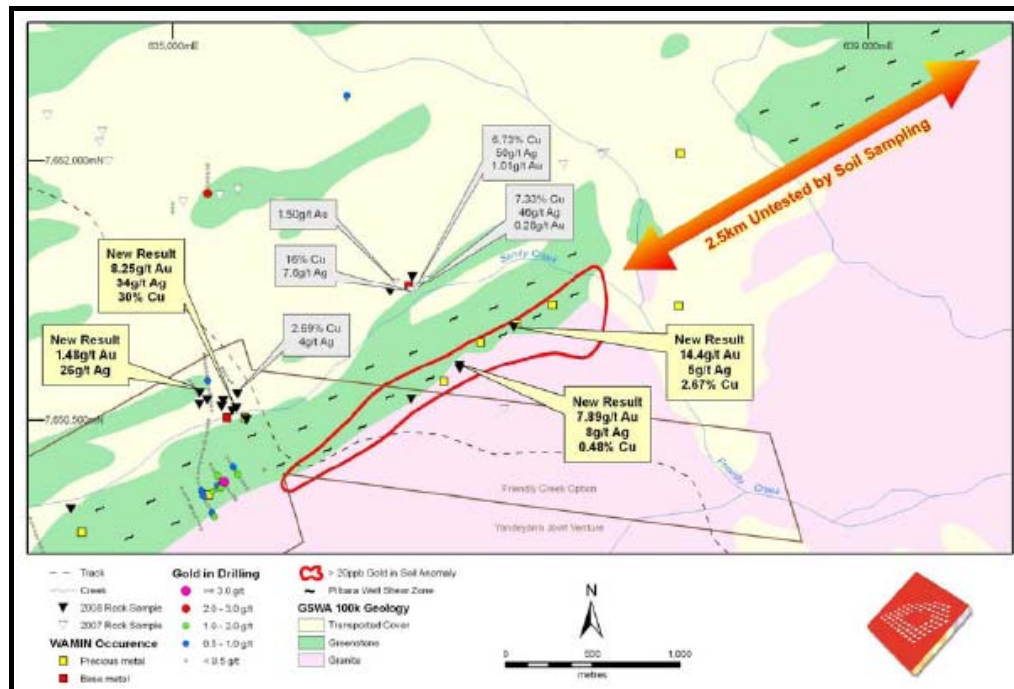


Figure 3-4: Results from the Pilbara Well shear zone rock chip sampling

**Table 3-6: Rock chip sampling results from John Bull and Pilbara Well areas**

Sample	East	North	Gold (g/t)	Copper (%)	Silver (g/t)	Prospect
55048	636,710	7,657,377	33.2	0.10	2	Princess May
55053	635,616	7,655,006	71.4	0.01	5	John Bull
55054	635,716	7,654,970	10.1	0.03	1	
55061	635,344	7,650,550	8.25	30.2	34	Pilbara Well
55015	635,154	7,650,586	1.48	0.01	26	
55066	636,652	7,650,810	7.89	0.48	8	Esmeralda
55068	636,962	7,651,029	14.4	2.67	5	Queen Mab
55107	633,553	7,656,464	5.35	0	1	Hong Kong
55108	633,635	7,656,582	6.93	0.01	1	
55109	633,648	7,656,602	45.5	0	4	
55111	634,336	7,657,211	14.9	0.01	2	Foochow
55118	631,594	7,655,955	11.2	0.12	2	Empress Well North
55120	631,627	7,655,972	9.54	0.01	1	
550005	631,758	7,651,589	2.55	0.01	0	Diorite

Source: De Grey Mining Ltd, 2008b

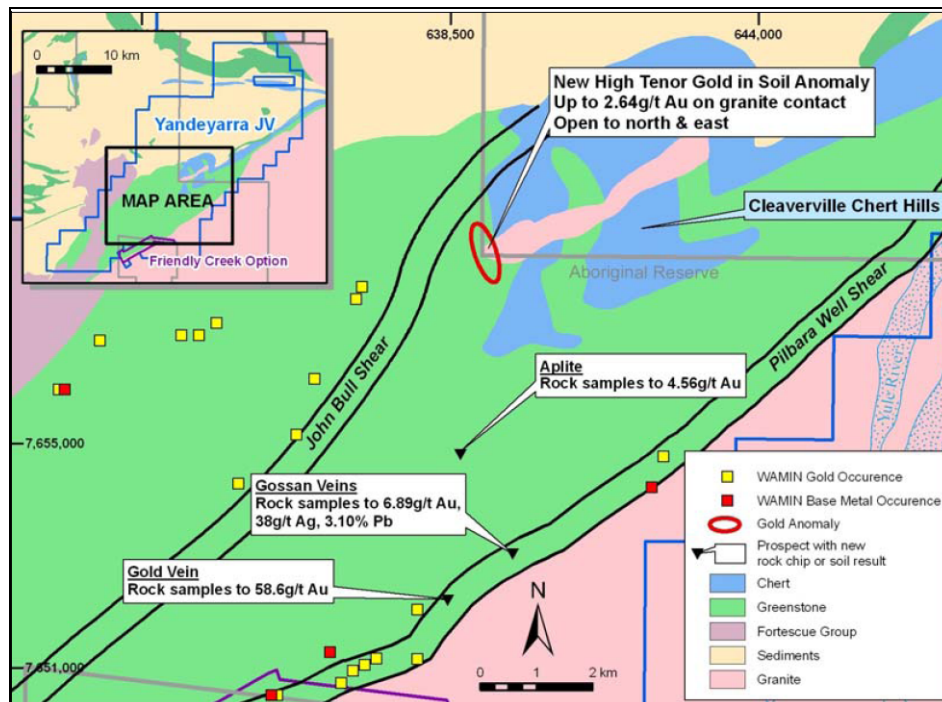
Prior to De Grey's withdrawal from their joint venture with Chalice at Yandearra, further gold and base metal exploration continued at the project with soil geochemistry, geological reconnaissance and rock sampling programs undertaken. Several new gold and base metal occurrences were identified by this work. Despite grades up to 58.6g/t gold, 38g/t silver and 3.10% lead from rock samples (Table 3-7) most occurrences were found to be related to wide-spaced veins and narrow felsic dykes and were downgraded as having limited tonnage potential (Chalice, 2009).

**Table 3-7: Reconnaissance rock sampling results >1.00g/t gold, 20g/t Au or 1% lead obtained by De Grey (Chalice, 2009).**

Sample	Sample ID	East	North	Gold, g/t	Silver, g/t	Copper, %	Lead, %	Zinc %
Gossan Veins	550966	639,672	7,653,035	1.19	38	0.07	2.58	0.64
	550967	639,700	7,653,051	2.26	27	0.05	3.10	0.18
	550969	639,768	7,653,152	6.89	2	0.01	0.05	0.00
	P545047	639,566	7,653,050	1.03	0	0.00	0.00	0.00
Gold Vein	550972	638,541	7,652,298	0.16	16	0.06	1.59	0.02
	550974	638,456	7,652,258	58.6	4	0.01	0.01	0.00
Aplite	550979	638,800	7,654,878	1.58	0	0.00	0.00	0.00
	550981	638,599	7,654,914	4.56	0	0.00	0.00	0.00



Further exploration was then focussed on a large, previously unexplored area near the Cleaverville Chert Hills where soil sampling late in 2008 identified a new, gold-in-soil anomaly. Gold anomalism up to 2.64g/t in soils remains open and untested to the north and east (Figure 3-5). There are no known gold occurrences in the area and a bedrock source to the gold in soil has yet to be identified. The soil anomaly occurs in a structurally favourable position at the western end of a large granite body that intrudes the greenstone rocks of the Cleaverville Chert and underlying felsic volcanic lithologies (Chalice, 2009).

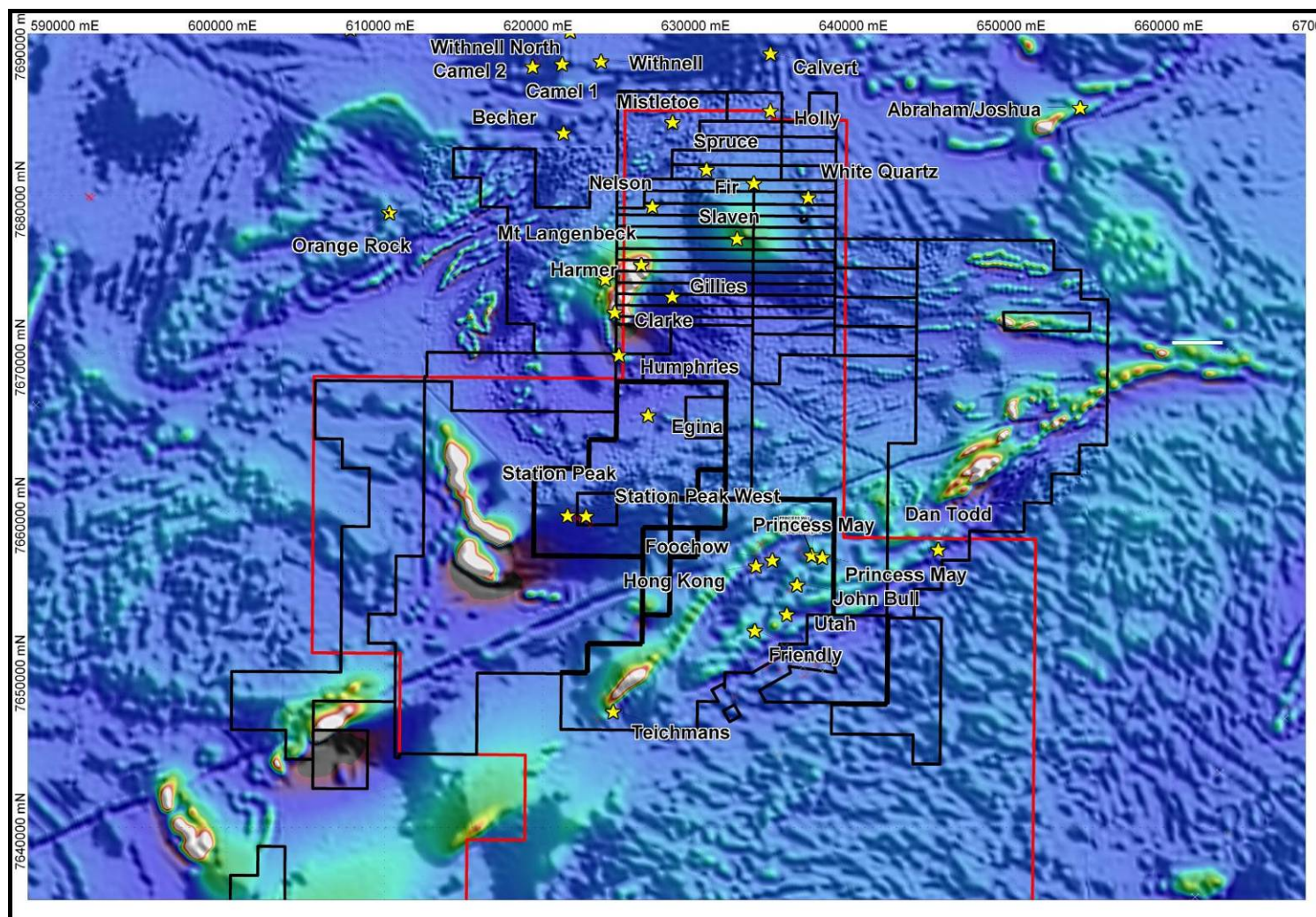


**Figure 3-5: Recent surface sampling results from Yandearra (Chalice, 2009).**

In total, twenty four (24) ‘prospects’ have been identified by Chalice and previous workers within the current Chalice tenement holding (Figure 3-6). The exploration results presented above, and the level of geological understanding of these prospects and the immediate areas adjacent to the prospects, will form the basis of the Geological Risk Method valuation (explained in Section 4).

It should be noted that exploration data specific to each prospect presented in Figure 3-6, are not necessarily available. As such, the Yandearra tenement holding has been divided into four areas for the purpose of the Geological Risk Method valuation (Figure 3-7A). The division of the areas was defined by tenement boundaries, and took into account the commonality and continuity of geological features throughout the tenements (Figure 3-7B), as well as the distribution of exploration results (Figure 3-7C). To derive the final estimated value using the Geological Risk Method, the areas were summed based on commodity of interest.

The only area not included in the total estimated value is area ‘D’. The VALMIN Code (Clause 70) cautions against the attribution of value to exploration tenements under application at the time of preparing the valuation, and as such these tenements were not included in this valuation. Other tenement applications in the Yandearra Project area cover existing granted tenements held by Chalice, and as such, those areas were included in this valuation.



**Figure 3-6: Prospects within the Yandearra Project tenements identified by Chalice and previous workers**  
Black lines define the tenement boundaries. Red line defines the outline of the reserve.



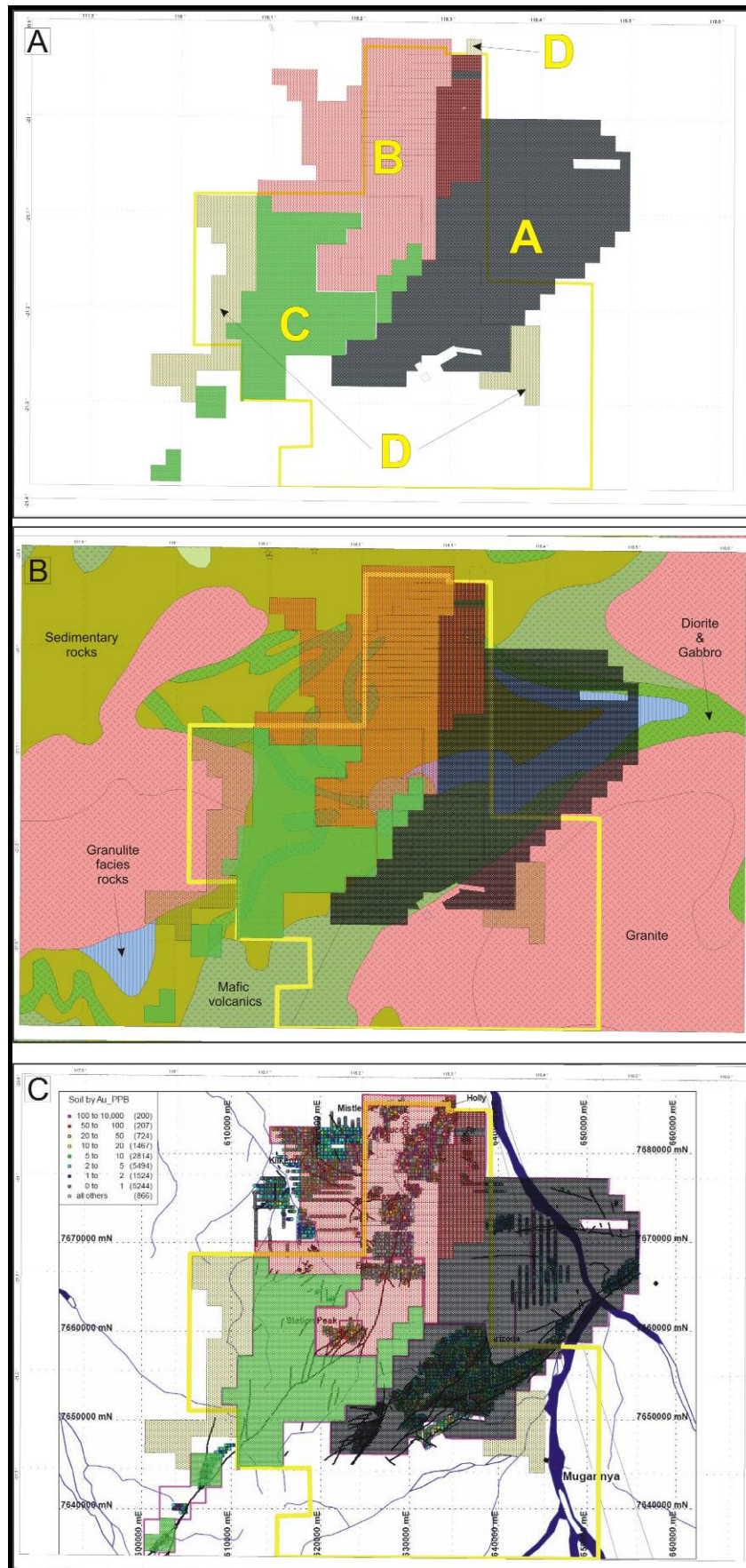


Figure 3-7: Definition of area division for the purpose of Geological Risk valuation

## 3.2 Gnaweeda Project

### 3.2.1 Introduction

The Gnaweeda Project comprises 172.28 km<sup>2</sup> of tenements, located approximately 30 km east of Meekatharra in the Murchison District of Western Australia (Figure 3-8). The Murchison Province is the western most of three granite-greenstone terrains that together form part of the Archean Yilgarn Craton. The Province extends for over 450 km in strike from Mt Gibson to Meekatharra.

Within the Province, several arcuate belts of supracrustal or greenstone rocks are present, bounded by intrusive granitic batholiths. Mafic volcanic and intrusive rocks with subordinate felsic volcanics and sediments characterise the greenstone sequence.

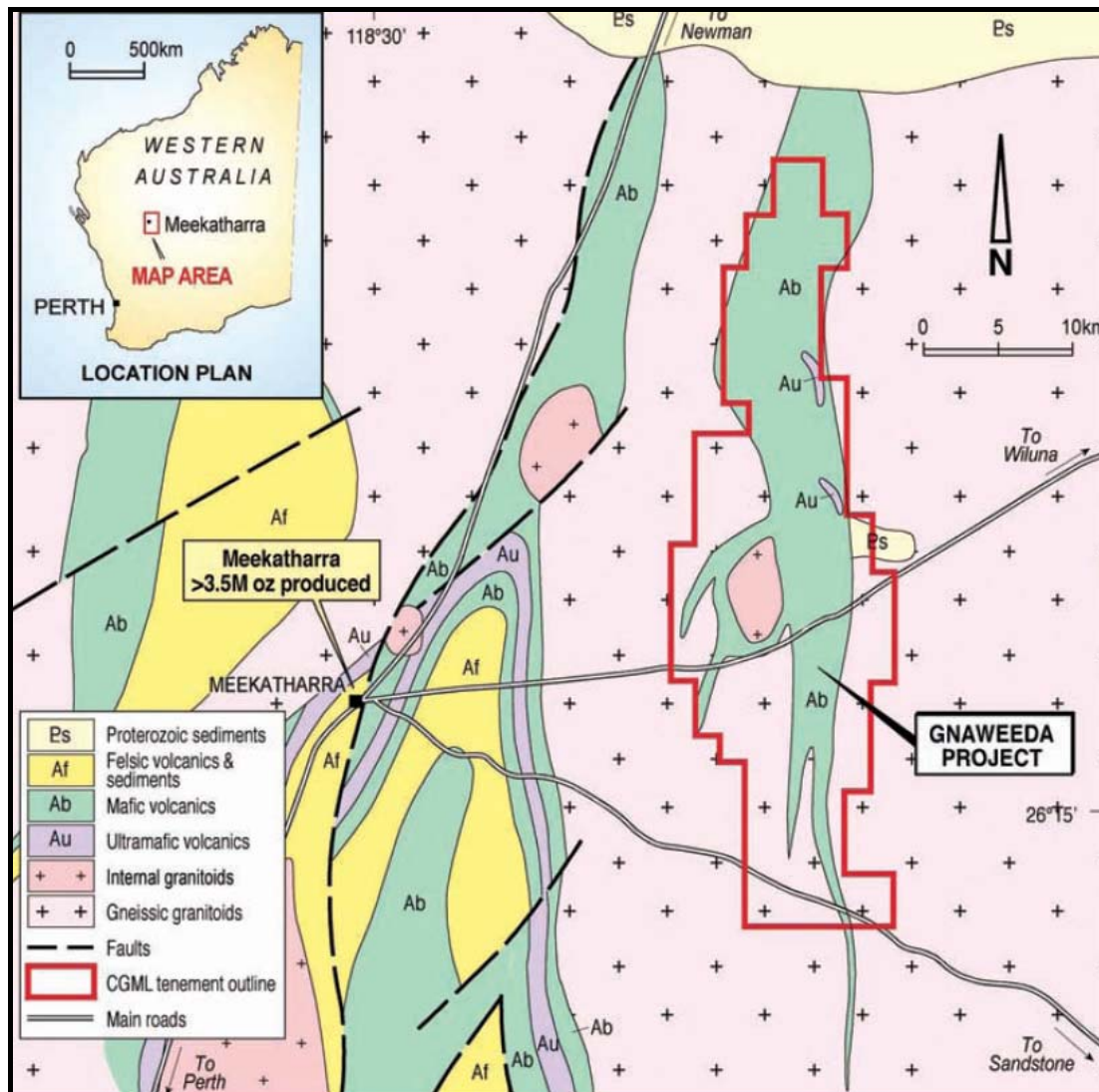


Figure 3-8: Location of the Gnaweeda project

Note: the exact overall tenement outline for the Gnaweeda project has changed since production of this figure in the independent geological report provided in the Chalice Prospectus (Cary, 2006). Refer to Table 3-8 and Figure 3-10 for the current tenement outline

### 3.2.2 Ownership

The Gnaweeda Project comprises two granted tenements, listed in Table 3-8, and is subject to the JV agreement outlined below.

Chalice has a JV agreement with Teck Cominco (Teck) in relation to gold at the Gnaweeda Project. In July 2005, a JV was signed whereby Teck can earn a 70% interest in the project by spending A\$1.5M over three years (with minimum expenditure of A\$140,000). The JV is staged so that Teck can earn a 51% interest in the project by expenditure of A\$750,000 within three years, which has just been met by Teck. Thereafter, an additional 19% interest can be earned by expenditure of another A\$750,000 up to total of A\$1.5M. At this time, Chalice has a 49% interest in the Gnaweeda Project, and it will be on this basis that SRK's valuation of Chalice's equity position in the Gnaweeda Project will made.

**Table 3-8: Chalice gold mines tenement schedule for the Gnaweeda project as at April 2009.**

Manager	Holder	Id	Area	Unit	Grant Date	Expiry Date	Rent Date	Rent
TECK	JABU	E51/0926	28	SB	31-Jul-02	30-Jul-09	30-Jul-09	A\$12,745.04
TECK	JABU	E51/0927	28	SB	31-Jul-02	30-Jul-09	30-Jul-09	A\$12,745.04

JABU = J A Bunting & Associates Pty Ltd; TECK = Teck Cominco

### 3.2.3 Geological Setting of the Gnaweeda Project

The Gnaweeda project covers the mainly buried Gnaweeda greenstone belt (GGB), located east of the Meekatharra–Mt Magnet Greenstone belt of the Murchison Province (Figure 3-8). The bulk of the GGB is covered by colluvial and alluvial material, typically around 20 m thick, locally with narrow palaeochannels to 80 m deep. The cover is developed over a variably preserved weathering profile, with laterite caps (Bunting and McIntyre, 2003).

Based on the interpretation of magnetic data, the GGB can be subdivided into three litho-tectonic subdomains (Figure 3-9). The western subdomain comprises a broadly conformable package of non-magnetic mafic volcanic and intrusive rocks, with extensive, continuous narrow interbedded strongly magnetic units which define large-scale isoclinal folds and possible repetition of stratigraphy (Bunting and McIntyre, 2003).

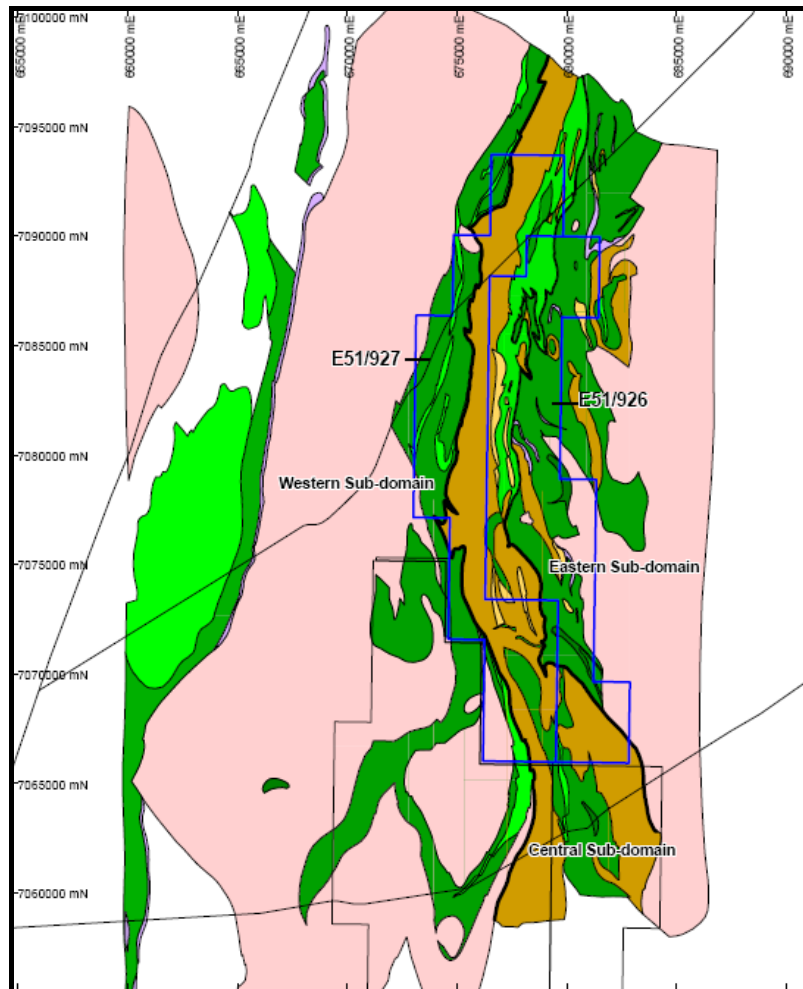
The central subdomain comprises a package of gabbro or dolerite and prominent magnetic felsic volcanics and sediments, with strike broadly parallel to the gross strike of the greenstone belt (Bunting and McIntyre, 2003).

The eastern subdomain contains a sequence of complexly folded, variably magnetic, mainly mafic and ultramafic volcanic rocks (Bunting and McIntyre, 2003).

The boundary between the Central and Eastern subdomains is interpreted as either a major structure, or the eastern margin of a broad high strain zone including the Western and Central subdomains. A significant northwest-trending sinistral shear corridor (comprising several structures) separates the southern and central segments of the belt (Bunting and McIntyre, 2003). Numerous mafic dykes are evident throughout the area, with the dominant swarms oriented northeast and east–west (Tillick, 2007A).



Locally within the tenements, bedrock is generally obscured by regolith, and outcrop is restricted to the northernmost portion of the tenements. Limited outcrop of greenstone belt is present in the northeast near the old Mistletoe mine, where Tertiary laterite is developed over heavily weathered mafic and ultramafic rocks and interbedded shale (Bunting and McIntyre, 2003). In the southern part of the tenement around Bunarra, extensive outcrops of weathered felsic volcanic, volcanoclastic and sedimentary rocks are inter-layered with minor mafic volcanics and dolerite (Bunting and McIntyre, 2003).



**Figure 3-9: Distribution of the geological domains at Gnoweeda**

**Source: Teck Cominco (2006)**

Structurally, the area is complex, with the predominantly north–south-striking greenstone belt being influenced and disrupted by the occurrence of a large granitoid intrusive which has resulted in localised anastomosing of the belt (Figure 3-10).

Host rocks to mineralisation comprise a package of mafic extrusive and intrusive (gabbroic or doleritic) rocks, intruded by felsic porphyries, with minor shales and sedimentary units (Tillick, 2007a). Mineralisation is reported as developed both in mafic rocks and in felsic units, with extensive, but generally low grade, gold mineralisation developed in the mafic rocks (Tillick, 2007a). Mapping of mineralised zones indicates that quartz veining in the felsic rocks generally contains higher grade intersections (Tillick, 2007a). Alteration typically has sericite-carbonate with minor sulphide proximal to quartz veins, and a distal halo consisting of biotite and chlorite (Tillick, 2007a).

### 3.2.4 Exploration History

The area has old gold workings located at Mistletoe and Bunarra (Figure 3-10). There is no record of production from Bunarra, but the Mistletoe mine has reported production of approximately 490 oz of gold from 444 t of ore mined, as well as 1200 oz of dollied and alluvial gold (Bunting and McIntyre, 2003). Early modern exploration work comprised VHMS-style base metal exploration in the southern parts of the tenements, focussed on outcropping gossan hosted in felsic volcanoclastics rocks in the vicinity of Bunarra Bore. Initial work (pre-1997) was completed by Esso, with Dominion subsequently exploring the area for gold. Base metal exploration work, including some drilling, was completed by Outokumpu (1991 to 1992). St Joe Minerals completed some sampling and shallow drilling to the west of this prospect. In 1977, BHP drilled a magnetic anomaly within the greenstones, intersecting olivine orthocumulate and gabbroic rocks.

Gold exploration has been completed in two main areas, the main Gnaweeda trend explored by Newcrest in 1993 to 1999 (and subsequently Australian Gold Resources (AGR) in JV with Newcrest), and an area to the east explored by Mines and Resources Australia (MRA) in 1992 to 1999 (Bunting and McIntyre, 2003). In both areas, the companies explored using airborne and ground magnetics, RAB, aircore and RC drilling. Geological mapping of four core holes was completed by Newcrest/AGR, and MRA undertook soil and stream-sediment sampling.

Newcrest and Australian Gold Resources outlined a 1 km long supergene Au anomaly (0.5 to 0.8 g/t Au), and subsequent drilling in an initially widely spaced RAB programme reported 12 m @ 8.7 g/t Au (Bunting and McIntyre, 2003). Limited deeper RC and diamond drilling revealed significant grades at depth, including 16 m @ 2.58 g/t Au (TR202-6), 20 m @ 1.4 g/t Au (TR209-1), 24 m @ 2.74 g/t Au (GZ090-1) and 4 m @ 5 g/t Au (TR20035E-5) (Bunting and McIntyre, 2003).

Bullion Minerals (McIntyre, 2005b) completed detailed compilation and analysis of open file historical drilling data, compilation and imaging of open file aeromagnetic data, and collection of new ultra-detailed aeromagnetic data. Extensive drilling was completed in the Turnberry-St Annes area, which identified gold-arsenic mineralised systems developed over 6 km of strike, within a zone up to 750 m wide (McIntyre, 2005). Mineralisation was reported as hosted in a package of mafic volcanic/intrusive, felsic intrusive and sedimentary rocks. Higher grades were interpreted as being associated with quartz veined felsic intrusives (McIntyre, 2005a).

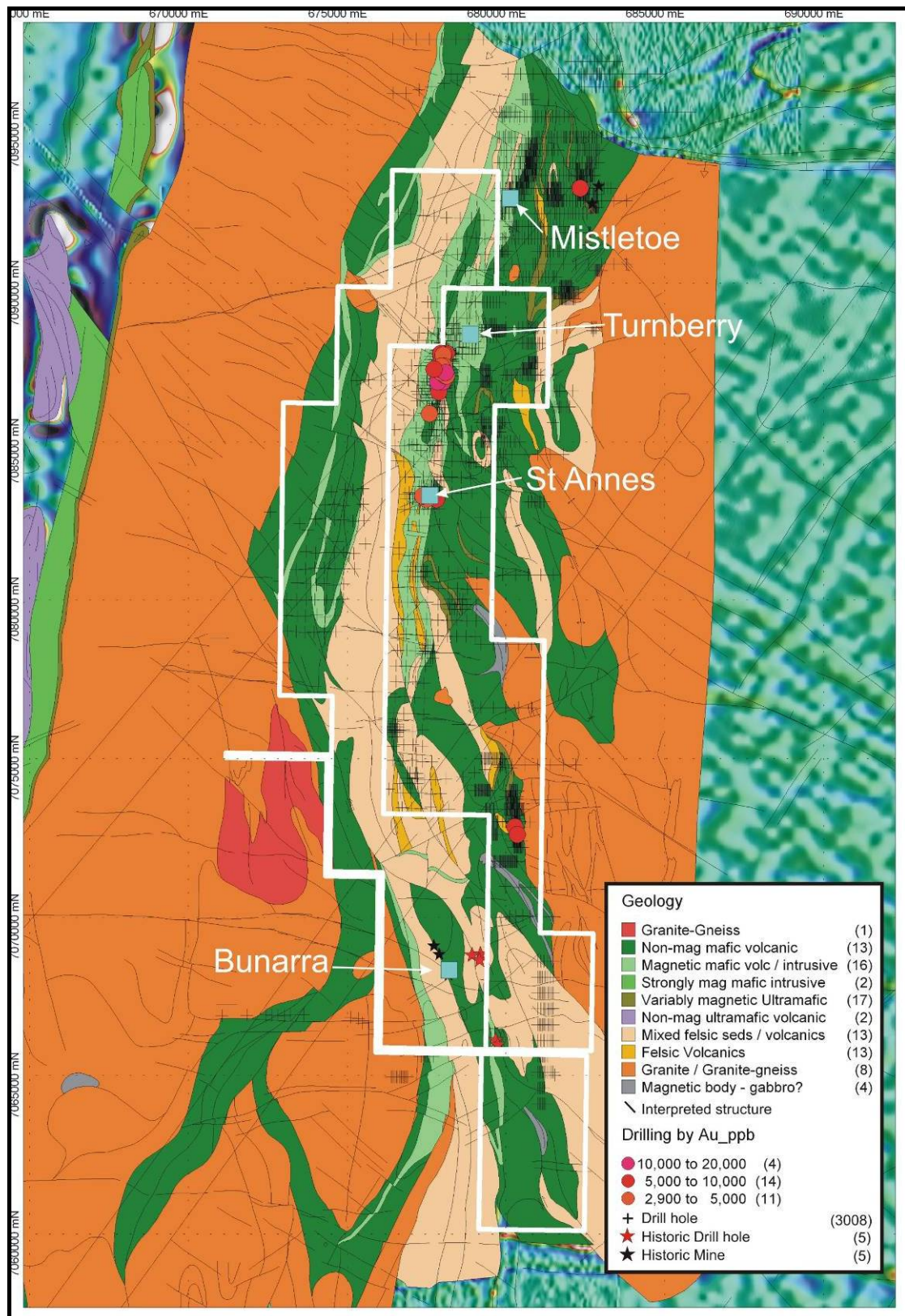
Teck Cominco drilled areas to the south of the current tenement package, and relinquished that ground (E51/1027). On the current tenement package, Teck have drilled 55 holes across RAB, aircore and RC holes, for a total of 4990 m. Holes at Turnberry largely intersected coarse-grained mafic (dolerite?) rocks with pervasive carbonate alteration, localised quartz-carbonate veining and disseminated pyrite (Tillick, 2007b). Mineralised zones in one hole (GNRC003) appeared to correspond to strong silica-pyrite alteration, with abundant fine-grained arsenopyrite (?) (Tillick, 2007b). The majority of the holes in general encountered a mixed package of foliated mafic volcanic rocks, dolerite, shale, ultramafic schist and minor feldspar porphyry. Nearly all holes encountered zones of strong carbonate + quartz  $\pm$  pyrite veining and wallrock alteration.

The strongest Au mineralisation occurs in foliated fine-grained mafic volcanics that have been strongly carbonated and contain disseminated pyrite and quartz veining (GNRC005), and a shale/fine mafic volcanic unit with abundant quartz veining, chlorite and sericite alteration, and minor pyrite (GNRC009) (Tillick, 2007d). Shallow 5 m composite samples returned 11.64 g/t from 15 to 20 m in GNRC007 from lateritised clays directly beneath the transported cover, and 13.49 g/t from 80 to 85 m in GNRC008 from red-brown weathered saprolite. Some significant drilling results from the drilling are presented in Table 3-9.

**Table 3-9: Significant Drilling Results from Teck Drilling**

Hole No.	From (m)	To (m)	Interval (m)	Au g/t
GNRC001	230	240	10	1.37
GNRC002	205	210	5	1.31
GNRC003	50	55	5	2.43
	60	65	5	0.92
	245	255	10	2.03
GNRC005	91	92	1	1.02
	277	278	1	<b>23.02</b>
	278	279	1	8.07
	279	280	1	<b>4.54</b>
GNRC007	15	20	5	<b>11.64</b>
GNRC008	55	60	5	2.35
	80	85	5	<b>13.49</b>
GNRC009	70	75	5	0.91
	151	152	1	1.93
	152	153	1	2.34
	168	169	1	<b>59.27</b>
	169	170	1	<b>8.60</b>
	170	171	1	1.88
	171	172	1	1.34
	223	224	1	2.63
	231	232	1	3.17

After Tillick (2007d)



**Figure 3-10: Map showing exploration results at Gnaweeda**

Tenement outlines shown in white. Prospects defined by previous explorers and Chalice are labelled.



## 3.3 Wilga Project

### 3.3.1 Introduction

The Wilga Project comprises approximately 12 km<sup>2</sup> of tenements, located approximately 50 km south of Laverton and 15 km south southeast of AngloGold-Ashanti's Cleo gold mine (Figure 3-11).

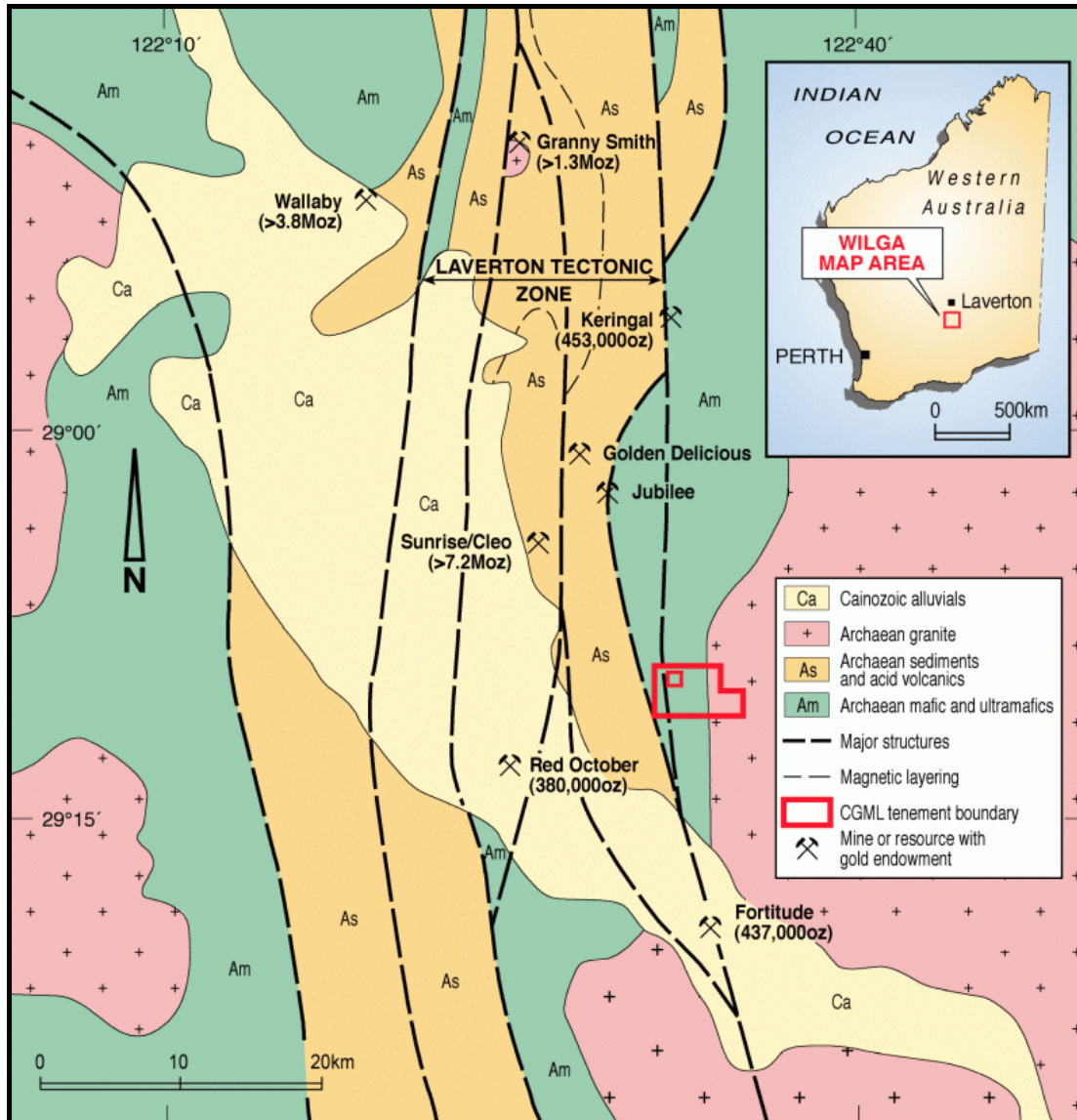


Figure 3-11: Location of the Wilga Project



### 3.3.2 Ownership

The Wilga Project comprises two tenements, as presented in Table 3-10.

**Table 3-10: Chalice Gold Mines Tenement Schedule for the Wilga Project as at April 2009**

Manager	Holder	ID No.	Area	Unit	Grant Date	Expiry Date	Rent Date	Rent
CGM	CGM	E39/1003	7	SB	23-Sep-05	22-Sep-10	22-Sep-09	A\$708.40
CGM	CGM	P39/4890	100	HA	29-Jan-09	28-Jan-13	28-Jan-10	A\$220.00

CGM = Chalice Gold Mines Ltd

Chalice has recently entered an agreement with AngloGold Ashanti Ltd (AngloGold) in relation to Exploration Licence 39/1003, and for Prospecting Licence 39/4890, that make up the Wilga Project. Under the terms of the agreement, AngloGold has the right to earn a 75% interest in the tenements with the expenditure of A\$2M within four years from August 2008.

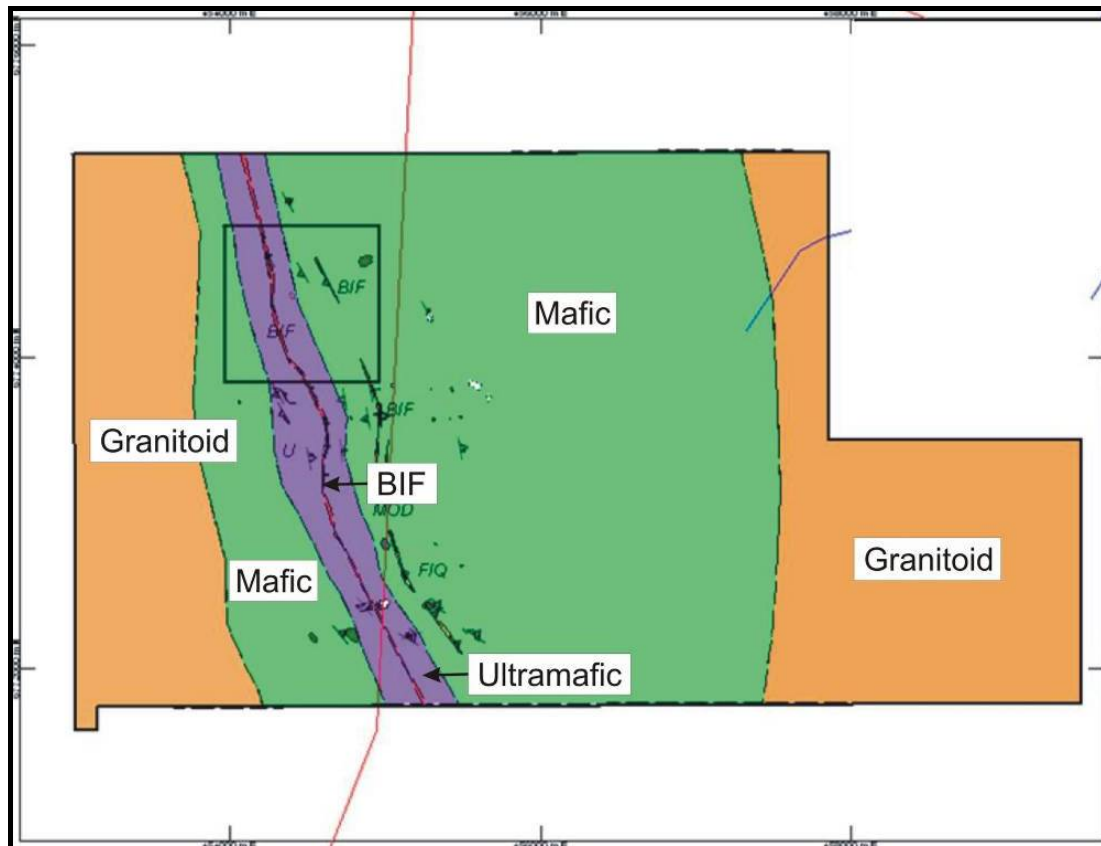
Upon earning its 75% interest, a JV will be established with participating interests being AngloGold 75% and Chalice 25%. AngloGold will be the manager of the JV and project and can withdraw prior to earning its interest.

As AngloGold has yet to reach the earn-in period, Chalice effectively retains 100% ownership of the Wilga Project at this time.

### 3.3.3 Geological Setting of the Wilga Project

The Project is located within the Burtville Domain, adjacent to the Laverton Tectonic Zone (LTZ), which separates the Burtville Domain from the Laverton Domain to the west. The LTZ is dominated by acid to intermediate volcanic and volcanoclastics rocks, including fault-bounded polymict conglomerates, and minor mafic and ultramafic rocks. The area in general is characterised by structurally disrupted stratigraphy, with extensive faulting, folding and shearing noted, variable metamorphic grade and extensive alteration and metasomatism (Alexander, 2007).

The oldest rocks in the immediate Wilga Project area are mafic and ultramafic volcanics with interbedded banded iron and cherty units. The sequence is dominated by high-Mg basalts and komatiite, with lesser basalt, dolerite and gabbro and sedimentary rocks (Alexander, 2007; Figure 3-12). Banded Iron Formations are generally contained within basaltic sequences, at or near the contact between basalts and ultramafic rocks (Delta, 1987). Several generations of intrusive rocks locally cut the stratigraphy, including dolerites/gabbros, which often occur as sills, and quartz-feldspar intrusives.



**Figure 3-12: Local geology of the Wilga Project**

After Alexander (2007)

‘Quartz blows’ have been mapped at the surface, often parallel to the strike of the stratigraphy, which predominantly dips moderately to steeply east, with localised tight folding highlighted within the banded iron formation (‘BIF’) units (Delta, 1987). Several east–west-striking shear zones are also mapped, which locally off set stratigraphy. Regional metamorphism is predominantly Greenschist facies, with localised Amphibolite facies developed close to shear zones.

Mineralisation in the area is reported as hosted by banded iron/chert formations, quartz veining and shear zones within the basaltic sequences (Allen, 2006). Visible gold has been noted from the area associated with the BIFs, and reconnaissance rock chip sampling of the outcrop has produced assays of 7.8 g/t and 5.1 g/t gold (Cary, 2006).

### 3.3.4 Exploration History

A summary of previous exploration on the tenement is presented in Table 3-11.

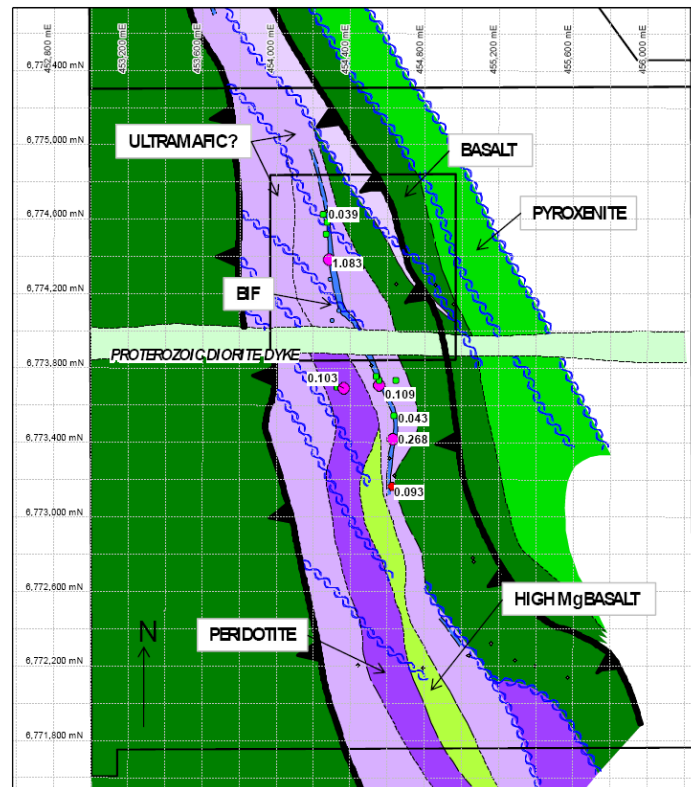
**Table 3-11: Summary of Exploration Results at Wilga**

Company	Year(s)	Work Completed
Australian Selection Pty Ltd	1966–71	Detailed aeromagnetic survey, gridding, soil sampling and geological mapping, Auger drilling, pitting and trenching and eighty diamond drill holes
US Steel International Inc	?	Regional reconnaissance and geological mapping
Nord Resources	1981–1983	Drilled 88, 9 m deep air track holes over a banded Iron formation south of Wilga Trig. Reconnaissance mapping and surface sampling was carried out prior to drilling
Union Oil	1986	Tested approximately 6 km of strike length of the banded iron formations. Drilled 24 RC holes for 1,406 m. Concentrated their drilling on the Relief Bore, Wilga and RSVG prospects
Delta Gold	1984–1990	Geological Mapping, gridding, ground magnetic surveys, soil and rock chip sampling and RAB and RC drilling (45 holes). Geochemical sampling included assaying for Au, with select samples assayed for Zn, Pb, Cu and As
Chalice Gold Mines	2006–2007	Soil sampling (173 samples), interpretation of geophysical data, mapping
AngloGold Ashanti	2008-2009	Surface rock chip sampling and gold analyses (35 samples); 1:5,000 scale geological mapping and an archaeological heritage survey.

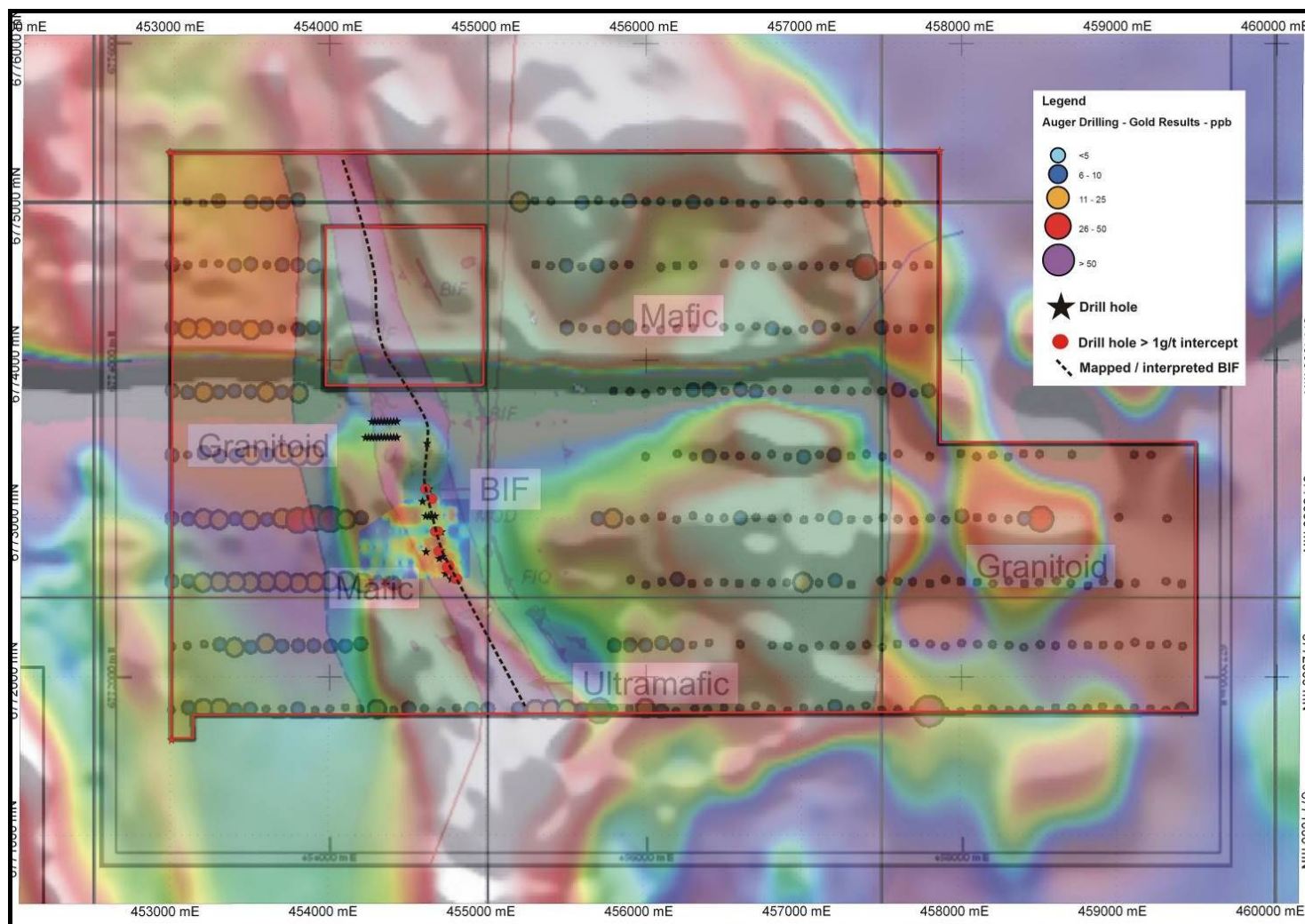
Auger drilling defined an extensive, low order (>10 ppb Au, peak 31 ppb Au) gold anomaly in an area of cover to the west of the main mineralised BIF. The anomaly trends north to north-north east and is semicontinuous over a strike distance of approximately 1,800 m at the >10 ppb Au contour (Alexander, 2007).

Of the 35 surface rock chip samples assayed by AngloGold Ashanti, 7 returned values greater than 0.03ppm. Geological mapping revealed a north northwest striking stratigraphy of BIF, basalt, pyroxenite and isoclinal folding of the stratigraphy (Chalice, 2009). Initial indications show that gold mineralisation is associated with a north northwesterly striking BIF ridge (Figure 3-13).

RAB and RC drilling identified a trend of gold anomalism ( $\geq 1$  g/t and up to 5 g/t in 10 holes) which correlates with the mapped and interpreted distribution of BIF in the western part of the tenement (Figure 3-14). Further potential exists for similar intersections within the interpreted BIF unit along strike to the north and to the south.



**Figure 3-13: Wilga Project schematic geological map showing major units and structures interpreted from aeromagnetic survey and higher grade gold values in rock chip samples (Chalice, 2009).**



**Figure 3-14: Total Magnetic Intensity image at Wilga**

Also shown are the Auger, RAB and RC drilling results and interpreted geology from mapping

## 4 Valuation

### 4.1 Valuation of Exploration Properties

Valuation of exploration properties relies on the application of a number of different methodologies that can be used in conjunction to determine a probable (or likely) market value. The methods used are related to the stage of exploration, and whether there are identified mineral resources on the property. The major methods used to value exploration properties are (Lawrance, 1994):

- Geoscience Ratings Methods
- JV terms – Comparable Market Value
- Multiples of Exploration Expenditure (MEE)
- Rule of Thumb.

In addition, SRK has developed a probability (risk) based approach to exploration valuation (the Geological Risk Method), which relies on identifying likely net present value (NPV) outcomes from successful development, and discounting this figure by the cost and probability of success through various (5) stages of the exploration and development process (Lord et al, 2001). This is SRK's preferred method that relies on development of geological models for mineralisation and then detailed review of exploration data to apply these models. In addition, the probability based approach requires determination of the likely or preferred NPV outcomes as well as estimation of the probabilities related to the likelihood of this outcome.

Using the Geoscience Ratings Method requires information such as tenement acquisition and maintenance costs, and detailed analysis of the information which requires additional research to incorporate into the valuation. SRK does not favour the MEE method as it is expenditure based and takes limited account of the geological features present within the project area to derive a value. However, attributing the annual rental commitment as a means of determining a minimum tenement value, is sometimes appropriate.

The Rule of Thumb approach is typically used when a resource has been outlined but its economic viability has yet to be determined. It is important to note that this should be applied only with caution and the results should be interpreted as indicative only as it does not take into account many other factors such as native title, environmental, taxation, mill and capital costs or mine closure costs. As no resources are defined on the assets subject to this valuation, the Rule of Thumb approach is not appropriate to use.

SRK has further utilised the technical observations as provided by Chalice (Table 4-1) to determine Project maturity and prospectivity potential, as based on exploration work completed by Chalice.

Consequently, SRK has undertaken the valuation of the Yandearra, Gnaweeda and Wilga exploration Projects using the probability (risk) based approach (Geological Risk Method). The results of this valuation have been compared to a limited number of comparable market transactions for early stage exploration projects using a value per square kilometre. This is not SRK's preferred method as it does not take into account the detailed geology of each tenement area, instead applying a somewhat arbitrary value figure per square kilometre of tenement. SRK has utilised this method primarily as a comparison to the Geological Risk Method. A further benchmark used to calibrate the Geological Risk Method valuation was the implied value as derived from the terms of a JV agreement, where applicable.

Our valuation encompasses the exploration potential of the three project areas comprising Chalice's holding in Western Australia.

This technical review does not account for:

- the value of any nearby infrastructure;
- the value of any commodity other than Au, Cu, Fe, Ta or U;
- acquisition costs;
- financing costs; and
- infill drilling/future exploration and resource definition costs.

All values quoted are in Australian Dollars (A\$).

In summary, SRK has derived our preferred valuation of the Yandearra, Gnaweeda and Wilga exploration projects using the Geological Risk Method to determine the value of exploration potential. This has been cross-checked, where possible, with the comparable transactions method (including implied value from JV agreements where applicable), as described below.



**Table 4-1: Points for Consideration in Estimating Current Values of Exploration Projects**

Project	Commodity	Assumed Potential Target Model	Comments	Risk Probability Factor Category
Yandearra	Au	200,000 to 300,000 oz Au, 1.5 – 2.5 g/t grade (Area B). e.g. Range River Gold's Indee or De Grey Mining's Wingina Well deposits and mineralisation styles	Exploration results for Area B have lowered expectation of discovery of Indee target style. Alternative style within Area A (De Grey JV) is possibly higher grade (5 -7 g/t Au) but smaller tonnage deposit	Variable, i.e.: Low for Area B Low to moderate for Area A Negligible for Area C
	Fe	5-7 Mt @ 58% Fe. a.g. Atlas Iron's Trigg deposit within its Abydos Project (east of Yandearra)	No significant exploration results to date, but large tonnage deposit considered low probability.	Low
	Cu	5 -7 Mt @ 3-4% Cu equivalent. e.g. CBH Resources/Sipa Resources Panorama JV (with resources such as Sulphur Springs, 13.8Mt @ 3.7% Zn, 1.4% Cu and Kangaroo Caves, 1.7 Mt @ 9.8% Zn 0.6% Cu)	De Grey Mining's Orchard Tank-Acacia zone (Zn-Pb-Cu-Au-Ag) provides likely mineralisation model.	Very low
	Ta	No target identifiable	Evidence of host rocks for notable Ta mineralisation is unknown and therefore not regarded as a priority exploration objective	Negligible
	U	Initial conceptual target not proven by subsequent work	Should disregard as an exploration objective, and particularly because of issues in conducting exploration to test beneath areas covered by Proterozoic basalt	Negligible
Gnaweeda	Au	250,000 to 500,000 oz	High grade intercepts at depth provide basis for continuing further evaluation but mineralisation continuity and orientation needs to be established before proceeding towards resource definition stage to meet upper end of target size	Moderate
	Cu	Not known	Not considered to be primary target mineralisation based on past exploration results, and not a current exploration objective	Very low
Wilga	Au	250,000 – 500,000 oz	Preliminary exploration results to date support evaluation but grade and size of potential mineralisation style is ill defined	Low



## 4.2 Comparable Transaction Valuations

The comparable market transactions method was used in three situations for application to the Chalice assets:

1. As a value of specific commodities as based on JV terms (Section 4.2.1).
2. As a 'value per square kilometre' value for the Yandearra, Gnaweeda and Wilga exploration projects (Section 4.2.2).
3. To determine a realistic Target Value (TV, NPV) for the exploration projects valued in the Geological Risk Method (Section 4.3).

### 4.2.1 Joint Venture Terms

One may consider a fair indication of market value of the projects as the earn-in cost outlined in the JV agreements for each project (see Sections 3.1.2, 3.2.2 and 3.3.2 for details). Effectively, these agreements represent the most recent transactions on the projects. Taking into consideration the stage that the JV agreements are at, and the current equity that Chalice retains in the projects, the implied value of the respective projects, for specific minerals, are presented in Table 4-2. Note that the Atlas joint venture is not listed in Table 4-2 as SRK considers that Atlas effectively has 100% ownership at this time, therefore the iron assets are not included in this valuation.

In determination of the implied value of the JV for the Wilga Project, SRK has estimated that it is likely that \$0.5M will be spent to advance the Project from anomaly definition to systematic drill testing of any defined target. Based on the exploration success probabilities determined by Lord et al. (2001), there is a 17% probability of progressing the Project to resource delineation from systematic drill testing. As such, SRK has used the sum of the initial \$500,000 and 17% of the residual amount to be spent under the JV agreement, to determine the current implied value (Table 4-2).

As De Grey withdrew from the Yandearra joint venture prior to passing the first earn in/option period SRK has applied a discount to the implied value of the joint venture agreement. Under the joint venture agreement, De Grey was to spend \$1.67 million to earn up to 80% in the rights to gold and base metals. De Grey spent in excess of \$600,000 on the project, exceeding their minimum commitment of \$417,000 under the joint venture agreement. The discount applied to stage 2 is a further 50% (75% total) to reflect the likelihood of any future joint ventures proceeding to this stage.

**Table 4-2: Implied Value of the Chalice Projects for Specific Minerals as a Function of the JV Agreements**

Project	JV Company	Initial Payment (A\$)	Stage 1 (A\$)	To Earn (%)	Stage 2 (A\$)	To Earn (%)	Implied Value (for 100%) (A\$)
Yandearra <sup>1a</sup>	De Grey Mining	265,000	835,000	60	835,000	80	1,636,000
Yandearra <sup>3b</sup>	Atlas Iron	250,000	200,000	100	1,000,000	100	725,000
Gnaweeda <sup>2b</sup>	Teck Cominco	140,000	750,000	51	750,000	70	1,807,000
Wilga <sup>2</sup>	AngloGold		2,000,000	75			755,555
<b>Total</b>							<b>4,923,555</b>

<sup>1</sup> = Au and base metals; <sup>2</sup> = Au only <sup>3</sup> = Fe only

**Notes:** Stage 2 reduced by (a) 75% to account for JV withdrawal, and (b) 50% to reflect likelihood of proceeding.

### 4.2.2 Value per Square Kilometre

SRK undertook analysis of transactions reported through the past two to four years in Australia for companies that acquired (or sold) gold and base metals, or uranium exploration exposure. The

primary source of transaction information was the Mineral Economics Group Database (MEG, 2007), supplemented by searching the Mining News database and individual company news releases to various stock exchanges. Properties that contained reported known reserves or resources, infrastructure, or significantly different mineralisation styles were disregarded as they were not considered comparable.

The number of comparable exploration transactions obtained for the analysis varied depending on the Project location. These transactions predominately involved staged joint venture, typically with an initial payment followed by a series of earn-ins to gain a proportion of the project. To take account for the possibility that once initial payment was made, subsequent earn-ins may not be completed, SRK discounted these by a factor of 50%.

Based on these transactions SRK could determine the implied value in relation to tenement size to derive an upper, moderate and lower range of market values of the projects, which can be considered by BDO as a benchmark for the SRK Geological Risk Method.

Although Chalice's projects are located across three mining districts in Western Australia, due to a paucity of transaction data for specific Districts, transactions across Western Australia as a whole were considered.

#### 4.2.2.1 Gold

Results for comparative gold transactions are summarised in Table 4-3.

**Table 4-3: Summary of Comparable Transactions involving Gold Exploration Projects in Western Australia**

Transaction	Implied Value per km <sup>2</sup> (A\$)
In December 2008, Anglo American PLC entered an agreement with Traka Resources Ltd whereby they can earn an initial 51% by spending A\$3.35 million (A\$350,000 stage 1, A\$3 million after 12 months) plus the access/heritage clearance-related costs (which are not accounted for) at the Musgrave Project.	1,011
In July 2007, St Barbara agreed to spend A\$5M on exploration over five years on Mawson West's Golden Mile South project (112 km <sup>2</sup> ) to earn 70% of the project.	52,521
Prime Minerals Ltd. agreed to spend A\$800K at the Star of Mangaroon project (72 km <sup>2</sup> ) to earn 80% from Fox Resources. Notably, this property included 26,000 oz of gold (not JORC compliant) which has not been accounted for.	8,681
In July 2004, Newmont Exploration Pty Ltd agreed to spend A\$3.5M over four years (with minimum A\$400K first year commitment) on Cullen Resources' Gunbarrel project (~450 km <sup>2</sup> ).	11,111
In 2004, Aurogenic Resources Pty Ltd agreed to spend A\$4M over three years (with minimum First year commitment of A\$1M) to earn a 51% interest in the ~480 km <sup>2</sup> Meekatharra/Annean JV (with St Barbara Mines).	10,212
In June 2004, NGM Resources paid to farm into Gindalbie Gold NL's Anketell project (~1,000 km <sup>2</sup> ). NGM could earn a 26% interest in the project by spending the equivalent of A\$1,050,000.	4,038
<b>Average (without Golden Mile South transaction)</b>	<b>7,010</b>

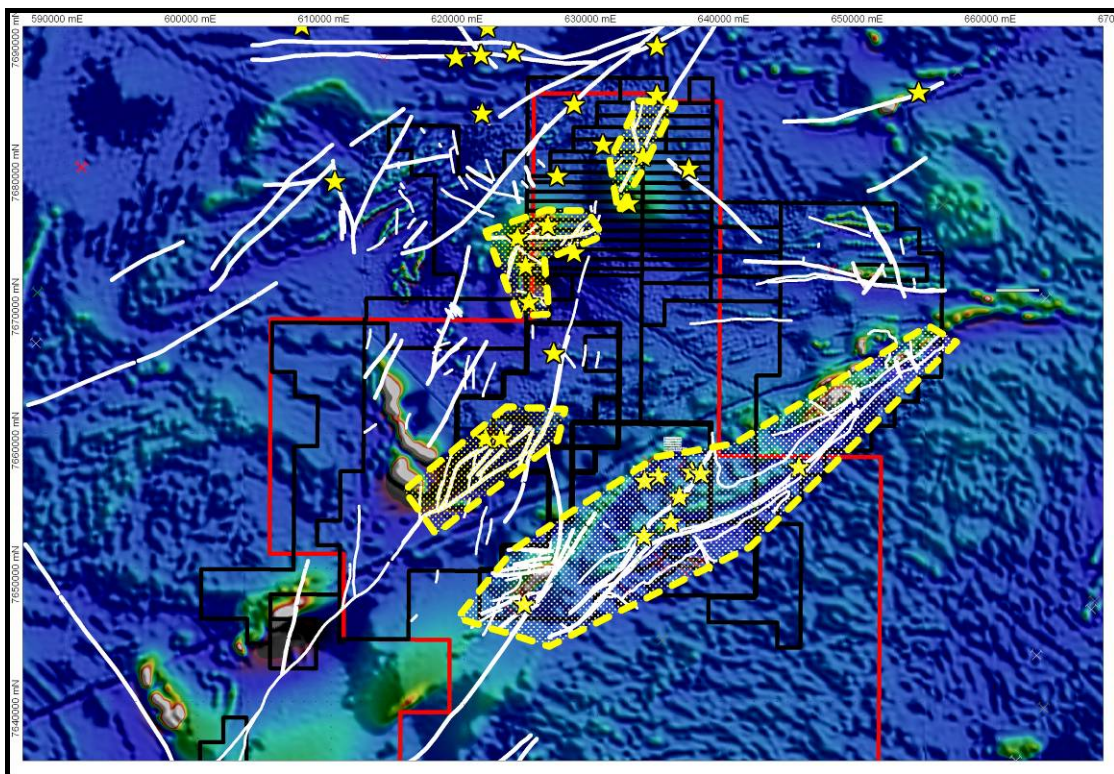
Transactions are presented on a value per square kilometre basis.

The St Barbara transaction is at a very high value, as the project is presumably along strike from the Golden Mile. SRK has therefore chosen not to use this in our calculations. Furthermore, the Anglo American transaction is considered a low-end value as the calculation does not account for the access/heritage clearance-related costs.

Chalice currently effectively owns 100% of the gold rights at Yandearra and Wilga, and only 49% of the gold rights at Gnaweeda. These percentages have been accounted for in the final calculation of Chalice's gold exploration assets on a value per square kilometre basis (Table 4-4).

SRK has restricted the area used for the Yandearra valuation, as the prospective shear zones do not persist homogenously throughout the entire tenement package. As such, a simple calculation based on tenement area would be misleading. Based on the location of defined prospects, continuity of geology, and on the aeromagnetic data and fault interpretation completed by Chalice (Figure 4-1), SRK has defined zones within the Yandearra project for consideration in the value per square valuation. The total area defined by SRK totalled 360 km<sup>2</sup>.

SRK has used the entire tenement area for the Gnaweeda and Wilga project valuations, as geological continuity broadly covers the entire tenement areas.



**Figure 4-1: Area used for value per km<sup>2</sup> valuation for Au at Yandearra**

Area defined by yellow dotted outline (total area of 360 km<sup>2</sup>). Stars represent defined prospects. White lines represent Chalice's fault interpretation for the aeromagnetic data (background).

**Table 4-4: Range of Values for Chalice's Gold Exploration Assets on a Value per Square Kilometre Basis**

Project Name/Rights	Area (km <sup>2</sup> )	Low Value (A\$/km <sup>2</sup> )	Average Value (A\$/km <sup>2</sup> )	High Value (A\$/km <sup>2</sup> )
		1,011	7,010	11,111
Yandearra (100% Au rights)	360	364,000	2,524,000	4,000,000
Gnaweeda (49% Au rights)	172.28	85,000	592,000	938,000
Wilga (100% Au rights)	12	12,000	84,000	133,000
<b>Totals</b>	<b>544.3</b>	<b>461,000</b>	<b>3,200,000</b>	<b>5,071,000</b>

#### 4.2.2.2 Fe Ore

It should be noted that only little evidence of iron ore mineralisation (BIF- or channel-hosted iron ore) has yet been defined for the Yandearra Project thus far. The Pilbara is a world-class iron ore producer. However, stratigraphy known to host iron ore mineralization is yet to be defined within the Yandearra Project area. Similarly, geophysical signatures generally interpreted as channel iron features are yet to be defined in the Yandearra Project area.

Given the current lack of geological knowledge / features at Yandearra to support BIF- or channel-hosted iron ore features, a comparable transaction valuation based on value per square kilometre is inappropriate.

#### 4.2.2.3 Base Metals

Results for comparative base metals (copper) transactions are summarised in Table 4-5.

Despite being prospective for copper mineralisation, both the Vale and Redstone Resources transactions were based on Iron Oxide Copper Gold (IOCG) and Ni-Cu-PGE exploration targets. Although these deposit styles differ from the VHMS targets reported for Yandearra, they still represent potential for copper mineralisation. As such, SRK has chosen to use these transactions in our calculations.

The Graynic Metals and West Musgrave Mining transactions were for exploration assets with VHMS potential in the Pilbara, and are therefore appropriate for comparison purposes. However, the Graynic transaction was for a project at an advanced stage, and with numerous ore-grade drilling intersects. As such, the value of the transaction is greater than what would be the case for an early stage project such as those at Yandearra and Gnaweeda. As such, the Graynic transaction has not been used in the calculations. Despite the Gnaweeda project being located in the Yilgarn Craton, SRK still considers the Pilbara transactions appropriate to use in valuation of the copper potential at Gnaweeda.

The total area of Chalice's Cu exploration projects is 1191 km<sup>2</sup>. This is based on 1019km<sup>2</sup> at Yandearra and 172 km<sup>2</sup> at Gnaweeda. Chalice currently effectively owns 100% of the copper rights at Yandearra and Gnaweeda. These percentages have been accounted for in the final calculation of Chalice's copper exploration assets on a value per square kilometre basis (Table 4-6).

**Table 4-5: Summary of Comparable Transactions Involving Copper Exploration Projects in Western Australia**

Transaction	Implied Value per km <sup>2</sup> (A\$)
Under a farm-in agreement in 2008, Vale can earn an initial 51% interest in Rubicon's Warburton by spending A\$3M on exploration or development over three years. Vale can increase its interest in Warburton to 70% by sole funding exploration and development up to the commencement of a bankable feasibility study (BFS), and can earn a further 5% by solely funding the BFS. In the event that Vale elects to fund the BFS, Rubicon will be free-carried to its completion	1,379
In 2007, Redstone Resources continued their exploration programme on the Blackstone Range/Michael Hills tenements, spending the required A\$1,000,000 in the year to earn 100% of the project from Resources Mining Group	2,959
When it listed on the ASX in June 2005, Graynic Metals had an earn-in agreement with Cazaly Resources Ltd to earn 80% of the Quartz Circle Cu project for the expenditure of A\$1M.	19,231
In March 2002, West Musgrave Mining signed an option to acquire up to a 70% interest in the base metal portion of Caldera Resource's Tabletop project. Under the terms of the agreement, West Musgrave would pay Caldera A\$20,000 and fund a A\$30,000 ground gravity survey over priority targets. If West Musgrave completes the program, it could then earn a 51% stake by spending another A\$300,000 over two years, then raise its stake to 70% by spending an additional A\$1M over the subsequent three years	8,483
<b>Average*</b>	<b>8,013</b>
<b>Average<sup>#</sup></b>	<b>4,274</b>

Transactions are presented on a value per square kilometre basis. \*All transactions <sup>#</sup>Transactions with Graynic omitted

**Table 4-6: Range of Values for Chalice's Copper Exploration Assets on a Value Per Square Kilometre Basis**

Project Name/Rights	Area (km <sup>2</sup> )	Low Value (A\$/km <sup>2</sup> )	SRK Preferred Value* (A\$/km <sup>2</sup> )	High Value <sup>#</sup> (A\$/km <sup>2</sup> )
		1,379	4,274	8,483
Yandearra (100% Cu rights)	1019	1,405,000	4,355,000	8,644,000
Gnaweeda (100% Cu rights)	172.28	238,000	736,000	1,461,000
<b>Totals</b>	<b>1191.28</b>	<b>1,643,000</b>	<b>5,091,000</b>	<b>10,105,000</b>

\*Average of all transactions with Graynic omitted. <sup>#</sup>Highest transaction value

#### 4.2.2.4 Tantalum

The Yandearra project is located close to the operating Wodgina tantalum (Ta) mine, and as such there is some potential that similar pegmatite intrusions may be present in this area.

However, it should be noted that no evidence of Ta mineralisation, or similar host rocks to that at Wodgina, has yet been defined for the Yandearra project, nor has any exploration been conducted specifically targeting Ta within the Yandearra tenements.



Given that there is a paucity of Ta transactions due to its 'specialist metal' category, the fact that the Wodgina Mine is anomalous to the District (and Australia as a whole), and that the defined resource there is contained within a confined area, valuation of the Ta potential using a value per square kilometre basis would yield a vastly un-proportional result, in comparison to the total Yandearra project area. As such, valuation of Ta potential using this method is deemed by SRK as inappropriate.

#### 4.2.2.5 Uranium

Results for comparative uranium transactions are summarised in Table 4-7. The correlation of uranium with gold suggests an intrusion-related mineralisation model, although there has only been a very limited number of samples collected (24 rock chip samples) relative to the total size of the tenement holding at Yandearra. The distribution of sampling for U is restricted within the Yandearra project area as a whole, with sampling clustered to within an area interpreted to be strongly faulted (Figure 4-2). Given the correlation of U and Au results from the rock chip sampling programme (Table 3-5), and the spatial association with interpreted faults, SRK has restricted the area used for the Yandearra U valuation to that used in the Au valuation. The total area defined by SRK totals 360 km<sup>2</sup>.

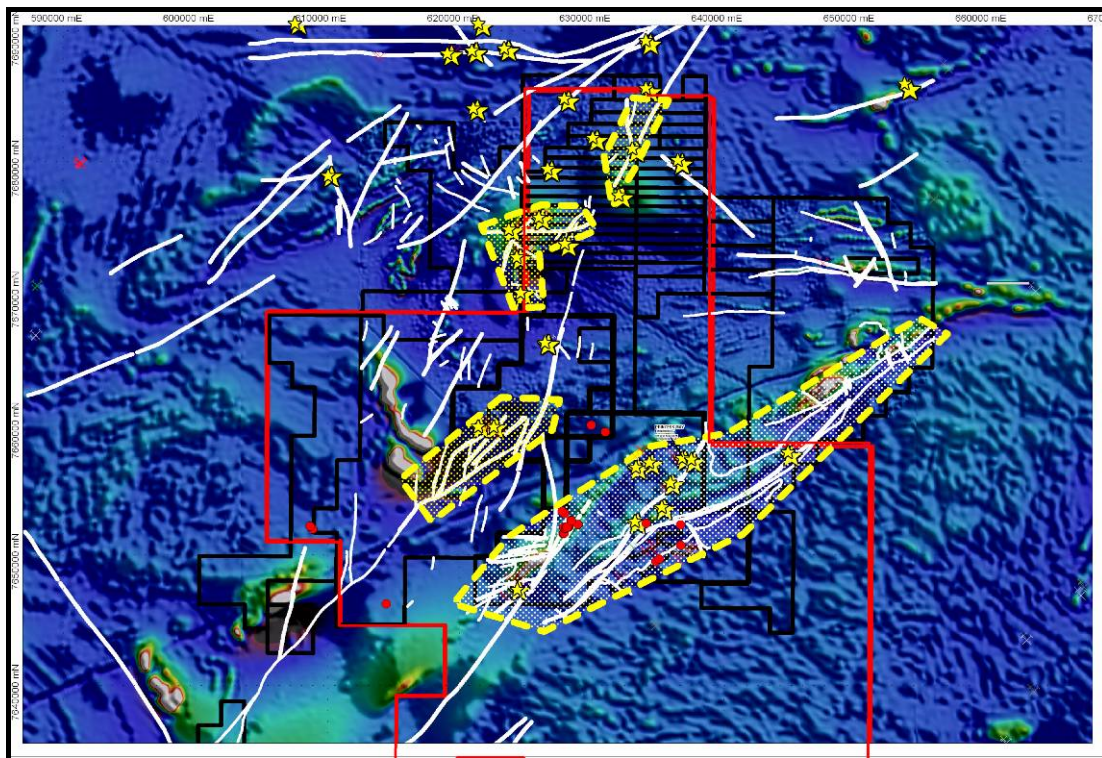


Figure 4-2: Location of U samples collected at Yandearra to date

Red dots denote the location of the U samples. Area defined by yellow dotted outline (total area of 360 km<sup>2</sup>). Stars represent defined prospects. White lines represent Chalice's fault interpretation for the aeromagnetic data (background).

The transactions identified are based largely on company listings from 2006, although SRK has also reviewed all relevant listings from 2007 and 2008 (Table 4-7). In addition, the majority of transactions are for U exploration assets where an intrusion-related model was not preferred, rather sedimentary-hosted U was the exploration model being employed. Regardless, SRK has had to use the transaction data as the most appropriate valuation benchmark data available.

The average market value of the exploration tenements from the listing data was A\$3,700/km<sup>2</sup>. SRK considers this to be at some point in the valuation range, because following listing, the performance of the share price of a number of exploration companies is significantly different to the listing price. During the period, most of the uranium exploration companies experienced significant increases in price, reflecting the general market perception that there was greater value in the properties than originally suggested by the directors at the time of listing.

To gauge where the listing value was on the valuation range, SRK reviewed the share price performance post-listing, and determined the first plateau in price immediately after listing. This recognition of the first plateau removes the initial buy-sell effect related to immediate opportunistic buying and immediate profit taking by seed investors not bound by escrow, and represents a measure of the true market perception of property value. Of the companies reviewed, there was an average premium to the listing price at the first price plateau of approximately 40% to the listing price.

In determining a valuation range therefore, SRK has set the high end of the range for the uranium assets at the 40% premium price, which was A\$5,180/km<sup>2</sup> at the valuation date. The low end of the range for uranium assets at the time is therefore set at the listing average, or A\$3,700/km<sup>2</sup>. Results are presented in Table 4-8.

**Table 4-7: Summary of Comparable Transactions involving Uranium Exploration Projects in Western Australia**

Project	Implied Value per km <sup>2</sup> (A\$)
UraniumSA (USA, 18/10/06) hold 17 exploration properties of 7,638 km <sup>2</sup> located across the Gawler Craton, SA. The company issued 33M shares, and had 35M outstanding shares and options at listing, and approx A\$0.5M in cash assets. Options were valued using a Black Scholes model.	5,424
Mantra Resources Ltd (MRU, 9/10/06), listed with tenements for uranium exploration in Tanzania, approximately 10,300 km <sup>2</sup> . On listing there were approx 32M shares and 24.15M options on issue. Options listed at about A\$0.10.	1,407
Thor Mining (THR) undertook a dual listing (AIM ASX), part of which was the purchase of uranium assets of Hale Mining for 16M A\$0.20 shares and 8.5M options. Using a Black Schole method for valuing the options, this represented a purchase price of A\$4.044M. The uranium assets were approximately 3,000 km <sup>2</sup> in the Northern Territory.	1,348
Newera Uranium Ltd (NRU, 19/6/06) listed with the issue of 15M shares at a price of A\$0.20 dollars = A\$3M. Includes 1.2M director shares and 10M shares to Cazaly as payment for some of the tenements. Portfolio of grassroots exploration projects in WA and NT covering 338 blocks (approx. 946 km <sup>2</sup> ) (including applications).	9,640
Aura Energy Ltd (AEE, 30/5/06), listed with the issue of 25.5M shares at price of A\$0.20 dollars = A\$5.1M. A further 11M shares were held in the company. Portfolio of grassroots exploration projects in WA only (including Wondinong and Altona projects) covering 1,733 km <sup>2</sup> (including applications).	3,786
A-Cap Resources Ltd (ACB, 19/5/06). Although holding uranium interests in Botswana, the float was a multi-commodity float, and details are not available to disengage the uranium value from the nickel and gold assets.	Outside of Aus, so not used
U3O8 Ltd (UTO, 9/5/06) listed with the issue of 25.35M shares at a price of A\$0.20 = A\$5.07M. At the time, after listing there were 65.6M shares on issue and 2.5M options. Portfolio of grassroots exploration projects in WA, SA and QLD covering 2,243 km <sup>2</sup> (including applications).	5,823
Encounter Resources Ltd (ENR, 24/3/06) listed with the issue of 28.5M shares at a price of A\$0.20 for A\$5.7M (March 2006). Total shares on issue after listing was 63.4969M. Portfolio of grassroots exploration projects in WA only covering 3,252 km <sup>2</sup> (including applications).	3,066
Toro Energy Ltd (TOE, 24/3/06) listed with the issue of 72M shares at a price of A\$0.25 raising A\$18M (March 2006). Total shares on listing were 145.502M. Toro formed by the amalgamation of the uranium interests of Oxiana Ltd and Minotaur Exploration Ltd	1,519

Project	Implied Value per km <sup>2</sup> (A\$)
encompassing exploration projects in SA covering 26,069 km <sup>2</sup> (including applications).	
Mega Redport Ltd (Canadian-listed) announced an A\$19.7M takeover offer for Hindmarsh Resources Ltd (January 2006). Hindmarsh's main assets comprised 13,600 km <sup>2</sup> exploration tenements in SA and NT.	1,450

Transactions are presented on a Value per Kilometre Basis. Transactions including tenements under application not considered.

**Table 4-8: Range of Values for Chalice's Uranium Exploration Assets on a Value per Square Kilometre Basis**

Project Name/Rights	Area (km <sup>2</sup> )	Low Value* (A\$/km <sup>2</sup> )	Average Value (A\$/km <sup>2</sup> )	High Value (A\$/km <sup>2</sup> )
		2,741	3,289	3,837
Yandeearra (100% rights)	360	986,760	1,184,040	1,381,320
Probability of progressing (50%)		50%		
<b>Totals</b>	<b>360</b>	493,380	592,020	690,660

Transactions are presented on a Value per Kilometre Basis. \* SRK preferred value.

## 4.3 Geological Risk Valuation

The following Chalice assets were valued by SRK using the Geological Risk Method:

- Yandeearra (Au, Fe and Cu)
- Gnaweeda (Au and Cu)
- Wilga

SRK developed a series of exploration models and target values appropriate to the deposit style being targeted, as will be further explained below. The deposit styles on which the models are based are presented in (Table 1-1).

### 4.3.1 Overview of the Geological Risk Method

The basis of valuation is the need for commercial definition of exploration, as exploration does not deliver cash to a mining company and it has no immediate earning potential. Exploration, however, does have the potential to generate value and an expectation of achieving that value.

In the case of exploration, that value is the expected NPV that is to be delivered to the mining division - a threshold or range of NPV that meets the company's minimum financial criteria, appropriate to the deposit style being explored for. As the term 'NPV' implies that a Discounted Cash Flow (DCF) valuation method has been used, SRK chooses to refer to the final value as the 'Total Value' (TV). In applying TVs, it is important to consider several factors – targets with large TVs will be difficult to find, so the probabilities of finding such deposits will be lower. Lower target TVs, for example, near-mine resources for mill feed, will have much higher probabilities of success. Similarly in areas of deep cover, TVs can be reduced to account for the increased CAPEX that would be required to develop the project. Once established, the Geological Risk Method works back from this TV value.

The basis for the Geological Risk Method is a simple formula (shown below) that is applied to each exploration stage, starting from the chosen TV value for an operating mine and discounting through the main Exploration Stages backwards from Stage E to the defined current Stage, to give a current value:



$$EV = P \times TV - C$$

Where:

- EV = Prospect value
- P = Probability of advancing to next stage. These probabilities were determined on a prospect by prospect basis after review of the previous exploration work undertaken in the area.
- TV = Target value (NPV of deposit style)
- C = Cost of exploration

A schematic diagram of the methodology is given in Figure 4-3.

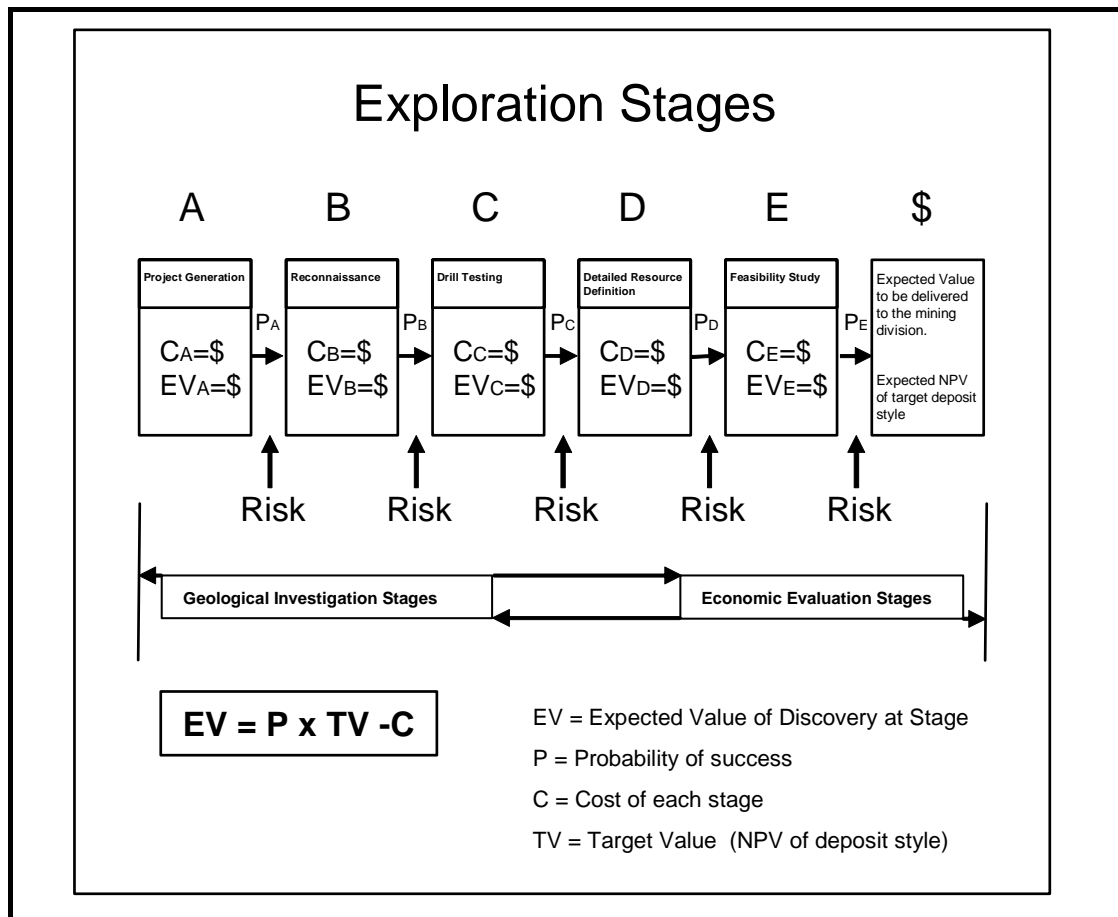


Figure 4-3: Schematic diagram of the Geological Risk Method (after Lord et al., 2001).

#### 4.3.1.1 Target Values

##### Gold

In determining a value for the Chalice Au exploration projects, the default probability (P) and cost of exploration (C) are both determined from the analysis of comparable historical data regarding greenstone gold deposits from the Laverton region after research in Lord et al., (2001). A table comprising the default probabilities and exploration costs utilised in the Geological Risk Method calculations is located in Appendix 2.

The target value scenario of the Lord et al., (2001) study was based on a 500,000 oz gold target with the TV estimated by the applying the low, medium and high values per ounce figures derived from the comparable market transaction value per in situ ounce analysis.

SRK notes that the target deposit size for the Chalice projects varies between Yandeearra, Gnaweeda and Wilga (Table 4-9). Target size was allocated after examination and interpretation of historical exploration and discovery results in the region, being a reasonable size for the location and commodity, and representing a modest sized exploration target for a junior exploration company.

The value per ounce for this calculation was determined from research on market transactions in Western Australia, for assets with a similar Au resource base to what is targeted for the Chalice Au projects (Table 4-9). A range of project value per in situ ounce was derived from recent transactions; SRK used the average value as the preferred value per in situ ounce to set a target value for the Chalice projects (Table 4-10).

**Table 4-9: Target Sizes used for Chalice's Gold Exploration Assets**

Project	Target Size (oz Au)*	Comment
Yandeearra	250,000	Target determined by proximity to the Indee project (400k oz Au), Calvert and Toweranna projects (combined ~130 k oz) and Wingina project (~203k oz Au). Also defined by Chalice
Gnaweeda	250,000	Target determined by proximity to the Mt Magnet mine (~3.5M oz Au produced). Also defined by Chalice
Wilga	500,000	Target determined by the Lord et al., (2001) study (same District as the Wilga project), and proximity to the Sunrise/Cleo (7.2Moz Au), Fortitude (437k oz Au) and Red October (380k oz Au) deposits. Also defined by Chalice

\* Inferred category

**Table 4-10: Summary of Transactions Involving Gold Resource Projects in Western Australia**

Transaction	Implied Value per In Situ oz (A\$)
Mt Morgans: In February 2009 Range River Gold signed a conditional sale and purchase agreement with Barrick Gold for A\$3.5 million to acquire 100% of the 205,000oz (measured, indicated & inferred).	17.07
Tuckabianna: Silver Lake Resources did a deal with Extract Resources, paying A\$1.2M in July 2007 for a 230,000 oz Resource (category not stated, so assumed Inferred).	5.22
South Kalgoorlie, Dioro Exploration paid Harmony Gold Mining A\$45M in July 2007 for a 1.878M oz Resource (category not stated, so assumed Inferred). NB – includes exploration tenements.	23.87
Aphrodite: Apex Minerals bought the 287,000oz (Inferred) deposit from Barrick Mining for A\$7.0M in May 2007.	24.39
Kunanalling: Carbine Resources paid Cazaly a consideration worth roughly A\$15.3M (when calculated for 100% of the deposit) made up of management fees, Carbine shares and cash. Reported resource is 612,000 oz, primarily Inferred category.	24.99
Riverina: Monarch Mining paid 15M Monarch shares and 5M options in August 2007 (Monarch share price at this time was approximately A\$0.29) for 200,000 oz Indicated and Inferred Resource.	29.00
Mt Ida: Monarch Mining paid A\$2.3M to International Goldfields for 50% share of 54,500 oz Measured Resource and 58,000 Indicated Resource. May 2007.	40.89
RSG valued Norseman for Kalgoorlie- Boulder Resources February 2007. 1,200,000 oz Inferred Resource. (SRK has used RSG's stated high end value).	41.57
<b>Average</b>	<b>26</b>

Transactions are presented on a value per in-situ oz basis.

### **Iron Ore**

SRK has assumed BIF- and channel-hosted iron ore models. In determining a value for the Fe ore potential at Yandearra, the target values and cost of exploration (C) were adjusted accordingly. For example, probabilities of outlining a deposit may be lower as many iron prospects are outcropping and exploration is less mature than the gold sector. However, the cost to develop iron deposits, particularly capital costs, will be significantly higher, as it is a bulk commodity requiring significant infrastructure.

The assumed value per in situ tonne Fe-ore was determined assuming 58% grade calculation and products within contaminant specifications (~A\$0.80/t).

High and low values were calculated assuming a 25% variation. Chalice's JV partner Atlas Iron has already defined reserves of 7Mt @ 58% Fe at their Trigg deposit to the north of the Yandearra Project. Their target size by 2009 for that district, as reported on the Atlas website, is 30-40Mt within the Abydos Project. SRK has allocated a similar range in target size for Yandearra.

### **Base Metals (Cu)**

In determining a value for the Chalice base metals (copper) potential projects, the target values and cost of exploration (C) were adjusted accordingly. For example, probabilities of outlining a deposit may be lower as there are relatively few base metal projects of VHMS affinity defined in Western Australia relative to gold projects, and exploration is less mature than the gold sector.

SRK had difficulty identifying many transactions for Cu projects in Western Australia, and as such extended the search to the Northern Territory, South Australia and New South Wales – known Cu producing States with a more active transaction history for copper projects with a resource/reserve base.

Target size was allocated after examination and interpretation of historical exploration and discovery results in copper producing districts of Australia, being a reasonable size for the location and commodity, and representing a modest sized exploration target for a junior exploration company. SRK has allocated a target size of 7 Mt @ 4% Cu (equivalent), with negligible credits from other commodities which may be associated with such systems. The TV was based on other properties / discoveries in the Pilbara (Sulphur Springs, 13.8Mt @ 3.7% Zn, 1.4% Cu and Kangaroo Caves, 1.7 Mt @ 9.8% Zn 0.6% Cu).

The value per in situ tonne for this calculation was determined from research on market transactions in Australia. A range of project value per in situ tonne was derived from recent transactions.

**Table 4-11: Summary of Transactions Involving Copper Resource Projects in Australia**

<b>Transaction</b>	<b>Implied comparable value per In Situ Tonne (A\$)</b>
In April, 2009 Nickelore arranged to sell its 90% interest in Mount Pleasant and Bardoc to Kalgoorlie Mining Associates for A\$1.3 million in cash. Reserves / resources at the time of the deal were 5,800 t contained Cu (\$287/in situ tonne). Cu grade of 4.32% is significantly higher than what it expected for Chalice's Projects (~2% Cu) therefore the implied value is discounted by 0.5.	143
In 2008 Argonaut Resources NL sold its 10% interest in the Kanmantoo Copper Mine to Hillgrove Resources Ltd for A\$2.5 million in Hillgrove shares. Reserves / resources at the time of the deal were 492,831 t contained Cu.	507
In August 2005, Sylvania entered into an option agreement with Warwick John Flint over all of the Australian tenements of Sylvania at Jumblebar and Copper Knob. Under the terms of the agreement, Flint had the right to exercise the option at any time up until 16	41

Transaction	Implied comparable value per In Situ Tonne (A\$)
August 2005, to acquire Sylvania's interests in its Australian tenements for the consideration of A\$41,900 (A\$55,000), and the issuance to Sylvania of fully paid ordinary shares in a listed entity to the value of A\$152,000 (A\$200,000).	
In January 2003, Straits Resources sold its 50% interest in Maroochydore to Aditya Birla Group for A\$10M (A\$5M). SRK has applied a market correction factor of 2 to account for the Cu price variation since the date of this transaction (see Figure 4-4).	26
In November 2003, Asia Multi-Foods & Oils (Australia) Ltd acquired a 100% interest in Jervois from Solbec Pharmaceuticals for A\$500,000 in cash and a royalty of A\$2/Mt of ore mined and treated to a maximum of A\$500,000, for a total purchase price of A\$1M (A\$570,000). SRK has applied a market correction factor of 2 to account for the Cu price variation since the date of this transaction (see Figure 4-4).	12
In May 2006, Straits Resources announced its takeover bid for the 41.38% of Triton Resources for a total transaction value of A\$75.7 million (equating to \$136/in situ tonne Cu). SRK has applied a market correction factor of 0.5 to account for the Cu price variation since the date of this transaction (see Figure 4-4).	68
<b>Average*</b>	<b>58</b>

Transactions are presented on a value per in situ tonne basis. \*Omitting the outlying value.

When charted, the transactions all fell within a reasonable range except for that of the Kanmantoo Copper Mine, which was considerably higher. SRK therefore regarded this transaction as anomalous and did not include it in the average value calculation.

Based on the chart in Figure 4-4, the LME Cu price has declined considerably since the May 2006 Straits Resources transaction occurred, SRK has therefore applied a market correction factor of 0.5 to this transaction. Furthermore, as the Cu price has increased since 2003, a correction factor of 2 was applied to the transactions that occurred in this year.

SRK has therefore used the average value of \$58 / tonne as the preferred value and \$143/ tonne as the high value for the Chalice projects (Table 4-11).



**Figure 4-4: LME chart of copper prices January 2003 - present in US Dollars**  
([http://www.lme.co.uk/copper\\_graphs.asp](http://www.lme.co.uk/copper_graphs.asp)).

### Uranium

The project is relatively immature in terms of U-focussed exploration, and there is a commensurate limited understanding of the geological setting in regards to the intrusion-related U mineralisation

potential for the Yandearra project. The limited available data on which to base a geological assessment using the Geological Risk Method, results in low probabilities being assigned to critical geological criteria used in the analysis. With the currently available data, the probabilities will be 0.5 or worse. As such, the value result would likely be zero. For this reason, SRK considers the Geological Risk Method valuation for U inappropriate at this stage of the projects development.

### **Tantalum**

Tantalum is a specialty metal which is only produced as a primary commodity by 2 mines in Australia (Greenbushes and Wodgina), which account for 50% of the global demand. A total of 5 other mines globally account for more than 45% of the residual demand. These deposits are Tanco Mine (Cabot) in Manitoba, Canada, the Kenticha Mine (Ethiopia Mineral Development Enterprise) in Ethiopia, the Yichun Mine in China, and the Pitinga Mine (Paranapanema) and Mibra Mine (Metallurg) in Brazil (Data source: <http://www.tanb.org>).

As such, Target Values on which to base a Geological Risk Method valuation for Ta, are difficult to establish. Despite this, given the lack of focussed exploration in the Yandearra tenements for Ta mineralisation, and the lack of identification of potential source intrusive rocks from available aeromagnetic data, the probabilities attributed to successful identification of key criteria required to develop such a deposit, will currently be 0.5 or worse. As such, the value result would likely be zero.

#### 4.3.1.2 Exploration Progress

In order to determine the relative exploration stage of the project, the following guidelines are used, as described by Lord et al., (2001).

- Stage A Generative - Ground acquisition, project generation
- Stage B Reconnaissance -Prospect Definition (Mapping and Geochemistry)
- Stage C Systematic Drill Testing - (RC, DD)
- Stage D Resource Delineation
- Stage E Feasibility
- Mine

The Chalice projects were considered by SRK to be at various stages, across different commodities, as presented in Table 4-12.

**Table 4-12: Allocation of Exploration Stage for Chalice Projects**

Project	Commodity	Stage*
Yandearra	Gold	B-C (B used)
	Iron Ore	A
	Base Metals (Cu)	A-B (A used)
	Uranium <sup>#</sup>	B
	Tantalum <sup>#</sup>	A
Gnaweeda	Gold	C
	Base Metals (Cu)	A
Wilga	Gold	B

\*Allocation of stage based on review of provided data. <sup>#</sup> Not estimated

The basis of the Geological Risk Method is the determination of the probability that the project will advance to the next stage of development. The Geological Risk of each project is quantified by assessing features indicating the presence of three key geological success factors: source, pathway and presence of mineralising fluid. Geological elements appropriate to the various geological models within Chalice's exploration portfolio were developed.

The risk probability is defined by multiplying together these probabilities. Lord et al., (2001) note that "...probability is the factor that most geologists have the most problem choosing. However, geologists deal with probability intuitively every day". The Geological Risk Method allows the geological features of the exploration ground being valued to be taken into account.

Key features that can indicate the presence of favourable conditions (e.g. major geological structures) are given probability risk weightings between 0.5 and 1.0 depending on the perceived importance of these features in the geological model being invoked. Conversely, the absence of features favourable to mineralisation (e.g. no rheology contrast) can also be given a low probability weighting between 0.0 and 0.5. The absence of data or knowledge is represented by a probability risk weighting of 0.5. These factors obviously change for each different geological setting and the geological model used by the current explorers.

An example is shown in Table 4-13 for Archean orogenic lode gold deposits in Australia. Such a model is appropriate to apply, and has been applied, to Chalice's Au projects in this valuation. This list highlights the degree to which this valuation method relies on the geological model for mineralisation. If an interested party did not agree with the primary model assumed for the region, or was interested in a different commodity, it is possible for them to define different versions of P1 to P3 and re-calculate the probability. This allows specific targeting of a valuation using the same methodology in order to define how much the property is worth to any particular party. The probability factors are determined from analysis of the available geological data in conjunction with the authors' experience in the geological regions being valued.

The risk probability tables for BIF (Table 4-14) and CID Fe (Table 4-15) and VHMS style deposits (Table 4-16) follow.

**Table 4-13: Risk Probability for Archean Lode Gold Mineralisation**

Risk Probability P = P1 x P2 x P3		Probability Assigned
Source		-
The source for the area is not well defined or differentiated, and there is extensive evidence of mineralisation in the region. Given that all of the Prospects would have the same value (1) this factor did not influence our calculations.		
P1 Pathway		
Very favourable gold bearing structure<3km		0.9
Moderately favourable gold bearing structure<3km		0.7
Slightly favourable gold bearing structure <3km		0.6
Unnamed major structure defined by aeromagnetics		0.6
Unknown/ no information		0.5
Structure, but not favourable for gold		0.3
Evidence of no structure		0.3
P2 Fluid		
Presence of near economic drill intercepts		0.9
Significant soil anomaly		0.7
Significant RAB anomaly		0.7
Moderate soil anomaly		0.6
Moderate RAB anomaly		0.6
Unknown/no information		0.5
No significant anomalies – target tested		0.2
P3 Trap		
Within recognised local structures that host deposits		0.9
Within recognised local structures (favourable orientation w.r.t. regional structures)		0.8
Within 2nd/3rd order structures, favourable orientations		0.7
Evidence for disrupted stratigraphy through faults, folding - within bend or dilatational jog add 0.1 (to above values)		0.6
Favourable Lithology and/or Rheology contrast		0.6 to 0.7
Unknown/no information		0.5
Lies outside 2nd/3rd order structures		0.3 to 0.4



**Table 4-14: Risk Probability table for BIF Fe**

<b>Risk Probability P = P1 x P2 x P3</b>	<b>Probability Assigned</b>
<b>P1 Presence of BIF's</b>	
Extensive BIF outcrop geologically mapped	0.8
Extensive BIF occurrences inferred from aeromagnetics.	0.7
Minor BIF occurrences inferred from aeromagnetics/ground-truthing.	0.6
Unknown/No information	0.5
Evidence of no BIF's	0.2
<b>P2 Pathway</b>	
Very favourable structure <3km	0.9
Moderately favourable structure <3km	0.7
Slightly favourable structure <3km	0.6
Unnamed major structure defined by aeromagnetics	0.6
Unknown/ no information	0.5
Evidence of no structure	0.3
<b>P2 Fluid</b>	
Presence of near economic drill intercepts	0.9
Significant soil anomaly/rock chip	0.7
Significant RAB anomaly	0.7
Moderate soil anomaly/rock chip	0.6
Moderate RAB anomaly	0.6
Unknown/no information	0.5
No significant anomalies – target tested	0.2

**Table 4-15: CID Fe ore Probability table**

<b>Risk Probability P = P1 x P2 x P3</b>	<b>Probability Assigned</b>
<b>P1 Presence of high Fe BIF Source Rocks</b>	
Extensive BIF outcrop geologically mapped	0.8
Extensive BIF occurrences inferred from aeromagnetics.	0.7
Minor BIF occurrences inferred from aeromagnetics/ground-truthing.	0.6
Unknown/No information	0.5
Evidence of no BIF's	0.2
<b>P2 Presence of palaeo-drainage channels of an adequate size to host economic mineralisation</b>	
Significantly sized palaeo-drainage channel	0.8
Moderately sized palaeo-drainage channel	0.7
Small sized palaeo-drainage channels	0.6
Unknown/ no information	0.5
Evidence of no palaeo-drainage channels.	0.2
<b>P3 Presence of CID Trap</b>	
Presence of near economic drill intercepts	0.8
Significant drilling anomaly / surface exposed CID's	0.7
Moderate drill anomaly or rock chip anomaly	0.6
Unknown/no information	0.5
Evidence of no CID's	0.2

**Table 4-16: VHMS Risk Probability Table**

<b>Risk Probability P = P1 x P2 x P3</b>	<b>Probability Assigned</b>
<b>P1 Presence of structure</b>	
Major structure defined by aeromagnetics	1.0
Minor structure defined by aeromagnetics	0.7
Possible structures defined by aeromagnetics	0.6
Unknown/no information	0.5
Evidence of no structure	0.3
<b>P2 Evidence of site to host large deposit</b>	
Spatially extensive altered volcano-sedimentary rocks	0.8
Altered and sulphidised volcano-sedimentary rocks	0.7
Volcanic basement and favourable cover sequence	0.6
Unknown/no information	0.5
No evidence of alteration or felsic through mafic volcanic basement	0.3
<b>P3 Presence of potential fluid source or evidence of Cu-bearing fluid</b>	
Presence of near economic drill intercept	0.9
Presence of sulphides	0.8
Alteration zoning in volcanics/sediments	0.7
Significant anomaly	0.6
Unknown/no information	0.5
Evidence of lack of Cu-bearing fluid	0.2

In the case where multiple criteria relate to one critical success factor, the highest probability is assigned for the calculation. It is obvious that many of these factors remain subjective, so in order for the process to remain transparent, all probabilities are published in conjunction with the final valuation figures. This enables re-calculation of the final values if geological opinion differs substantially from that assumed by the original valuer. Risk probabilities used in this study are summarised in Table 4-17 to Table 4-19.

**Table 4-17: Risk Probability Table for Chalice's Au Projects**

<b>Project</b>	<b>P1 (Pathway)</b>	<b>P2 (Fluid)</b>	<b>P3 (Trap)</b>	<b>Probability</b>
<b>Yandeearra*</b>				
Area A	0.7	0.6	0.6	0.252
Area B	0.6	0.6	0.7	0.252
Area C	0.5	0.5	0.5	0.125
<b>Gnaweeda</b>				
Turnberry – St Annes	0.6	0.7	0.8	0.336
Mistletoe	0.6	0.6	0.5	0.18
Bunarra	0.6	0.6	0.5	0.18
Wilga	0.6	0.6	0.6	0.216

\*Areas as defined in Figure 3-7

**Table 4-18: Risk probability table for Chalice's Fe ore Projects**

Project	P1 (Pathway)	P2 (Fluid)	P3 (Trap)	Probability
Yandearra (BIF)	0.5	0.5	0.5	0.125
Yandearra (CID)	0.5	0.5	0.5	0.125

**Table 4-19: Risk Probability Table for Chalice's Base Metals (Cu) Projects**

Project	P1 (Presence of Structure)	P2 (Evidence of site to host large ore deposit)	P3 (Evidence of Cu-bearing fluid)	Probability
<b>Yandearra</b>				
Area A	0.5	0.5	0.5	0.125
Area B	0.5	0.5	0.5	0.125
Area C	0.5	0.5	0.5	0.125
<b>Gnaweeda</b>				
Turnberry – St Annes	0.5	0.5	0.5	0.125
Mistletoe	0.5	0.5	0.5	0.125
Bunarra	0.5	0.5	0.5	0.125

For the later theoretical stages of exploration for any project, historical data is examined in order to determine the probability of moving from one exploration stage to the next. This is dependent on the known history of exploration and mining in the region.

SRK believes that it is possible in many circumstances to apply values obtained from one geological setting where there has been a great deal of exploration to other similar geological settings. The default probabilities used by SRK in the valuation of the Chalice projects are based on the Lord et al. (2001), study of the Laverton district. Lord et al., (2001) reviewed gold exploration over the previous 13 years, and tracked the progress of 290 exploration prospects, from the generative stage through to the decision to mine. From this study, at each stage of the exploration process a probability was determined for the prospect advancing to the next stage. The results of the SRK valuation of the Chalice exploration assets are given in Table 4-20 to Table 4-22.

The results from the Geological Risk Method should be checked against at least one other valuation method. It is very important that the models assumed in the Geological Risk Method are calibrated to the real world, for example, by using recent comparable transactions. The comparison of the three valuation methods used by SRK to value the exploration assets of Chalice (Geological Risk, Comparable Transaction and JV Terms), are shown below (Table 4-23).

**Table 4-20: Results of SRK Geological Risk Valuation of the Chalice's Au Projects**

Project	Low (A\$)	Intermediate (A\$)	High (A\$)
Yandearra	0	1,295,000	2,323,000
Gnaweeda	0	860,000	1,521,000
Wilga	0	428,000	784,000
<b>Totals:</b>	<b>0</b>	<b>2,583,000</b>	<b>4,628,000</b>

Note that calculations account for Chalice's percentage ownership.

**Table 4-21: Results of SRK Geological Risk valuation of Chalice's Fe ore Project**

Project	Low (A\$)	Intermediate (A\$)	High (A\$)
Yandearra (BIF)	0	46,500	115,200
Yandearra (CID)	0	46,500	115,200
<b>Totals*:</b>	<b>0</b>	<b>46,500</b>	<b>115,200</b>

\* Neither Chalice or Atlas have published the deposit model of interest for the JV area. Either iron ore model is valid, so the total value attributed is based on using only one model type, not summing up the value for both.

**Table 4-22: Results of SRK Geological Risk Valuation of Chalice's Base Metals (Cu) Projects**

Project	Low (A\$)	Intermediate (A\$)	High (A\$)
Yandearra	0	115,000	940,000
Gnaweeda	0	170,000	730,000
<b>Totals</b>	<b>0</b>	<b>285,000</b>	<b>1,670,000</b>

**Table 4-23: Comparison between Valuation Methods for Chalice Projects**

Project Name	Valuation Method	Low (A\$)	Intermediate (A\$)	High (A\$)
Yandeearra (Au)				
	Per Square Kilometre	364,000	2,524,000	4,000,000
	Geological Risk Method	0	1,295,000	2,323,000
	JV Agreement <sup>1*</sup> (60%)	1,636,000 (980,000)		
Yandeearra (CID & BIF Fe Ore)				
	Per Square Kilometre	Not Estimated		
	Geological Risk Method	0	46,500	115,000
	JV Agreement	725,000		
Yandeearra (Cu)				
	Per Square Kilometre	1,405,000	4,355,000	8,644,000
	Geological Risk Method	0	115,000	940,000
	JV Agreement <sup>1*</sup> (40%)	1,636,000 (650,000)		
Yandeearra (U)				
	Per Square Kilometre	Not Estimated		
	Geological Risk Method	Not Estimated		
Gnaweeda (Au)				
	Per Square Kilometre	85,000	592,000	938,000
	Geological Risk Method	0	860,000	1,521,000
	JV Agreement <sup>2</sup>	1,800,000		
Gnaweeda (Cu)				
	Per Square Kilometre	238,000	736,000	1,461,000
	Geological Risk Method	0	170,000	730,000
Wilga				
	Per Square Kilometre	12,000	84,000	133,000
	Geological Risk Method	0	428,000	784,000
	JV Agreement <sup>2</sup>	755,555		

<sup>1</sup>Au and Base Metals <sup>2</sup>Au only \* 60-40 (in brackets) split between Au and base metals

## 5 Summary and Conclusions

In summary, SRK has used three different methods for valuing the exploration assets held by Chalice. The results do not show that any particular method generates consistently higher or lower valuations. The results from all methods fall within an acceptable valuation range, perhaps with the exception of Yandearra Cu, for which the Square Kilometre Method gives high values (Table 4-23).

### 5.1 Yandearra

#### 5.1.1 Gold

The implied value of the governing JV agreement for Au and base metals at Yandearra, is used as the low end value estimate. As the JV covers both gold and base metals, and given the demonstrable Au production in the district, SRK has allocated a 60-40% split to the implied value of the JV between the Au and base metals. The final value ranges are presented in Table 5-1. The high end is the intermediate Geological Risk Method value. Because of the large size of the Yandearra Project, the high end value calculated with the per square kilometre method is not considered appropriate by SRK.

#### 5.1.2 Fe Ore

As Atlas has undertaken little exploration within the Project area, the values estimated using the Geological Risk Method are relatively low. Resultantly, SRK has used the high value calculated from the Geological Risk Method as the low end value, and the implied value of the governing joint venture agreement as the high value.

#### 5.1.3 Copper

Copper is not Chalice's commodity of focus, and has therefore not been as routinely sampled as Au at Yandearra. As such, current exploration results yield little information for Cu potential, which negatively impacts the probabilities used for the Geological Risk Method, and result in lower value ranges, of which the intermediate is used as the low end of the valuation range. However, the area does contain known Cu mineralisation, and SRK has chosen to account for this by using the allocated 60-40% split to the implied value of the JV between the Au and base metals as the high end of the valuation range. Because of the large size of the Yandearra Project, values calculated utilising the per square kilometre method are not considered appropriate by SRK. The final value ranges are presented in Table 5-1.

#### 5.1.4 Uranium

Only one method of valuation was deemed suitable for U. SRK's substantial in-house database for uranium transactions over the past four years was used to determine a value for the current U potential of Yandearra Project. However, no transactions were representative of the early stage of exploration. This coupled with the poor reconnaissance sampling results indicates that Yandearra is too early in the U exploration phase to attribute a value for U potential. As such, SRK has not allocated a value for U at Yandearra.

#### 5.1.5 Tantalum

The potential for Ta mineralisation is yet to be established at Yandearra by a Ta-focussed exploration program, and so application of the Geological Risk Method valuation is inappropriate, as there is no data on which to base an analysis. In addition, given the 'specialty metal' category for Ta, no early-stage exploration transactions could be found for comparative analysis. Partly based on advice from Chalice, who consider the Ta potential extremely low (and as such have not

budgeted exploration for Ta over the life of the Yandearra Project), a value for Ta has not been estimated.

## **5.2 Gnaweeda**

### **5.2.1 Gold**

The Project is still being actively explored primarily for Au, and yielding good results. The JV implied value has therefore not been fully realised when in comparison to the intermediate value defined by the Geological Risk Method and comparative transactions. As such, SRK has allocated the implied JV value as an upper range estimate of value and the Geological Risk Method as the lower end of the valuation range. The final value ranges are presented in Table 5-1.

### **5.2.2 Copper**

As for U and Ta at Yandearra, Cu is not a commodity of focus for Chalice at Gnaweeda. No sampling for Cu has been undertaken by Chalice, only historic exploration reports indicate its potential. As such, SRK has allocated the lowest value from the per square kilometre calculations as the high end of the valuation range and the intermediate value from the Geological Risk Method as the low end of the range. Similarly to the Yandearra Project, the high per square kilometre value is not considered appropriate by SRK. The final value ranges are presented in Table 5-1.

## **5.3 Wilga**

### **5.3.1 Gold**

The Wilga Project is probably the most advanced in Chalice's portfolio, and represents a high potential early stage exploration play. The implied value of the JV agreement is significantly higher than values estimated using the per square kilometre technique and is similar to the high end Geological Risk Method value. For the purposes of estimating the Projects current value range, SRK has used the JV implied value, and the intermediate value estimated using the Geological Risk Method. The final value ranges are presented in Table 5-1.

**It is SRK's opinion that the exploration assets, which are the subject of this review, should be valued between A\$2.7M and A\$5.5M, with an SRK preferred value of A\$3.5M.**



**Table 5-1: SRK's Estimate of the Value Range for the Yandeearra, Gnaweeda and Wilga Projects**

Area	Unit	Low (A\$)	Preferred (A\$)	High (A\$)
Yandeearra	Au	980,000	1,000,000	1,300,000
	Fe (BIF OR CID)	115,000	420,000	725,000
	Cu	115,000	290,000	650,000
	U	0	0	0
	Ta	0	0	0
	<b>Sub-total</b>	<b>1,210,000</b>	<b>1,710,000</b>	<b>2,675,000</b>
Gnaweeda	Au	860,000	1,000,000	1,800,000
	Cu	170,000	190,000	240,000
	<b>Sub-total</b>	<b>1,030,000</b>	<b>1,190,000</b>	<b>2,040,000</b>
Wilga	Au	430,000	600,000	750,000
<b>Total</b>		<b>2,670,000</b>	<b>3,500,000</b>	<b>5,465,000</b>

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# Appendices

## **Appendix 1: BDO Kendalls' Instruction Letter to SRK**



BDO Kendalls

BDO Kendalls Corporate Finance (WA) Pty Ltd  
Level 8, 256 St Georges Terrace Perth WA 6000  
PO Box 7426 Cloisters Square Perth WA 6850  
Phone 61 9360 4200  
Fax 61 9481 2524  
bdo@bdo.com.au  
www.bdo.com.au

Our ref: SA

ABN 27 124 031 045  
AFS Licence 316158

23 April 2009

Louis Bucci  
SRK Consulting  
Level 8  
20 Queen Street  
Melbourne Vic 3000

Dear Louis,

**CHALICE GOLD MINES LIMITED - VALUATION OF MINERAL ASSETS**

This letter is to confirm our instructions to you with regard to the services we wish you to provide.

We have been engaged by Sub Sahara Resources NL ("Sub Sahara") to prepare an Independent Expert's Report ("Our Report") in relation to the proposed merger of Sub Sahara and Chalice Gold Mines Limited ("Chalice").

Our Report will provide an opinion to Sub Sahara shareholders, as such it will be a public document.

In our assessment, we will include an assessment of the market value of Chalice's mineral assets.

We request that you provide a report to us on the market value of the mineral assets that are held by Chalice. This report can be an update of the report provided to us previously and dated October 2008. We advise that we will append a copy of your report, or a summary of your report, to Our Report. Your report must be prepared in accordance with the VALMIN Code 2005 (a copy of which can be provided to you if required).

BDO Kendalls Corporate Finance (WA) Pty Ltd is the commissioning entity and we understand your fee for this valuation will be agreed with Sub Sahara and payable directly by Sub Sahara and that you will liaise with the company and Chalice to obtain the necessary information. All information that you receive from Sub Sahara, Chalice or us should be treated as being strictly confidential unless it is already in the public domain.

Yours sincerely  
BDO Kendalls Corporate Finance (WA) Pty Ltd

**Sherif Andrewes**  
Director



## **Appendix 2: Costs and Default Probabilities Utilised in Geological Risk Method Calculations**

Stage		Probability of advancing from previous stage (Default values – based on detailed study by Lord et al., (2001))	Cost to move from one stage to the next			
			Yandeearra Au/Cu (A\$)	Yandeearra Fe (A\$)	Gnaweeda Au/Cu (A\$)	Wilga (A\$)
<b>A to B</b>	Ground Acquisition, Project Generation	0.54	10,000	10,000	10,000	10,000
<b>B to C</b>	Prospect Definition (Mapping, Geochemistry, Geophysics)	0.17	70,000	500,000	70,000	70,000
<b>C to D</b>	Drill Testing (Systematic, RC, Diamond ±more detailed geophysics)	0.58	230,000	7,000,000	230,000	230,000
<b>D to E</b>	Resource Delineation	0.87	460,000	22,000,000	460,000	460,000

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RevB	11 May 2009	R Dickson	Formatting Review
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Rev 0	11 May 2009	Louis Bucci	Distribution of report to BDO and Subsahara Resources
Rev 1	13 May 2009	Kate Bassano	Minor correction and re-distribution to BDO and Subsahara Resources
Rev 2	22 May 2009	Kate Bassano	Additon of Deborah Lord's electronic signature.
Rev 3	29 May 2009	Kate Bassano	Ammendments as per Tony Kiernan's requests