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# UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

## FORM 6-K

# REPORT OF FOREIGN ISSUER PURSUANT TO RULE 13a-16 AND 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the Month of	February 2004
	_
DESERT SUN MINING COR	<u>P.</u>
(Name of Registrant)	
65 Queen Street West, Suite 810, P.O. Box 67, Toronto ,Ontario, Canada M5H 2M Executive Offices	<u>5</u>
1. Press Releases: 2/12/2005; 2/27/2004	
2. National Policy Statement No. 51, Part 4 Notice, Change of Fiscal Year; dated 2/23/2004	
3. SRK Consulting Group Technical Report on Jacobina Property, December 2003	
Indicate by check mark whether the Registrant files annual reports under cover of Form 20-F $\underline{xxx}$ Form 40-F $\phantom{aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa$	20-F or Form 40-F
Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by 101(b)(1):	Regulation S-T Rule
Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by 101(b)(7):	Regulation S-T Rule

Indicate by check mark whether the Registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under Securities Exchange Act of 1934.

Yes \_\_\_\_ No <u>xxx</u>

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# DESERT SUN MINING CORP.

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www.desertsunmining.com

Press Release 03 – 2004

#### **For Further Information Contact**:

John Carlesso Vice President, Corporate Development 416-861-5881 1-866-477-0077

> TORONTO STOCK EXCHANGE SYMBOL: DSM

February 12, 2004

# SRK CONSULTING OUTLINES POTENTIAL FOR EXPANDED PRODUCTION FOR DESERT SUN

**DESERT SUN MINING CORP. (TSX:DSM)** reports that, further to the September 2003 Bankable Feasibility Study completed by SNC Lavalin based on the proven and probable reserves, DSM commissioned SRK Consulting to complete a scoping study on all categories of mineral resources to determine the optimum production rate and preliminary "order of magnitude" economics for the Jacobina Mines property in Bahia State, Brazil. *Approximately 50% of the resources used in this study were inferred resources. SRK cautions that the results presented in this study are preliminary in nature, based on inferred resources and cannot be converted to mineral reserves due to their uncertainty. There is no guarantee that further exploration will upgrade any of these resources.* 

Highlights of the SNC Feasibility Study (see press release of September 12, 2003) are:

\* The Feasibility Study was based on proven and probable reserves of 10,746,000 tonnes at a grade of 2.20g/t (758,000 ounces) and concluded that Jacobina could be reactivated with approximately US \$30 million in net pre-production capital and could produce 106,000 ounces annually, beginning in 2005, at a cash cost of US \$189 per ounce, with a mine life of just over 7 years. The production rate would be 4200 tonnes per day.

Highlights of the newly-commissioned SRK Scoping Study (filed on Sedar February 12, 2004) are:

\* The recently completed Scoping Study was commissioned to optimize the mine production rate using all categories of mineral resources. The Scoping Study concludes that the optimum production rate at Jacobina is 5200 tonnes per day from existing mines. At this rate, Jacobina can produce an average of 154,100 ounces annually at a cash cost of US \$165 per ounce. The additional capital required to reach this production rate is US \$31.7 million and the mines could reach their increased production rate by 2007. Mr. Ken Reipas, P.Eng., the independent Qualified Person for the SRK study visited the site during the project.

The new SRK study is based on all categories of mineral resources at Jacobina; measured, indicated and inferred. Previously-established reserves from The Feasibility Study are included, while the additional mineral resources have been converted to potentially "mineable tonnes". SRK has relied on Micon International Ltd.'s report, "A Mineral Resource Estimate for the Jacobina Property, Bahia State, Brazil", (August, 2003) that describes a method of converting resources to potentially "mineable tonnes" based on historical data at Jacobina. Micon cautions, however, that there is no guarantee that inferred mineral resources will be upgraded to mineral reserves.

In addition to The Feasibility Study reserves of 10,746,000 at 2.20 g/t Au, the Mineral resources in Table 1 were used in the study.

Measured + Indicated Resource Inferred Resource

Tonnes Au (g/t) Tonnes Au (g/t)

2,645,000 4.39 16,566,529 3.03

**Table 1: Mineral Resources Input to SRK Study** 

These resources were converted to 11,869,000 potentially "mineable tonnes" at 2.79 g/t Au. Thus, the total tonnage considered by SRK was a combination of reserves and "mineable tonnes" totaling 22.6 million tonnes at 2.51 g/t Au.

SRK prepared life-of-mine production schedules for different mining rates and concluded that a production rate of 5,200 tonnes per day was achievable. These production schedules were evaluated using a simple pre-tax cash flow analysis that assumed a base case gold price of US\$375/ounce. The results, which demonstrate improved Cash Flow and Net Present Value calculations, and maintain a robust Internal Rate of Return at the higher production rate, are shown in Table 2:

Table 2: Comparative Economic Results (TPD – Tonnes Per Day)

		Feb 2004 Scoping Study by SRK*	Sept. 2003 Feasibility Study by SNC Lavalin**
Jacobina Cash Fl	ow Model Results	5200TPD	4200TPD
Total Mine Life Total Mined Ounces	Years Au ounce	13.1 1,822,900	7.1 years 758,200
Gold Price	US\$ounce	\$375	\$350
Gross Revenue	US\$ millions	\$659	\$256
Operating Costs	US\$ millions	\$291	\$138
Pre-Production Capital	US\$ millions	\$61.7	\$30.7
Total Capital Cost	US\$ millions	\$97	\$38
Cumulative Cash Flow	US\$ millions	\$265	\$78
NPV (5%)(2)	US\$ millions	\$169	\$55
IRR	%	52%	39.2%
Average Mined Ounces/Year		154,100	106,400
Metallurgical Recovery	%	96.5%	96.5%
Cash Cost/Recovered Ounce	US\$/ounce	\$165	\$189
<ul><li>(1) Includes pre-production</li><li>(2) Pre-tax NPV and IRR value</li></ul>	and sustaining capital, plus clalues	osure and equipment salvage	

<sup>\*</sup> Inferred Resources were used in the 5200 TPD extended plan.

\* Scoping Study by SRK assumes that the potentially "mineable tonnes" can be increased 11.9 million tonnes at 2.79 grams per tonne, thus using a total of 22.6 million tones at 2.51 g/t Au. All numbers pre-tax.

\*\*The Feasiblity Study only uses proven and probable reserves of 10.7 million tonnes @ 2.20 g/t Au. All numbers after-tax.

Mr. Stan Bharti, Chief Executive Officer, commented: "While we recognize that the economics of scoping studies cannot be used for production decisions, the SRK Study is encouraging because it demonstrates the upside potential to be gained at Jacobina through the successful conversion of a significant portion of the inferred resource into proven and probable reserves. Desert Sun is currently executing a US \$5 million exploration program for 2004, a large portion of which is dedicated to infill drilling at the mines, and is therefore intended to increase the reserve base. The SRK Study does demonstrate that Jacobina can be a world class gold producer, with production rates of over 150,000 ounces annually at a cash cost of US \$165 per ounce."

The Scoping Study uses existing resources only and does not take into consideration the recently announced drill results at Morro do Vento or the exploration potential of the 110 km long Bahia Gold Belt, of which Desert Sun controls 100%. The existing resources are located on less than 10% of the total property position. Desert Sun recently announced that the gold bearing Serra do Corrego formation extends for at least 75km on strike and that it is exploring the active belt.

#### **CAUTION**

This study by SRK is not adequate to definitively confirm the economics of the Jacobina property extended life-of-mine production scenarios presented in this press release. SRK cautions that the results presented in this study are preliminary in nature, based on inferred mineral resources, and cannot be converted to mineral reserves due to their uncertainty. There is no guarantee that further exploration will upgrade any of these resources.

Statements in this release that are not historical facts are "forward-looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. Readers are cautioned that any such statements are not guarantees of future performance and that actual developments or results may vary materially from those in these "forward-looking statements".

**Desert Sun Mining** is a Canadian gold exploration and development company listed on the Toronto Stock Exchange. (www.desertsunmining.com.)

# DESERT SUN MINING CORP.

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Press Release 03 - 2004

### **For Further Information Contact**:

John Carlesso Vice President, Corporate Development 416-861-5881 1-866-477-0077

> TORONTO STOCK EXCHANGE SYMBOL: DSM

February 25, 2004

### DESERT SUN CHANGES ITS FINANCIAL YEAR END

**DESERT SUN MINING CORP.** (TSX:DSM) reports that it intends to change its financial year end from August 31st to December 31st in order to coincide with the year end of its subsidiary, Jacobina Mineracao e Comercio ("JMC"). Under Brazilian law, JMC is required to have a year end of December 31st. As JMC holds a 100% interest in the Jacobina gold mine, Desert Sun's sole project, the Company believes that it would it would be more cost efficient and in the best interests of shareholders for both companies to have the same financial year end.

The Board of Directors of Desert Sun approved the change of the year end and the Company received shareholder approval for the change at the recent annual general meeting held on January 22, 2004.

The Company intends to implement this change immediately by having a transition year of 16 months, with the last day of the transition year being December 31, 2004.

**Desert Sun Mining** is a Canadian gold exploration and development company listed on the Toronto Stock Exchange. (www.desertsunmining.com.)

# **DESERT SUN MINING CORP.**

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February 23, 2004

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Saskatchewan Financial Services Commission - Securities Division

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Corporate Affairs/Community Services

2130 – Second Avenue, P.O. Box 2703 Whitehorse, Yukon Y1A 5H6

Toronto Stock Exchange P.O. Box 450 3rd Floor, 130 King Street W. Toronto, Ontario M5X 1J2

RE: NOTICIE OF CHANGE IN THE ENDING DATE OF DESERT SUN MINING CORP.'S FINANCIAL YEAR

Desert Sun Mining Corp. intends to change its financial year end from August 31st to December 31st in order to coincide with the year end of its subsidiary, Jacobina Mineracao e Comercio ("JMC"). Under Brazilian law, JMC is required to have a year end of December 31st. As JMC holds a 100% interest in the Jacobina gold mine, Desert Sun's sole project, the Company believes that it would it would be more cost efficient and in the best interests of shareholders for both companies to have the same financial year end.

The Board of Directors of Desert Sun approved the change of the year end and the Company received shareholder approval for the change at the recent annual general meeting held on January 22, 2004.

The Company intends to implement this change immediately by having a transition year of 16 months, with the last day of the transition year being December 31, 2004 (the last day of the old financial year was August 31, 2003). To facilitate the change, the company's current interim period will be increased from a three month period (currently due to end on February 29, 2004) to a four month period (which will end on March 31, 2004). The remaining interim periods of the Company's transition year will end on June 30, 2004 and September 30, 2004 with the Company's financial year end set for December 31, 2004.

Yours truly,

DESERT SUN MINING CORP.

By: (Tony Wonnacott)

Name: Tony Wonnacott Title: Corporate Secretary

# **Jacobina Production Rate Assessment**

**Report Prepared for** 

# **Desert Sun Mining Corp.**

**Report Prepared by** 



December 2003

# **Jacobina Production Rate Assessment**

# **Desert Sun Mining Corp.**

Suite 810, 65 Queen Street West Toronto, Ontario M5H 2M5

SRK Project Number 3CD006.02

SRK Consulting Suite 602, 357 Bay Street Toronto, Ontario M5H 2T7 Tel: (416) 601-1445 Fax: (416) 607-9046

December 2003

Compiled by: Endorsed by:

**Project Consultants** 

Ken Reipas

Principal

Authors: Ken Reipas, P.Eng, Principal Mining Engineer

#### **CAUTIONARY STATEMENT**

This study, prepared by Steffen Robertson and Kirsten (Canada) Inc, is not adequate to definitively confirm the economics of the Jacobina property life-of-mine production scenarios presented herein.

A Pre-feasibility Study, as defined under N.I. 43-101, is required for this purpose.

SRK cautions that the results presented in this study are preliminary in nature, based on inferred mineral resources, and cannot be converted to mineral reserves due to their uncertainty. There is no guarantee that further exploration will upgrade any of these resources.

### **Executive Summary**

In mid-October 2003 Desert Sun Mining Corp. ("DSM") commissioned Steffen, Robertson, and Kirsten Inc. ("SRK") to assess the achievability and economics of higher underground production rates at the Jacobina mine site. Current mine plans are based on a mining/milling rate of 4200 tonnes per day.

In considering production rates at Jacobina, two previous technical reports are relevant:

- \* "Jacobina Mine Project, Brazil, Feasibility Study Report", prepared by SNC-Lavalin Engineers & Constructors (SNC-Lavalin), Dynatec Corporation (Dynatec) and Micon International (Micon), ("The Feasibility Study"), based on measured and indicated resources, had a production rate of 4200 tpd from underground sources, and a mine life of 7.1 years.
- \* Previous SRK report, "Preliminary Assessment of Extended Life of Mine Plan for Jacobina, September 2003" was based on all categories of mineral resources and incorporated a production rate of 4200 tpd from underground and open pit mining, over a mine life of 18.3 years.

The objectives of this study were to evaluate the achievability and economics of higher underground production rates, including an assessment of increased gold production and the possibility of a lower cash cost per ounce through economies of scale.

This current study is based on all categories of mineral resources at Jacobina; measured, indicated and inferred. Previously established reserves from The Feasibility Study are included, while the remaining mineral resources have been converted to potentially "mineable tonnes". SRK has relied on Micon International Ltd.'s report, "A Mineral Resource Estimate For the Jacobina Property, Bahia State, Brazil", ("The Micon Report") that describes a method of converting resources to potentially "mineable tonnes" based on historical data at Jacobina.

In addition to The Feasibility Study reserves of 10,746,000 at 2.20 g/t gold, the Table I resources were used in the study.

Measured + Indicated		Inferred R	esource
Tonnes	Au (g/t)	Tonnes Au (g/t)	
2,645,000	(8.7)		3.03

Table I: Mineral Resources Input to "Micon Conversion"

These resources were converted to 11,869,000 potentially "mineable tonnes" at 2.79 g/t gold. Thus, the total tonnage considered by SRK was a combination of reserves and "mineable tonnes" totalling 22.6 million tonnes at 2.51 g/t gold.

SRK prepared life-of-mine production schedules for mining rates of 4200 and 5200 tonnes per day.

These underground only production schedules were evaluated using a simple pre-tax cash flow analysis that assumed a base case gold price of US\$375/ounce. Results are shown in Table II

Jacobina Cash Flow Model Results		4200TPD	5200TPD		
Total Mine Life	Years	15.8	13.1		
Years at Full Production	Years	14.0	10.0		
Total Mined Ounces	Au ounce	1,822,900	1,822,900		
Total Recovered Ounces	Au ounce	1,758,500	1,758,500		
Gold Price	US\$/ounce	\$375	\$375		
Gross Revenue	US\$ millions	\$659	\$659		
Operating Costs	US\$ millions	\$297	\$287		
Total Capital Cost <sup>(1)</sup>	US\$ millions	\$89	\$95		
Cumulative Cash Flow	US\$ millions	\$267	\$271		
NPV (5%) <sup>(2)</sup>	US\$ millions	\$159	\$174		
NPV (7%)	US\$ millions	\$132	\$147		
NPV (10%)	US\$ millions	\$100	\$114		
IRR	%	59%	55%		
Average Mined Ounce/Year	ounce/year	121,000	154,100		
Metallurgical Recovery	%	96.5%	96.5%		
Cash Cost/Recovered Ounce	US\$/ounce	\$169	\$163		
(1) Includes pre-production and sustaining capital, plus closure and equipment salvage					
(2) Pre-tax NPV and IRR values					

Table II: 4200TPD and 5200TPD Economic Results

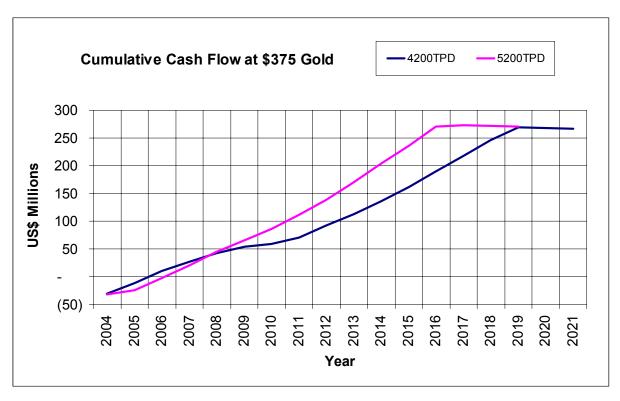


Figure I: Cumulative Cash Flow Comparison

Figure I shows how the undiscounted cash flows compare between the two schedules. The 5200 tpd schedule includes capital for mill expansion in year 2005.

SRK's conclusions are summarized below:

- 1) It is reasonable to expect that a 5200 tpd underground production rate can be reliably achieved at Jacobina, and this depends on the successful conversion of inferred resources to potentially "mineable tonnes".
- 2) The most significant physical differences between the 5200 tpd Extended Plan, and the 4200 tpd Extended Plan, are the higher annual gold ounce production, and the shortening of the mine life.
- 3) At a gold price of US\$375/ounce, net present values at 5% to 10% discounting are slightly higher for the 5200 tpd plan compared to the 4200 tpd plan, and at a gold price of US\$450/ounce the difference increases in favour of the higher production rate.
- 4) The 4200 tpd Extended Plan has a slightly better IRR than the 5200 tpd plan, 59% versus 55% at the base case gold price of US\$375/ounce.
- 5) The 5200 tpd Extended Plan has a slightly lower cash cost per ounce than the 4200 tpd plan, US\$163/ounce versus US\$169/ounce. Economies of scale related to the production increase are small because of relatively low fixed costs due to low labour costs.
- 6) The 5200 tpd Extended Plan involves slightly higher risk due to more capital being required initially, and a one year longer payback period. Also, it takes several years for the 5200 tpd cumulative cash flow to surpass that generated by the 4200 tpd plan.
- 7) It is SRK's opinion that it is reasonable for DSM to pursue a higher production rate at Jacobina, in the range of the 5200 tpd considered in this study. Such a decision depends on DSM's corporate objectives and risk tolerance, their outlook for the price of gold, and the availability and cost of capital.
- 8) If a higher Jacobina production rate is adopted as a goal of DSM, SRK recommends a feasibility study be completed to verify the economics.

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Appendix A GEST 12,000 tpd Mill Expansion Report

Appendix B Extended Plans – 4200 and 5200 tpd

#### Introduction

#### **Terms of Reference**

In response to a verbal request for proposal ("RFP") from Desert Sun Mining Corp. ("DSM") in mid-October 2003, Steffen, Robertson, and Kirsten Inc. ("SRK") submitted a proposal to complete an assessment of higher underground production rates at the Jacobina Project. The original proposal was revised and accepted after discussions with DSM.

The purpose of this study is to assess the achievability and economics of higher underground production rates at the Jacobina mine site. Current mine plans are based on a mining/milling rate of 4200 tonnes per day.

This study is based on the most recent statement (August 2003) of mineral reserves and mineral resources, including inferred resources. The evaluation presented herein is preliminary in nature, based on inferred resources that cannot presently be converted to mineral reserves due to their inherent geological uncertainty. There is no guarantee that further exploration will upgrade any of these inferred resources.

In summary, SRK has based this study on:

- \* Full access to DSM technical personnel for discussion and enquiry; Kurt Menchen, V.P. Operations, Brazil; and Bill Pearson, V.P. Exploration, Toronto
- \* Review of DSM internal documents concerning drill programs and other matters
- \* Review of conceptual mining plans prepared by DSM technical staff
- \* Visits to site by SRK project personnel. Refer to section 1.2
- \* Previous studies listed below
- (1) November 1997, BLM: Technical Review Report on Jacobina
- (2) September 2002, SRK: Preliminary Financial Analysis of the Jacobina Property, Brazil
- (3) February 2003, Micon International Ltd: Review of the Exploration Potential of, and a Proposed Exploration Program for, the Jacobina Property, Bahia State, Brazil
- (4) August 2003, Micon International Ltd: A Mineral Resource Estimate for the Jacobina Property, Bahia State, Brazil
- (5) September 2003, Jacobina Mine Project, Brazil, Feasibility Study Report, prepared by SNC-Lavalin Engineers & Constructors (SNC-Lavalin), Dynatec Corporation (Dynatec) and Micon International (Micon), ("The Feasibility Study")
- (6) September 2003, SRK: Preliminary Assessment of Extended Life of Mine Plan for Jacobina
- (7) December 2003, SRK: Morro do Vento Open Pit Assessment
- (8) December 2003, Engenharia e Consultoria Ltda, ("GEST"): Projecto Jacobina Expansao De 4,200 TPD Para 12,000 TPD, Scoping Study

This study uses US dollars unless otherwise stated, and it is based on an exchange rate of 3 Brazilian Real to 1 US dollar.

#### **Qualifications and Field Involvement of Consultants**

The following consultants have contributed to this open pit assessment:

- \* SRK Consulting managed the study, completed the production rate assessment, and compiled the report.
- \* GEST Engenharia e Consultoria Ltda, ("GEST") of Nova Lima, Brazil, provided the mill expansion plans and cost estimates.

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

This technical report has been prepared by the following SRK professional staff, each with extensive experience in the mining industry, and who are members in good standing of the appropriate professional institution.

- \* Ken Reipas, B.Sc, P.Eng, Principal Mining Engineer
- \* Leo Hwozdyk, B.Sc, P.Eng, SRK Associate Mining Engineer

Mr. Hwozdyk visited the Jacobina project site in November 2003. Mr. Reipas visited the Jacobina project site in December 2003.

SRK is not an insider, associate or affiliate of DSM, and neither SRK nor any affiliate has acted as advisor to DSM or its affiliates in connection with the Jacobina mine. The results of SRK's economic evaluation are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

#### Disclaimer

This study, prepared by SRK, relies on the following reports:

- \* Micon International Ltd: A Mineral Resource Estimate for the Jacobina Property, Bahia State, Brazil, August 2003. ("The Micon Report")
- \* SNC-Lavalin Engineers & Constructors (SNC-Lavalin), Dynatec Corporation and Micon International Ltd: Jacobina Mine Project, Brazil, Feasibility Study Report, September 2003. ("The Feasibility Study")

SRK has relied on The Micon Report in making assumptions concerning the upgrading of Inferred Mineral Resources to Indicated Resources, and also concerning the conversion of Indicated Mineral Resources to potentially "mineable tonnes". (The use of the term "Probable Reserves" is avoided in this report).

SRK has relied on certain information in The Feasibility Study in preparing its estimates of capital and operating costs for this Preliminary Assessment. SRK has also relied on the mine production schedule in The Feasibility Study, based on the Mineral Reserves developed in The Feasibility Study. SRK has projected the metallurgical gold recovery used in The Feasibility Study.

Also, as noted in section 1.2, SRK has relied on GEST for the listed information. SRK has not verified the information received from GEST.

SRK's opinion contained in this report, is based on various technical and economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. The achievability of the Jacobina underground production plan and economics are inherently uncertain. Consequently actual results may be significantly more or less favourable.

#### **Background Information**

#### **Property Description, Location and Access**

The Jacobina property is located in northeastern Brazil in the state of Bahia, 340 km northwest of the state capital of Salvador, which has a population of 2.5 million. Access to the Jacobina property is by paved highway to the town of Jacobina, which partially lies on the mining and exploration leases. The mine can be accessed by gravel road from the town in less than half an hour.

The Jacobina property in Brazil contains a past producing gold mine, 5,996 ha of mining concessions, 15,836 ha of granted exploration concessions, and 6,119 ha of filed exploration claims. The land position forms a continuous elongated rectangle measuring 62 km north-south and 2.5 to 4.0 km in width. This area includes the prolific gold-bearing conglomerate beds of the existing Jacobina mine, which is currently being re-opened, and has a processing plant with a capacity of one million tonnes annually.

The Jacobina mine and surrounding exploration leases are owned by Jacobina Mineracao E Comercio SA (JMC), a Brazilian company. DSM owns a 100% interest in the Jacobina gold project. The Jacobina property is currently at the development stage.

DSM is currently conducting an extensive exploration program on the Jacobina property, and a feasibility study ("The Feasibility Study") was recently completed by SNC-Lavalin Engineers & Constructors (SNC-Lavalin), Dynatec Corporation and Micon International (Micon). The Feasibility Study is based on measured and indicated mineral resources.

The Feasibility Study was based on a production rate of 4,200 tonnes per day over a seven year mine life.

For further details on the property description refer to The Micon Report, section 4.0

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

Refer to The Micon Report, section 5.0

### **Project History**

Refer to The Micon Report, section 6.0

### **Geology and Mineralization**

**Geological Setting** 

Refer to Micon Report, section 7.0

**Deposit Types** 

Refer to Micon Report, section 8.0

Mineralization

Refer to Micon Report, section 9.0

#### **Exploration**

The following is a summary of section 10.0 Exploration, of The Micon Report. Refer to the original report for full details.

Anglo American conducted several decades of extensive exploration work on the Serra do Córrego Formation, principally in the area of the Itapicurú, João Belo and Canavieiras mines, resulting in the discovery of these deposits.

Except for work by garimpeiros, most of the belt of exposure for the Serra do Córrego Formation remains relatively unexplored. DSM has recently completed Phase I and is well into Phase II of the proposed two-phase program of exploration on the JMC properties the details of which were outlined in Hennessey, 2002 and 2003. The planned scope of the Phase I program was only partially completed in 2002 and was successful enough to justify immediate progression to Phase II.

The results of DSM's Phase I exploration program are described in Hennessey, 2003, a Technical Report which is available on SEDAR (www.sedar.com). Total expenditures on the Phase I program were US\$500,000.

The Phase II exploration program commenced in March, 2003 and was planned to include 8,000 m of NQ-sized (47.6 mm core) diamond drilling, induced polarization (IP) geophysical surveys and continuation of the regional exploration program. The budget for the program is \$US1.5 million.

The bulk of planned drilling will test three major target areas in the Intermediate Reefs to outline open pittable mineral resources: Serra do Córrego (1,200m), Morro do Vento (4,000m) and Joao Belo Sul (2,400m).

Physical property measurements of representative samples of mineralized conglomerate completed in the Phase I program (Buckle, 2002) indicated that IP geophysical surveys should be an effective exploration technique at Jacobina. DSM therefore conducted test surveys over 10 selected targets located over the 30 km strike length of the Serra do Córrego Formation.

This method was successful in outlining the geological stratigraphy, alteration and mineralization directly associated with gold-bearing horizons as well as variation in geological structure, to a depth of 400 m. DSM's consulting geophysicist, John Buckle, P.Geo., is currently preparing a final report on the results of the survey with recommendations for further follow up.

#### **Drilling Programs**

#### **Drilling**

The following is a summary of section 11.0 Drilling, of The Micon Report. Refer to the original report for full details.

#### **JMC**

The database, from which JMC estimated the mineral resources at the Jacobina project is comprised of two types of sample, drill core and chip/channel samples. JMC partially computerized the database after acquisition by William. All holes have now been verified and entered into the electronic database by DSM.

In addition to drill hole logging and sampling, all development headings were mapped at 1:200 scale and sampled when in, or near, conglomerate. The mapping and chip channel sampling was plotted on plans and is available for interpretation purposes during resource estimation. The chip/channel sampling was also sometimes composited into pseudo drill holes for use in resource estimation. There are some 1,003 drill holes and 118,000 m of drilling in the JMC database.

#### **DSM**

All DSM drilling was conducted by contract diamond drillers using modern wireline surface drill rigs. The drills were aligned using foresights and backsights set up by DSM geologists. All holes were stopped under geological control to ensure that target horizons had been reached.

Similar logging techniques and rock codes are being employed by DSM to allow for ease of use with the previous data. The lithologic codes were developed after extensive study by Anglo American geologists and sedimentologists.

### **Phase I Drilling Results**

The DSM Phase I exploration drilling program consisted of 12 NQ-sized as described in Section 10 above. Results of the drilling are discussed in Hennessey (2003).

### Phase II Drilling Results - Serra do Corrego

Serra do Córrego, located 2 km north of the processing plant, is a 900-m long target zone in the Intermediate Reefs. Drill holes in the Phase I program suggested the potential for an open pittable zone approximately 30 to 40 m wide grading in the order of 1.0 to 1.3 g/t Au. The results of the definition drilling continue to confirm the overall continuity and grade of mineralization within the target zone. The new drill data combined with historical drill information have been used to estimate a new mineral resource which is presented in Section 17 of this report.

Hole SCO-83, the first drill hole of the Phase II program, returned encouraging results of 3.70 g/t Au over a true width of 9.9 m in the Maneira Reef and 0.86 g/t Au over 7.4 m true width in the Holandes Reef. These reefs are approximately 200 m stratigraphically above the Intermediate Reefs and are exposed continuously over a strike length of 1,800 m on the east flank of the Serra do Córrego hill.

The focus of the additional drilling, from SCO-84 onwards, has been definition drilling of the Intermediate Reefs to outline an indicated mineral resource for inclusion in The Feasibility Study. Results indicate two higher-grade conglomerate reefs known as the Middle Unit (MU) and Lower Unit (LU) with lower grade mineralization in the quartzite separating them. Results from several holes such as SCO-84, which returned an average grade of 1.39 g/t Au over a true width of 32.1 m, indicated potential for a significant open pittable zone.

### Phase II Drilling Results - Morro do Vento

DSM has identified a large, potentially open-pittable target zone in the Intermediate Reefs at Morro do Vento. This area is located 1.5 km south of the processing plant and is the southward continuation of the same reefs as at Serra do Córrego and Morro do Cuscuz from which significant drilling results were obtained in the Phase I program (see Hennessey, 2002).

At Morro do Vento, the Intermediate Reef package consists of quartz pebble conglomerate layers interbedded with quartzite that averages about 70 metres in width and extends along strike for 2 km. This package has been previously explored by 20 wide-spaced diamond drill holes over the 2-km strike length as well as in limited underground workings. Conglomerates comprise approximately 25% to 40% of the package which has an overall average grade ranging from 1.5 to 1.7 g/t Au. DSM

considers, based on this information, that Morro do Vento has the potential to host an open pittable deposit.

DSM plans to carry out 4,000 m of diamond drilling in 29 holes to test this area to outline a mineral resource. Most of the holes will be concentrated in the top 100 m with several wide-spaced holes planned at a deeper level to confirm down dip continuity.

Previous operators focused only on narrow high-grade zones similar to those mined at the Itapicurú mine at Jacobina where the high grade shoots were typically 2.0 to 2.5 m wide at an average grade of 3.9 g/t Au to 5.4 g/t Au. Therefore, only the conglomerate units, which typically comprise about 55% of the core in the target zone, were sampled. Work by DSM indicates that the interbedded quartzites can also be mineralized hence evaluation of these units, in addition to the conglomerates, is very important in assessing the overall bulk tonnage potential.

### Phase II Drilling Results - Joao Belo Sul

Drilling in the Phase I program at João Belo Sul, located 2 km south of the former João Belo Mine, outlined a major extension to the known mineralization. Hole JBA-292 intersected 3.75 g/t Au over a true width of 14.6 m at a depth of about 69 m below surface. This intersection included a high-grade section of 10.62 g/t Au over 3.6 m true width. Ten holes totalling 2,400 m are planned here in Phase II.

The mineralized horizons intersected in the holes at João Belo Sul are believed to continue to the south for an additional 9 km of strike length to the Campo Limpo area where eight wide-spaced holes were previously completed over a strike length of 1,000 m in the 1980's. Significant results returned included 3.76 g/t Au over 9.5 m true width and 2.65 g/t Au over 7.4 m true width. Additional work must be completed to assess these intersections and evaluate continuity.

#### Sampling Method and Approach

The following is a summary of section 12.0 Sampling Method And Approach, of The Micon Report. Refer to the original report for full details.

JMC geologists lithologically logged and sampled all drill holes. Previous practice was to sample all conglomerates, but William staff changed this to a practice of sampling through the conglomerates into adjacent quartzites on both sides. Surface holes, which tend to be exploration drilling, were split, halfcore sampled and then stored for future reference. Underground definition drill holes are whole-core sampled resulting in similar sample volumes to those taken from surface core. Generally, all samples were submitted to the mine's assay laboratory but, in later years, William began submitting samples from exploration holes to an outside laboratory.

JMC beat geologists collected chip panel samples at regular intervals from all underground development headings which were in, or near, mineralization. Samples were continuous chip/channel samples collected by hammer and moil onto a canvas mat.

DSM has followed similar drill core sampling procedures to those used by William with some modification. All drill core to be sampled was split in half and one half submitted for assay. In the early portions of the program a hand splitter was used. In the latter part, a diamond saw was obtained and sawing replaced most of the splitting except for lower priority samples. Sample lengths were selected based on lithology with the typical sample being about 0.5 m long and the longest being approximately 1.0 m. Much more extensive sampling of the surrounding quartzites is now being conducted because of the potential for low gold grades to affect potential open pit economics.

#### Sample Preparation, Analysis and Security

The following is a summary of section 13.0 Sampling Preparation, Analyses And Security, of The Micon Report. Refer to the original report for full details.

During its operation the Jacobina mine had a relatively modern, well-equipped assay laboratory on site, near the plant and metallurgical facility at the Itapicurú mine. The laboratory was equipped for performing both fire assay (FA) and atomic absorption spectrophotometry (AAS) analyses. AAS determinations of precious metals at Jacobina were used only for process control samples which contain soluble gold. All samples from the geology department were analyzed by the FA method with gravimetric finish.

The sample preparation facility at the laboratory consisted of a sample drying and handling area and a crushing room. After drying, samples were crushed in stages using a jaw crusher and roll crusher. Samples were then split with a Jones riffle splitter to produce a large sample which was ground to minus 100 mesh pulp in a disk pulverizer. The final pulp was rolled on a rubber mat and then quartered. Sample increments were selected from opposite quarters to composite an analytical subsample or aliquot. This sample was then subjected to FA analysis.

In 1998, Micon expressed its opinion that the use of the disk pulverizer should be discouraged and recommended it be replaced with a ring and puck pulverizer, and the practice of rolling the final pulp on a rubber mat to provide a subsample be replaced by use of alternative methods such as a very small riffle splitter, as they are not best analytical practice and tend to magnify problems associated with nugget effect. Nevertheless, given the relatively low and even gold grades of the mineralization at Jacobina, and the general

lack of coarse or even visible gold, Micon believes that they have had a very limited effect on the accuracy of the resource estimation. The discussion on data quality below tends to support this view.

In Micon's view the Jacobina mine laboratory was generally well-operated. It exhibited a high degree of general cleanliness and good housekeeping.

At the Jacobina mine, JMC maintained a large covered storage facility (roof only), with office, for logging and racking of core. This facility was protected by wire mesh and had a locked gate to prevent unauthorized access. It had power and water and was located behind the mine's main gate. JMC has maintained a security presence at the mine since closure in 1998 so that any old core retained by the previous operators is intact and in relatively good condition. DSM has continued the practice of logging at this site. Core is transported directly here, from the drill rigs, and is logged and sampled. Bagged samples are stored in this secure environment at the mine until transported to the laboratory.

The primary analyses of all samples were performed by Lakefield Geosol Ltda. (Lakefield), an ISO 9002 certified laboratory located in Belo Horizonte. Samples were routinely shipped each Friday, in batches of 200 to 300, by truck to Salvador and then by air freight to Belo Horizonte. Turnaround time in the laboratory was approximately 7 to 10 days after receipt of samples.

After completion of DSM's Phase I exploration program an analysis of the QA/QC data was undertaken. Scatter plots of duplicate samples (both Lakefield vs. Lakefield and Lakefield vs. ALS Chemex) showed regression lines without strong biases but a lot of scatter within the data (see discussion in Section 14 below). A program of screen metallics fire assaying did not find any significant nugget effect so a "cluster nugget effect" problem was suspected. Cluster nugget effect is the tendency, in some deposits, of fine gold particles to be found near other fine gold particles, in small clusters, rather than more evenly distributed.

Generally, the most effective method of dealing with cluster nugget effect is to crush/pulverize to a finer size before any splitting of the sample is done. Micon recommended to DSM that it look into this phenomenon and a revised sample preparation protocol was introduced as of the end of April, 2004.

For all batches of samples, 10% of the pulps and 5% of the rejects were routinely sent to a second laboratory, ALS Chemex (Chemex) in Vancouver, B.C. Selected pulps and rejects are sent to ALS Brasil by Lakefield Geosol. ALS Brasil rebags and numbers the pulps and pulverizes the rejects to 95% passing 150 mesh (changed to 95% passing 200 mesh in April, 2004 as described above). These samples are shipped to Vancouver for analysis.

#### **Data Verification**

The following is a summary of section 14.0 Data Verification, of The Micon Report. Refer to the original report for full details.

The Jacobina mine laboratory ran a quality assurance/quality control (QA/QC) program. This program consisted of introducing one sample duplicate and one blank sample with each tray of 35 fire assays. William also performed an initial statistical analysis of a portion of the Jacobina database after its acquisition of JMC. The data used for the estimation of the resource at João Belo were studied and this study was reviewed by Micon in 1998. Frequency histograms and log probability curves were plotted for the raw data.

The plots of raw data from João Belo show a single, lognormally distributed population from just above the 10th, out to beyond the 99th percentile, representing a gold grade range of about 0.1 to over 100 g/t Au. Below the 10th percentile, or approximately 0.1g/t Au, most of the data reported as having a value of 0.01 g/t Au. No analytical results were reported with values of 0.02 to 0.04 g/t Au and very few for 0.05 g/t to 0.09 g/t Au. This probably indicates an inability to discriminate between gold values in this concentration range and likely means that the mine laboratory has an accuracy of about  $\pm 0.1$  g/t Au. The data also show very few outliers. Of the 39,664 assays in the database, only 32 were above 30.0 g/t Au.

It was Micon's opinion that the portion of the database used by JMC to estimate the resources at João Belo was a "clean" and well-sampled one and was suitable for use in the accurate estimation of a resource. It is likely that the remainder of the database is of similar quality.

During its operation the Jacobina mine reconciled its annual production with the mineral resource estimates. Each year the portion of the mineral resource extracted by mining was determined and multiplied by planned recovery and dilution factors. The grade of this diluted mineral resource was reconciled to production figures, as determined by the mill, and a mine call factor (MCF) was calculated and used to adjust diluted resource grades to produce the reported mineral reserve grades. The MCF was calculated using the formula:

(Recovered Grade + Tails Grade)/Diluted Resource Grade

The MCF in use at mine closure was 0.954 indicating that the true head grade was 95.4% of the grade estimated from the mineral resources (prior to application of the MCF). Micon reviewed the methodology used for the resource reconciliation and found it to be appropriate.

All assay results are received electronically from the laboratories along with assay certificates, in paper form, which are mailed separately. These data are added into the Gemcom drill hole database as results become available. During Phase II exploration Gemcom was contracted to write a direct-entry software system which allowed data to be captured electronically as logging occurs. Gemcom has now developed and tested the software which was fully implemented in July, 2003.

DSM felt it was necessary to fully check the manually entered database files for mistakes. For each drill log the original assay certificates were checked to ensure that the assays had been entered correctly. Data, once confirmed, were entered into a spreadsheet for importation into Gemcom. Once entry was complete, the spreadsheet was printed out and rechecked against the drill log. Survey data for the drill hole collars were also checked to ensure that they were located correctly. Once this stage of the checking was complete, plan maps and cross sections were plotted at the same scale as the historical archive. The new sections were overlain on the old and any discrepancies checked and corrected as necessary. DSM now reports that the data verification process for the historical data was completed by July, 2003 with every record checked.

#### **Adjacent Properties**

The following is a summary of section 15.0 Adjacent Properties, of The Micon Report. Refer to the original report for full details.

DSM has reported that JMC controls most of the exposures of the Serra do Corrgo Formation in the entire Serra do Jacobina range with the exception of a few small garimpeiro reservations. There are no known adjacent properties whose description and mineralization materially affect the value of JMC's land holdings.

#### **Mineral Processing and Metallurgical Testing**

The following is a summary of section 16.0 Mineral Processing And Metallurgical Testing, of The Feasibility Study. Refer to the original report for full details.

The following work was carried out by SNC-Lavalin as part of The Feasibility Study.

A programme of metallurgical test work was carried out on samples of mineralized material from the Serra do Córrego deposit by Lakefield. The test work comprised leach kinectics testing and was completed under the direction of SNC-Lavalin, although SNC-Lavalin did not observe the test work. Although the Jacobina property has an operating history of many years, it was recognized by SNC-Lavalin and DSM that there was value in carrying out a limited test work programme, as material from Serra do Córrego had not been previously milled.

Material for the test work was made available from surface exploration drill holes drilled by DSM in the first half of 2003 in the Serra do Córrego deposit. The selection of samples was carried out by SNC-Lavalin and was based on geological and assay information from the drill core logs made available by DSM. In selecting the samples for metallurgical testing, it was SNC-Lavalin's objective to provide material from the three lithologies where mineralization was known to occur based on Micon's analysis of mineralization, namely the Upper Conglomerate, Lower Conglomerate and quartzite, for samples below the anticipated cut-off grade, and material approximating low-grade, medium-grade and higher-grade material. In addition, it was intended to ensure that the two reported size gradations of pebble conglomerate (large-to-medium pebble conglomerate (LMPC) and medium-to-large pebble conglomerate (MLPC)) were fairly represented. The sample consisted of seven composites that covered a grade range of 0.44 g/t to 3.19 g/t for quartzite material, LMPC and MLPC.

The results indicated that for the samples studied, leach extractions of 97% could be achieved in 24 hours leaching at a grind size of 80% passing 100  $\mu$ m, which represented the reported historical plant grind size. Leach kinetics were also evaluated at grind sizes of 80% passing 82  $\mu$ m and 125  $\mu$ m. Extractions were unaffected by grind size within the range examined.

On a basis of the test work, the plant will be fitted with four additional agitated leach tanks to increase the leach capacity to 24-hour residence time from the pre-existing 16 hours.

Based on the test work results, SNC-Lavalin is of the opinion that the proposed expanded leach capacity would result in an average extraction of approximately 97% for feed which has the same composition as the test samples. Also in the opinion of SNC-Lavalin, solution losses from a carbon adsorption plant, such as Jacobina, typically are 0.5% or less. SNC-Lavalin recommends using 0.5% solution loss for a recovery of 96.5%. This recovery is reflected in the analyses included in this Report.

The Jacobina process plant is a conventional carbon-in-pulp gold recovery circuit. The major components of the process were observed by SNC-Lavalin to be:

- \* Crushing and stockpiling: the crusher hopper of the new installation will be fitted with a 600-mm square grizzly and oversize reduced to grizzly-passing by a hydraulic rock breaker. Ore will be transported from the bottom of the receiving hopper to the 900 mm x 1,200 mm jaw crusher by a 1,200 mm x 4,800 mm apron feeder.
- \* Stockpile reclaim and grinding with two SAG mills;
- \* Leach feed dewatering using a 17 m diameter conventional thickener;
- \* Leaching with the addition of four new agitated leach tanks, which, with the existing 13 tanks, results in a total of 24-hour residence time;
- \* Carbon adsorption;
- \* Carbon desorption and regeneration;
- \* Electrowinning and refining.

SNC-Lavalin recommends the following improvements to the plant and process:

- \* Additional agitated leach tanks to increase residence time from 16 hours to 24 hours.
- \* Instrumentation to measure and control critical process parameters.
- \* Replace the tailings line with 250 mm HDPE pipe for reduced pumping demand.
- \* The existing grinding circuit can operate at 190 t/h and achieve the historical grind size of 80% passing 100 μm while pulling 80% of installed power.

#### **Mineral Resource and Reserve Estimates**

The following is a summary of section 17.0 Mineral Resource And Mineral Reserve Estimates, of The Feasibility Study. Refer to the original report for full details.

Micon was retained by DSM to review the mineral resource estimate prepared by DSM Participações Ltda. (DSMP, DSM's Brazilian subsidiary) for the Jacobina mine in 2003 and to express an opinion as to whether the resources comply with CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines, adopted by CIM Council on August 20, 2000 (the CIM Code) and are reportable by DSM under NI 43-101. The cut-off grade used for resource estimation by DSMP was reported by them to be 1.3g/t.

Micon has examined the new mineral resource estimate summarized in the table below and set out in more detail in their report (The Micon Report). Micon has stated that it is their opinion that Table 2 represents an estimate of the mineral resources at Jacobina which is compliant with the CIM Code and reportable by DSM.

Category	Tonnes	Grade	Contained Gold
		(g/t Au)	(oz)
Measured	2,612,000	2.83	237,500
Indicated	12,190,000	2.87	1,124,800
Total Measured and Indicated	14,802,000	2.86	1,362,300
Inferred	29,487,000	2.62	2,479,500

**Table 1: Jacobina Mineral Resources** 

Many of these resources were in zones which were open along strike or at depth and had not been fully explored. While plans existed for their exploration, little of this work was conducted at the mine in its final months of production after Micon's 1998 visit. Therefore, in the opinion of Micon, significant potential exists for the discovery of mineralization of similar tenor to that already known.

The mining section and estimation of mineral reserves has been prepared by Dynatec.

The mining study was prepared based on the use of existing reports, conversations with DSM mine personnel and inspection of the mine facilities. Discussions with mine personnel included conditions of the mine operation, work completed on the block model resource estimate, review of mine design parameters, production capacity, ground conditions, dilution and recovery, ground control, ventilation and mine access.

The operating cost estimate was developed from first principles and based on Brazilian currency. Equipment and material purchases were sourced locally when possible. Estimates have been based on basic engineering layouts and general arrangement drawings as well as equipment and material budgetary quotes.

Estimation of the mineral reserves by Dynatec has utilized a cut-off grade 1.3 g/t. The mineral reserves are summarized in Table 3.

Estimated Mineral Reserves						
	Proven		Probable		Proven and Probable	
Operations	Tonnes	Au	Tonnes	Au	Tonnes	Au
		(g/t)		(g/t)		(g/t)
Joao Belo	1,720,000	2.20	5,750,000	2.08	7,471,000	2.10
Basal Reef	Nil	Nil	2,304,000	2.51	2,304,000	2.51
Serra do Córrego	Nil	Nil	972,000	2.14	972,000	2.14
Total	1,720,000	2.20	9.026,000	2.19	10,746,000	2.20

Table 2: Jacobina Mineral Reserves

Dynatec is of the opinion that the nominal target of 4,200 t/d is attainable given the number, size of the deposits, mine layout and the time allowed for pre-production development.

Dynatec developed development and production schedules. The average grade of ore delivered to the mill over the life of the Project (The Feasibility Study) has been estimated to be 2.20 g/t at a sustained rate of 1.512 Mt following pre-production development. The currently defined mineral reserves permit a 7-year mine life for The Feasibility Study.

#### **Production Rate Assessment**

#### Introduction

In considering underground production rates at Jacobina, two previous reports are relevant:

- \* The Feasibility Study, based on measured and indicated resources, had a production rate of 4200 tpd and a mine life of 7.1 years. Only underground mining was included in The Feasibility Study.
- \* Previous SRK report, "Preliminary Assessment of Extended Life of Mine Plan for Jacobina, September 2003" was based on all categories of mineral resources and incorporated a production rate of 4200 tpd over a mine life of 18.3 years. Both underground and open pit mining were included.

DSM commissioned SRK to evaluate the achievability and economics of higher underground production rates. The objective was to assess an increase in gold production and the possibility of a lower cash cost per ounce by increasing mill capacity and striving for economies of scale.

#### Methodology

The following is an outline of the methodology used by SRK in evaluating higher production rates:

- \* The first step was an accounting of all mineral reserves and resources at Jacobina to identify Feasibility Study reserves, the resources that were converted into those reserves, remaining resources of all categories, and any resources that would not be included in the current study. Refer to Table 3 below.
- \* Mineral resources to be included in the study, including inferred resources, were converted to potentially "mineable tonnes" by using a conversion process described in The Micon Report, based on historical data at Jacobina. Both reserves from The Feasibility Study and potentially "mineable tonnes" were incorporated into the current study.
- \* For each underground mining area included in the current study, conceptual mining plans were prepared by DSM on plans and sections in AutoCAD. These were reviewed by SRK.
- \* For each mining area basic information was compiled on exploration requirements (drifting and drilling) to upgrade resources to the indicated category, conceptual mining methods and mining widths, waste development requirements, possible mine access routes, estimated maximum production rates, and any known constraints on production start up timing.

- \* SRK assessed life-of-mine ("LoM") underground production schedules for Jacobina at different production rates in the range of 4200 tpd to 6000 tpd.
- SRK prepared a "Base Case" 4200 tpd (underground only) production schedule which would be used for comparison purposes, and also selected a higher production rate and underground production schedule that appeared to yielded the best results.
- \* Underground operating costs were estimated.
- \* Capital costs were estimated and scheduled relative to the revised mining schedules. GEST provided a mill expansion capital cost estimate.
- \* A simple pre-tax cash flow analysis was prepared for each production rate scenario.
- \* The production scenarios were compared and evaluated. This was an iterative process.

	Measured + I	ndicated	Inferred Resource		
	Tonnes	Au (g/t)	Tonnes	Au (g/t)	
Total Classified Resources at Jacobina	14,802,000	2.86	29,487,000	2.62	
Resources Converted to Feasibility Reserves	11,599,000	2.35	-		
Remaining Resources after Feasibility	3,203,000	4.71	29,487,000	2.62	
Resources Excluded from Current Study	557,849	6.22	12,920,471	2.09	
Resources Included	2,645,151	4.39	16,566,529	3.03	
Total Resources for Study	2,645,000	4.39	16,566,529	3.03	

**Table 3: Mineral Resources for Current Study** 

Table 3 shows that some of the Jacobina classified mineral resources are excluded from this current study. The excluded resources are comprised of underground resources for which there were no conceptual mining plans available from DSM, and also the potentially open pittable inferred resources of the Morro do Vento area are excluded (9,247,000 tonnes at a grade of 1.65 g/t Au).

The resources shown in Table 3 as "Total Resources for Study" were converted to potentially "mineable tonnes". This is described further in report section 8.4

### **Description of Mining Areas**

The main characteristics of the mineralized reefs are summarised in Table 4, while Figure 1 shows the stratigraphic correlation of mine packages. The individual reefs are described in more detail in the following report sections.

	Characteristics of the Principal Mineralized Reefs						
Mine/Zone	Location	Strike	Thickness	Description			
Itapicuru							
LVLPC	Morro de Vento	210 m	1.5 m	Large and very large pebbles, only locally mineralized			
Superior Reef	Morro de Vento	300 m	6.8 m	Medium to small pebbles irregularly mineralized			
Inferior Reef	Morro de Vento	250 m	1.4 m	Medium to large pebbles			
Main Reef	60 to 90 m above the basemenrt Itapicuru	3000 m	Beds of 0.1 to 3.0m, Zones up to 12 m	Pyritic, small to medium pebble conglomerate beds. Three channels of deposition, broken by faults			
Basal Reef	Base Itapicuru	1,600 m	3.0 to 8.0 m	Small to medium pebble, Enrichment of gold at its upper and lower portions			
Canavieiras							
Piritoso	Canavieiras	500 m	0.9 to 1.7 m	Average grade 9.5 g/t Au, medium size pebbles.			
Liberino	Canavieiras	500 m	1.3 m	10 m above Piritoso, average grade of 6.1 g/t Au, medium to large pebbles			
MU	Canavieiras	400 m	5 to 25 m	Pyritic, medium to large pebble conglomerates			
LU	Canavieiras	400 m	1 to 10 m	Pyritic, large pebble conglomerates			
Joao Belo							
LVLPC	Joao Belo North	600+ m	3 to 5 m	Large to very large pebbles.			
LMPC	Joao Belo North	600+ m	3 to 15 m	Large to medium pebbles, variable gold values.			
MPC	Joao Belo North	600 m	1.0 to 3.5 m	Medium size pebbles, locally contains pay values			
Sul	Joao Belo Sul	2000m	3 to 15 m				

**Table 4: Characteristics of the Principal Reefs** 



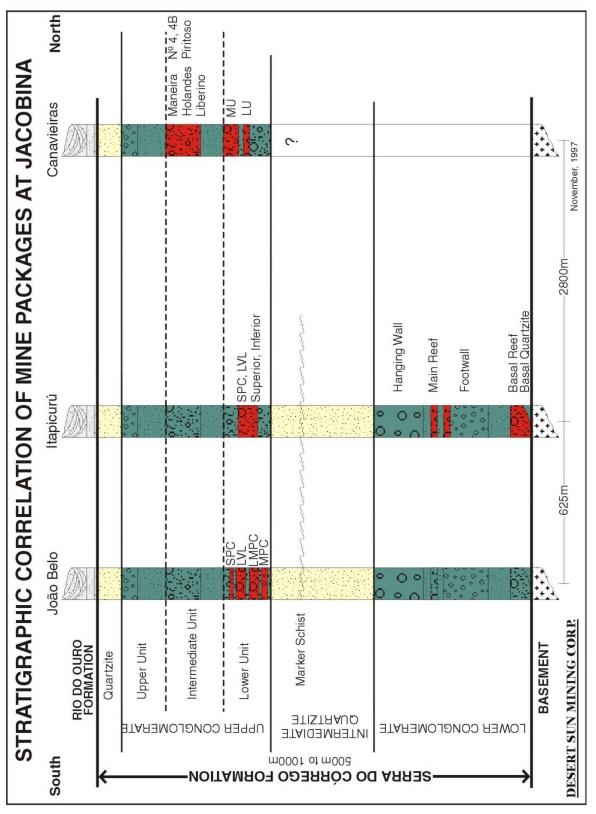


Figure 1: Stratigraphic Correlation of Mine Package at Jacobina

## **Geological Descriptions**

#### Joao Belo

The Joao Belo mine included ore zones north and south of a cross cutting mafic dike. The area immediately south of the dike is called Joao Belo South Extension and was drilled during 1997, confirming the continuity of the mine stratigraphy over 450 m to the south of the mine workings with similar grades and widths. Refer to Figure 2.

At the Joao Belo North mine, the Lower Unit of the Upper Conglomerate Member consists of three consecutive, well-packed, pyritiferous quartz-pebble conglomerate units all of which host mineralization that was previously mined. The lower conglomerate layer, or MPC Reef, is mostly comprised of medium-sized pebbles, with a thickness of 1.0 to 3.5 m. The second conglomerate layer, or LMPC Reef, consists of large and medium pebbles and is 3 to 15 m thick with variable gold values. The upper conglomerate layer, or LVLPC Reef, varies from 3.0 to 5.0 m in thickness and consists of large to very large pebbles in a greyish matrix. At some sites there is a mineralized small pebble conglomerate, known as the SPC Reef, at the upper contact of the LVLPC. Thin wedges of quartzite often mark the contacts between the three conglomerates. There are also differences in the colour of some pebbles, ranging from pink to yellow to green. The mined zones extend for at least 900 m along strike and mine workings are presently focused in the LMPC Reef.

#### Itapicuru

At Itapicurú (Morro do Vento), three oxidized conglomerates of the Lower Unit of the Upper Conglomerate have been developed and partially exploited underground. Refer to Figure 3. All three have a pyrite-rich matrix and are well packed. The lower is the Inferior Reef, with medium to large pebbles being continuous along strike for 250 m, and 1.4 m thick. Above it, the Superior Reef (marked LMPC on the section) is characterized by medium to small pebbles toward the top and medium to large pebbles in the base. The best-mineralized area is at the centre of Morro do Vento where over 280 m of strike length, with more than 3.0 g/t Au over 6.8 m thickness has been defined. The upper mineralized conglomerate is the LVLPC Reef, made up of large and very large pebbles, but which is only locally mineralized.

#### Canavieiras

At the Canavieiras mine, the Intermediate Unit of the Upper Member is 82 m thick and is characterized by six well-mineralized and well-packed oligomictic, and highly-pyritiferous conglomerates, of which the lower two, the Piritoso and the Liberino, were more developed and exploited along 500 m of strike length. Both are extensively oxidized on the developed levels. The most productive is the Piritoso Reef, located 10 m below the Liberino Reef, with 0.9 to 1.7 m of thickness and pebbles of medium size, where higher than average grades have been discovered. The Liberino Reef, averaging 6.1 g/t Au, is typically 1.3 m thick and consists of medium to large pebbles, in a greenish matrix (fuchsite). The other reefs of the Intermediate Member are the 4A, 4B, N5, Holandes and Maneira. These were only mined locally.

When the 1997, mineral resources were estimated, the Canavieiras mine was considered to be of secondary importance. However, structural and stratigraphic reviews had shown that the LU/MU reef could exist below the previously-mined Piritoso Reef. One diamond drill hole was drilled in October/November 1997 which gave results of 7.07 g/t Au over a 24.0 m true width from the MU reef, and 2.55 g/t Au over 3.01 m from the LU reef. Refer to Figure 4.

## Serra do Córrego

At Serra do Córrego and Canavieiras the LU and MU Reefs (Lower Unit and Middle Unit) are located in the base of the Upper Conglomerate Member. The LU and MU Reefs outcrop along a strike length of over one kilometer. They are pyritic and contain medium-sized pebbles with locally higher gold values near the top.



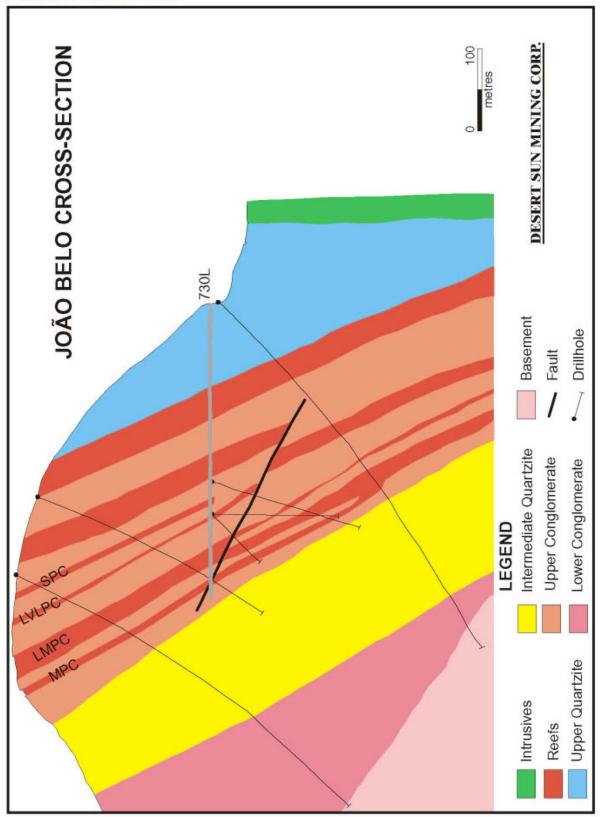


Figure 2: Joao Belo Cross Section



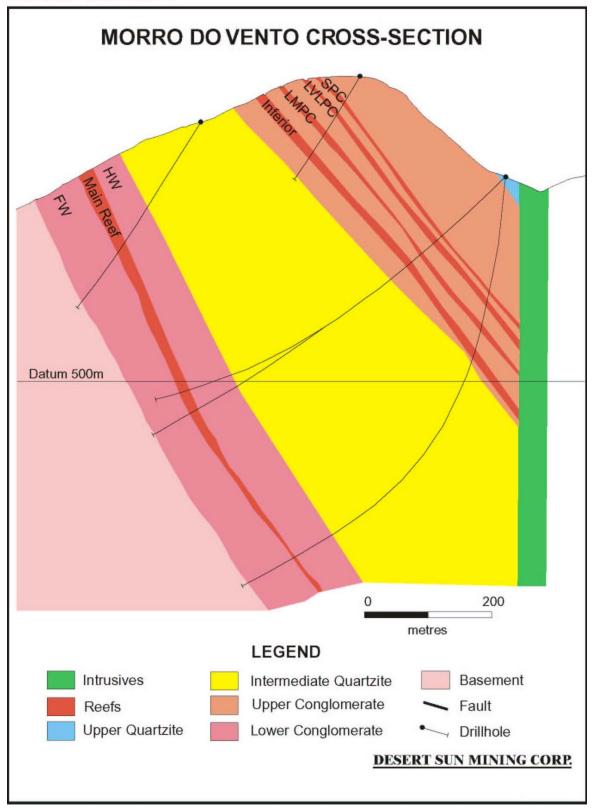


Figure 3: Morro do Vento Cross Section



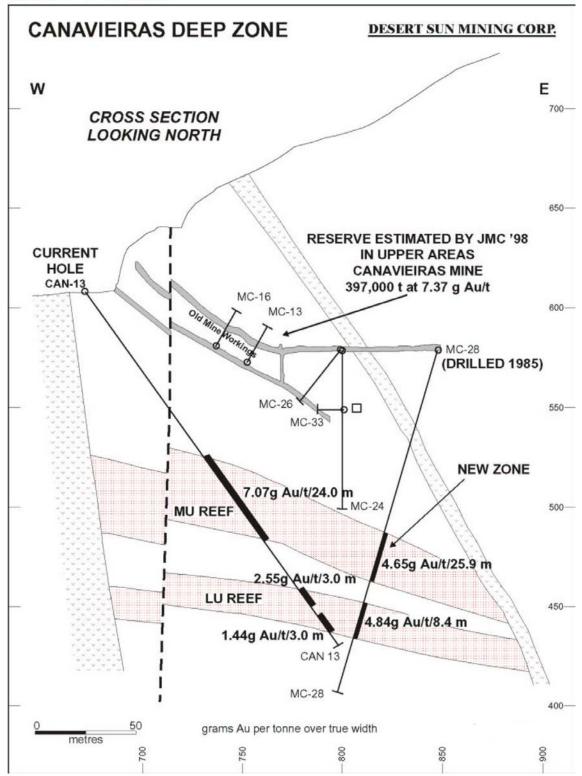


Figure 4: Canavieiras Cross Section

#### **Feasibility Study Mining Areas**

#### Joao Belo Norte

In The Feasibility Study the tonnes and grade was estimated as referred in table 2. Also, it was estimated that a nominal target of 3,000 tonnes per day would be an appropriate rate given the size of the deposit, mine layout and the allowable time for preproduction development. The mine life was estimated to be seven years.

There are a number of rule of thumb guidelines that can be applied to steeply dipping ore bodies to assist in determining the appropriate rate of production. One such rule suggests that the maximum rate of production per day that can be generated from an inclined deposit is 10% of the resources tonnage per meter. Joao Belo resources comprises some 8.9 M tonnes over an equivalent vertical distance of 257 m. Applying the rule shows the daily output to be approximately 3,500 tonnes.

#### Itapicuru

In The Feasibility Study the tonnes and grade was estimated as referred in table 2. It was also estimated that a nominal target of 800 tonnes per day would be an appropriate rate given the size of the deposit, mine layout and the allowable time for pre-production development. The mine life was estimated to be eight years.

The maximum rate of production per day that can be generated from an inclined deposit is 10% of the resources tonnage per meter. At Itapicuru resources comprise some 4.1 M tonnes over an equivalent vertical distance of 320 m. Appling the rule shows the daily output to be approximately 1,300 tonnes.

## Serra do Corrego

In The Feasibility Study the tonnes and grade was estimated as referred in table 2. It was estimated that a nominal target of 400 tonnes per day would be an appropriate rate for an appropriate rate given the size of the deposit, mine layout and the allowable time for preproduction development. The mine life was estimated to be approximately, seven years.

The maximum rate of production per day that can be generated from a inclined deposit is 10% of the resources tonnage per meter, At Itapicuru resources comprises some 2.1 M tonnes over an equivalent vertical distance of 315 m. Appling the rule shows the daily output to be approximately 667 tonnes.

#### Joao Belo North

#### **Mine Access and Transport**

Joao Belo Norte Hill is located about 2 km south of the Itapicuru Mine. During mine operations, access to the Joao Belo Mine was gained through one of two adits. The main entrance was through the 677 rail haulage level, where employees and material were transported by train to the main internal ramp/decline system. The ramp/decline was driven at a gradient of 13% and provided access to the upper and lower levels of the mine.

In the extended mine plan, as with The Feasibility Study, the decline will continue to handle all production from the mine. Tonnage will be loaded into trucks with LHD vehicles at truck load areas located at the entrance to the level access drift. The trucks will haul the ore out to the 677 level adit surface stockpile area, where it will be dumped, then later reloaded into surface haul trucks and hauled to the Itapicuru plant complex.

Men and material will be transported to the work place via the decline.

## **Mine Design Parameters**

In accordance with the design parameters discussed in Section 3, of The Feasibility Study the mine has been laid out with conventional ramp access and longhole stopes. Main levels are spaced 45 m to 90 m apart vertically with one or two drilling levels placed in between.

In the sublevel a tire-mounted, top-hammer hydraulic longhole drill rig drills 75 mm upholes and downholes while in the undercut drift a tire-mounted, top-hammer pneumatic long hole drills 64 mm upholes with lengths limited to 25 m. The drill pattern varies with the hole sizes, for the sublevel 3.5 m toe burden and drill ring spacing of 2 m are used while in the undercut 1.8 m toe burden and ring spacing of 3.5 m spacing are used. The drilling factor averages nine tonnes per meter of drilling per ring.

All production mucking will be performed by LHD equipped for remote mucking. The LHDs will be used to muck the ore to remuck stations located near the ramp/decline. Once loaded, Volvo A35D trucks will transport the ore to a surface stockpile.

#### **Production Rate**

In The Feasibility Study the nominal daily production rate was estimated at 3,000 tonnes per day. In the extended plan the nominal daily production would continue at the 3,000 tonnes per day. Based on the conversion of inferred, indicated and measured resources to proven and probable it was estimated that 3,688,000 tonnes at 2.62 g/t with an average thickness of 9.66 m would be available for mining.

#### **Development Schedule**

The development advance was identified based on extending the main ramp decline below the 475 m level to 300 m level and developing a new ramp from 820 m level to 940 m level. Lateral development would be extended to the south from 780 to 475 m level. Additional, lateral development would be developed north and south off the extended ramps. It was estimated that total of 14,600 meters of extended development would be needed, 8,100 m of waste development, most of which would be ramp development, 8,900 m of ore development and the remaining 600 m would be ventilation raises. Based on The Feasibility Study productivity rate of 4 rounds per day or 14 meters per day it would take approximately 3 years to develop.

## Itapicuru

#### **Mine Access and Transport**

The Itapicuru mining area, adjacent to the metallurgical plant, consists of two hills, Morro do Vento and Morro do Cuscuz, separated by a fault/dyke. The old Itapicuru Mine was located to the south in Morro do Vento and was accessed through a 39 degree incline shaft about 530 meters long. The Morro do Cuscuz was about 1 kilometer from the metallurgical plant site with reef access through adits and lateral declines.

The main access to the Morro do Vento Mine in the extended plan will be through the 630 meter level. The current plan calls for a wider and higher drift to allow the use of rubber tired equipment. The Main Reef Norte will be accessed from 630 m level by a ramp developed at 15 percent to the 390 meter level. A second ramp, located at the N8,754,700 section, will be developed from the 630 m level down to 570 m level to access the Basal Reef. A third ramp, located at the N8,754,600 section, will be developed from the 630 m level down to the 470 m level to access the Intermediate Inferior Reef. Reefs Superior, LVLPC and SPC will be accessed through adits to be located in the hill side.

The Morro do Cuscuz main access to the mine is through Gallery 3 located on the 630 meter level. The current plan, as presented in The Feasibility Study, is to slash the drift wider and higher to allow the use of rubber tired equipment. From Gallery 3 a ramp at 15 percent would be developed to the 600 meter level and then continue down to the lower levels. The ramp would be located 20 meters from the hanging wall contact. A short ramp would also be developed from the 630 meter level up to access and develop the 645 meter drilling sub-level.

The distance from the access of 630 m level to the crusher at the metallurgical plant through the existing roads is 800 meters.

## **Mine Design Parameters**

In the past, shrinkage mining was used as the primary mining method. In 1996 the mine adopted to use longhole sublevel retreat stoping with limited success. This was due to the larger drift sizes that were necessary to handle the longhole equipment. In 1997 the mine purchase narrow width production drills which have been proven to be effective in controlling excessive dilution.

In The Feasibility Study production was only planned from Morro do Cuscuz. The mining method was Sublevel Open Stoping with drilling sublevels every 30m vertical distance. Production headings would have drawpoints located at 630 m, 525 m and 390 m levels. In the extended plan mining would continue down to 300m level.

In the extended plan for Morro do Vento longhole open stoping was planned as the primary mining method. Drill equipment similar to ones mentioned above will be used drill both upholes and downholes.

All production mucking will be performed by LHD equipped for remote mucking. The LHDs will be used to muck the ore to remuck stations located near the ramp/decline. Once loaded, Volvo A35D trucks will transport the ore to a surface stockpile.

#### **Production Rate**

At Morro do Cuscuz the production rate would continue in the extended plan at feasibility study daily nominal rate of 800 tonnes per day.

At Morro do Vento it was estimated that a nominal target of 600 tonnes per day would be an appropriate rate given the size of the deposits, mine layout and the allowable time for pre-production development.

## **Development Schedule**

The Morro do Cuscuz mining in The Feasibility Study identified a total of 2,300 meters of development that was needed to develop the resources down to the 390 m level. In the extended mine plan an additional 1,747 m of development would be needed to develop the mine down to 300 m level. It was estimated that 700 m would be in waste development, 957 m in ore development and 90 m in vertical raising.

The Morro do Vento, was not part of initial feasibility study, but was considered in the extended mine plan. The development advance that was identified was based on developing the main ramp decline system to access the Main, Basal and Intermediate Inferior Reef from the 630m level.

It was estimated that total of 27,400 meters of development would be needed, 2,400 m of waste development, most of which would be ramp development, 24,300 m of ore development and the remaining 700 m would be ventilation raises.

#### **Production Schedule**

In The Feasibility Study the mine life at Morro do Cuscuz was estimated to be eight years from the start of pre-production, or seven years of production stoping. This accounted for approximately 88 percent of the mineral resources.

At Morro do Vento, given the average mining rate as discussed above the estimated mine life would be 6.2 years, including pillar robbing during the final year. To achieve the daily tonnage four stopes would need to be in operation at any one time.

## Serra do Corrego

#### **Mine Access and Transport**

Serra do Corrego, located 2 km north of the mine plant, is a 900 meters long zone. Access is by the main mine road to the base of the hill which will be upgraded to provide access to proposed 784 Adit.

At the southern end of the Serra do Corrego ridge, on the eastern slope, there is a large area of outcropping where the Maneria Reef is exposed. Access to this reef will be by an adit, off the main mine road, located on the eastern slope of the ridge.

## **Mine Design Parameters**

In The Feasibility Study the mining method was Sub-level Retreat Longitudinal Open Stoping with drilling sublevels every 30m vertical distance. Production headings with draw points located at 830m, and 784m levels. Between levels 840 and 785 sublevel drilling sublevels would be developed in order to keep the hole length in the fan drill range of accuracy and efficiency. In addition these drifts would be used to define block width and therefore reduce dilution.

In the extended plan Sub-level Retreat Longitudinal Open Stoping would applied to the new mining blocks MU 6550, LU 6615/794, Maneria Sul and Maneria Norte

#### **Production Rate**

In The Feasibility Study the nominal daily production rate was 400 tonnes per day. It would be appropriate to continue at that mining rate in the extended mine plan.

## **Development Schedule**

In addition to the 1,890 m as outlined in The Feasibility Study an additional 1,310 m of development would be needed to develop the MU 6550 and Lu 6615/794 for production.

In additional to the LU and MU development another 6,690 meters would be needed to develop the Maneira Sul and Norte.

## Canavieiras

#### **Mine Access and Transport**

The Canavieiras area is 8 km away from the Itapicuru metallurgical site. When the mine was in operations the ore was trucked to the millsite. Mine access was through adits developed in the hillside.

Access to proposed mining sections 8757800N and 8758100N will be a ramp from the existing 545 m level.

## **Mine Design Parameters**

Shrinkage and Room-and Pillar mining methods have been used in the past. In the extended plan, mining was examined on an individual block basis. In the steeply dipping sections of the reef the preferred mining method is Sublevel Longhole Open Stoping retreat system with drifts 3 m by 3 m every 50 m vertical. In the flatter sections Room and Pillar mining method is planned.

#### **Production Rate**

It was estimated that a daily nominal production target of 1,000 tonnes per day would be an appropriate rate given the size of the deposit, mine layout and the allowable time for preproduction development.

### **Development Schedule**

The total life of mine development was estimated at 15,333 m of which 3,672 m was waste development, 11,581 m ore development and 80 m of vertical raising for ventilation. Based on The Feasibility Study productivity rate of 4 rounds per day or 14 meters per day it would take approximately 3 years to develop.

#### Potentially "Mineable Tonnes" For Study

This study is based on all categories of mineral resources at Jacobina; measured, indicated and inferred. Previously established reserves from The Feasibility Study are included, while the remaining mineral resources of Table 3 have been converted to potentially "mineable tonnes". SRK has relied on Micon International Ltd.'s report, "A Mineral Resource Estimate For the Jacobina Property, Bahia State, Brazil", ("The Micon Report") that describes a method of converting resources to potentially "mineable tonnes" based on historical data at Jacobina.

This study relies on the assumption that 70% of the inferred resources will ultimately be converted to indicated resources, through additional exploration work. This factor applies to the inferred tonnes while the gold grade carries through the conversion unchanged. SRK has based this assumption on The Micon Report that discusses the subject on page 87, as follows:

"DSM reports that, based on JMC's previous mining history, it is anticipated that about 70% of this (inferred) resource can be upgraded to the indicated category with further drilling."

The Micon Report also states:

"It should be noted that, even though based on previous mining experience, these potential quantities and grades must be considered conceptual in nature. There is no guarantee that further exploration will upgrade any of these inferred resources."

This study also relies on the assumption that 70% of the indicated resources can be converted to potentially "mineable tonnes", and these are included in the extended plan. This assumption is also based on a discussion in The Micon Report, as follows:

"Past mining experience, and the conversion rate from the SNC-Lavalin-Dynatec feasibility study, shows that indicated mineral resource blocks at Jacobina are converted to probable mineral reserves at a similar rate of about 70%. Should the drilling of an inferred mineral resource, at the drill spacing required for indicated resources, be successful it is anticipated therefore that the inferred resources would eventually convert to probable reserves at a rate of approximately 50%."

## The Micon Report also states:

"There is no guarantee that further exploration will result in the discovery of any mineral reserves. While the arguments presented are conceptual, past mining experience suggests that the projected potential can be achieved with sufficient drilling."

Mineral resources contained in the mining areas described in section 8.3 have been converted to potentially "mineable tonnes". In summary, the conversion process includes:

- \* Inferred resource tonnes converted to indicated resource tonnes at a 70% rate
- \* Dilution tonnes grading 0.2 g/t Au added to the indicated resources; 16% external dilution for underground mining
- \* The diluted, indicated resource tonnes are converted to potentially "mineable tonnes" at a rate of 70%

Table 5 shows the details of the conversion process described above. The input to the conversion is shown in the left side columns that include measured and indicated resources totalling 2,646 kt at 4.39 g/t Au, and inferred resources totalling 16,566 kt at 3.03 g/t.

The conversion process in Table 5 results in a total of 11,869 kt at 2.79 g/t Au. These potentially "mineable tonnes" are in addition to The Feasibility Study reserves.

SRK has based it's evaluation of underground production rates at Jacobina on the combined total of Feasibility Study reserves plus potentially "mineable tonnes" totalling 22,615 kt at 2.51 g/t Au.

			Conve	rsion of Re	sources	to Potentially	y Mineabl	e Tonnes			
		INP M & I F		EVALUATION INFERREI	DRES	INDICATE	DRES	DILUTI INDICATED R		POTEN MINEABLE	
		Tonnes	Au (g/t)	Tonnes	Au (g/t)	Tonnes	Au (g/t)	Tonnes	Au (g/t)	Tonnes	Au (g/t)
Joao Belo North		576,334	3.62	8,574,408	2.77	6,578,420	2.85	7,831,452	2.42	5,482,016	2.4
	Sub-total	576,334	3.62	8,574,408	2.77	6,578,420	2.77	7,831,452	2.42	5,482,016	2.42
	Sub-total	370,334	3.02	6,374,406	2.11	0,378,420	2.11	7,631,432	2.42	5,462,010	2.47
Itapicuru											
Basal MCZ	Sub-total			644,707	2.67	451,295	2.67	537,256	2.27	376,079	2.2
Basal MVT		582,115	3.12	149,813	3.28	686,984	3.15	817,838	2.67	572,487	2.6
Intermed Infer MVT Intermed Super MVT		188,199 397,000	4.35 3.41	194,918 707,066	4.46 2.35	324,642 891,946	4.40 2.82	386,478 1,061,841	3.73 2.40	270,535 743,289	3.7 2.4
Intermed SPC		397,000	3.41	252,000	1.79	176,400	1.79	210,000	1.54	147,000	1.5
Main Reef MVT		242,151	6.93	205,611	7.71	386,079	7.22	459,618	6.10	321,732	6.1
MVT	Sub-total	1,409,465	4.02	1,509,408	3.35	2,466,051	3.73	2,935,775	3.17	2,055,042	3.17
Serra do Corrego											
LU Reef				96,028	3.21	67,220	3.21	80,023	2.73	56,016	2.7
MU Reef				463,862	1.34	324,703	1.34	386,552	1.16	270,586	1.1
Maneira Sul				341,000	3.53	238,700	3.53	284,167	3.00	198,917	3.0
Maneira Norte				911,000	3.53	637,700	3.53	759,167	3.00	531,417	3.0
	Sub-total	0	0.00	1,811,890	2.95	1,268,323	2.95	1,509,908	2.51	1,056,936	2.51
Canavieiras											
Piritoso 1 Piritoso 2		56,222 478,148	6.74 5.78			56,222 478,148	6.74 5.78	66,931 569,224	5.69 4.88	46,852 398,457	5.6 4.8
Liberino		125,589	5.82			125,589	5.82	149,511	4.92	104,658	4.0
Intermed MU		125,507	5.02	1,892,907	4.03	1,325,035	4.03	1,577,423	3.42	1,104,196	3.4
Intermed LU				467,160	4.46	327,012	4.46	389,300	3.78	272,510	3.7
Maneira Reef				1,155,556	2.54	808,889	2.54	962,963	2.17	674,074	2.1
Holandes Reef				510,370	3.20	357,259	3.20	425,308	2.72	297,716	2.7
	Sub-total	659,959	5.87	4,025,993	3.55	3,478,154	3.99	4,140,660	3.38	2,898,462	3.38
Total ALL AREAS											
Joao Belo North		576,334	3.62	8,574,408	2.77	6,578,420	2.85	7,831,452	2.42	5,482,016	2.4
Itapicuru Basal MCZ		1 400 465	-	644,707	2.67	451,295	2.67	537,256	2.27	376,079	2.2
Itapicuru MVT Serra do Corrego		1,409,465	4.02	1,509,408 1,811,890	3.35 2.95	2,466,051 1,268,323	3.73 2.95	2,935,775 1,509,908	3.17 2.51	2,055,042 1,056,936	3.1 2.5
Canavieiras		659,959	5.87	4,025,993	3.55	3,478,154	3.99	4,140,660	3.38	2,898,462	3.3
	Totals	2,645,758	4.39	16,566,406	3.03	14,242,242	3.28	16,955,050	2.79	11,868,535	2.79
Contained Gold O	unces	373,67	75	1,613,9	80			<u> </u>		1,064	.633

Table 5: Conversion of Resources to Potentially "Mineable Tonnes"

#### **Production Schedules Evaluated**

As the result of an iterative assessment process, life-of-mine ("LoM") underground only production schedules were created for two production rates; 4200 and 5200 tonnes per day. The term, "Extended Plan" is used in this report to refer to these schedules. The 4200 tpd Extended Plan represents the existing mill as expanded according to The Feasibility Study plans. The 5200 tpd Extended Plan represents a 1000 tpd mill expansion. Mill expansion plans and cost estimates are described by GEST in their report, "Projecto Jacobina – Expansao De 4,200 TPD Para 12,000 TPD, Scoping Study".

The data used in this study is preliminary in nature with a high level of uncertainty. It is SRK's opinion that the data does not support evaluations of small changes in the LoM production scenario.

In considering the higher production rates and preparing production schedules, SRK observed the following constraints:

- \* The Feasibility Study portion of each Extended Plan has not been altered, although in the 5200 tpd Extended Plan additional areas are brought on line in parallel with Feasibility Study tonnes to achieve higher overall underground mining rates at Jacobina.
- \* Where flexibility allowed, higher grade mining areas were scheduled ahead of lower grade mining areas.
- \* For higher production rates, a ramp up period was scheduled to represent a realistic time frame for increasing production. In The Feasibility Study, 4200 tpd is achieved at the start of year 2005. In the selected 5200 tpd Extended Plan, the full rate is achieved at the start of 2007.
- \* Once achieved, higher production rates were held constant for as many years as possible.
- \* Maximum production rates for individual mining areas were generally not exceeded, except in isolated cases, and then only to balance out annual tonnes.

Figure 5 shows the LoM annual tonnage production profiles for the 4200 tpd and 5200 tpd Extended Plans considered by SRK. Figure 6 shows the annual gold production for each.

Details of the 4200 tpd and 5200 tpd Extended Plans are included in Appendix B

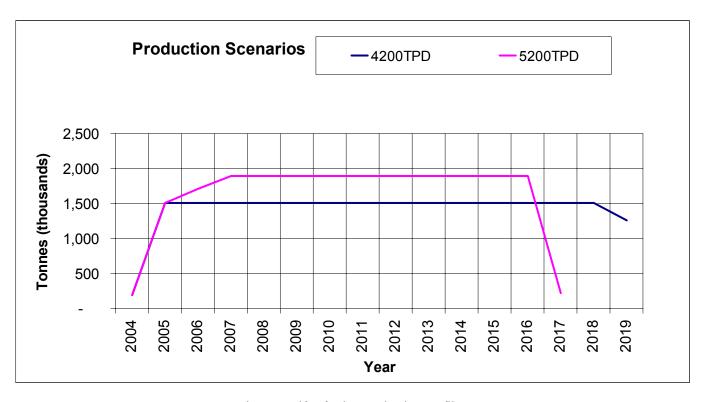


Figure 5: Life of Mine Production Profiles

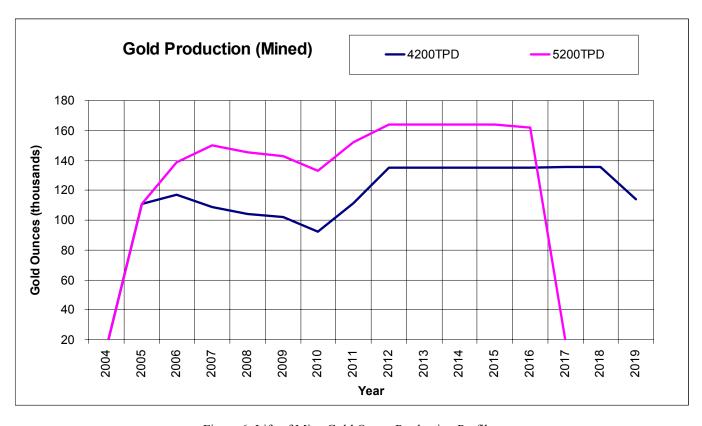


Figure 6: Life of Mine Gold Ounce Production Profiles

#### **Mill Expansion**

#### **Existing Processing Plant**

The existing gold processing plant at Jacobina uses a standard CIP process, and has a capacity of 3,000 tpd. The Feasibility Study includes plans for expanding, refurbishing, and re-commissioning the plant to 4,200 tpd capacity. This work is currently being completed by DSM.

For further details on these plans, refer to The Feasibility Study.

#### **Mill Expansion Planning**

In December 2003, GEST – Engenharia e Consultoria Ltda, ("GEST") of Nova Lima, Brazil, provided scoping level expansion plans and cost estimates for the Jacobina mill and tailings management facility. Their report, "Projecto Jacobina – Expansao De 4,200 TPD Para 12,000 TPD, Scoping Study", describes the work required to increase the mill capacity at Jacobina from the 4,200 tpd specified in The Feasibility Study, to a rate of 12,000 tpd. GEST estimated an additional capital cost of US\$ 43.4 million for the mill expansion. Their report is included in Appendix A.

In this current study, SRK has considered production rates between 4,200 tpd and 6,000 tpd. The capital cost estimate provided by GEST has been factored to correspond to the rates considered.

#### **Environmental Considerations**

#### Introduction

The environmental aspects of underground mining at the Jacobina site are described in The Feasibility Study, covering underground mining of gold reserves totalling 10,746,000 tonnes at 2.20 g/t gold.

This current study by SRK introduces two additional underground mining areas:

- Itapicuru MVT
- \* Canavieiras

These areas are covered by existing operating licenses.

SRK has not determined if a mill expansion of 1000 tpd requires any new licensing.

## **Tailings Management**

The capacity of the existing tailings management facility ("TMF") has been estimated to be 4.5 Mt. This estimate is based on the existing pond elevation of 632 metre and a current maximum storage design elevation of 640 metre. Dam capacity will be adequate for three years at the proposed 1.5 Mt/a deposition rate. As of the second year after starting of The Feasibility Study project, it will be necessary to raise the main dam and to build two saddle dams.

The Feasibility Study includes capital for the tailings facility sufficient to achieve a capacity of 10.5 million tonnes.

Scoping level work in September 2003 by GEST established conceptual plans to further increase the tailings facility capacity to 29.4 million tonnes by constructing two more saddle dams at the existing pond area, and then in a subsequent stage, constructing a new dam downstream from the existing dam.

These conceptual plans are sufficient for this study since the mining schedules considered will generate approximately 22.6 million tonnes of tailings in total.

## **Environmental Licensing**

Environmental licensing in the State of Bahia is the responsibility of CEPRAM – State Council for the Environment and the CRA – Centre for Environmental Resources, responsible for executive functions and examining environmental studies and processes and issues technical opinions.

CEPRAM and CRA deliberate jointly on the approval of the Environmental License requested, in accordance with State Law n° 7.799 dated 07/02/2001, regulated by Decree n° 7.967 of 05/06/2001, and by several edicts and regulations.

The environmental licensing of metallic minerals and the metallurgy for precious metals is foreseen in the Regulations of Law 7.799, for which the following licenses are required:

- \* License of Location (LL): granted by CEPRAM at the preliminary planning stage of the enterprise, starting from the analysis of EIA— Environmental Impact Study, approving the location and conception, attesting the environmental viability and establishing the basic requirements and conditioning factors to be observed in the installation, operation and closure phases.
- \* Implementation License (LI): granted by CRA for project installation or work to be performed according to plans, programmes and projects duly approved by the PCA Plan for Environmental Control, including measures for control and environmental monitoring and the conditioning factors established in the previous stage. During this stage it will also be necessary to obtain the permit for removing vegetation.
- \* Operating License (LO): granted by the CRA for operating the enterprise after checking compliance with the terms of former licenses and the establishment of controlling measures and conditioning factors to be observed for the operation. The Operating License is renewed periodically according to its validity determined by the governing entity.

For the purposes of this study, SRK assumes that the 1000 tpd mill expansion will not require new licensing or an Environmental Impact Study.

## **Operating Costs**

#### Mine

Underground mine operating costs have been sourced from The Feasibility Study, while scoping level surface mining costs have been sourced from in the previous SRK report, "Morro do Vento Open Pit Assessment, December 2003".

Underground mining areas are all assigned the cost of US\$7.50 per tonne of mill feed from The Feasibility Study, except for Canavieiras, which has a higher estimated cost of US\$9.50 per tonne due to it's structural complexity compared to The Feasibility Study mining areas.

The 4200 tpd Extended Plan uses the same mning cost as The Feasibility Study.

Fixed and variable components of the mining cost were determined from The Feasibility Study so that the unit mining cost could be factored for the higher 5200 tpd rate.

## **Mineral Processing**

The 4200 tpd Extended Plan uses the same milling cost as The Feasibility Study, US\$4.70 per tonne.

For the 5200 tpd Extended Plan, SRK factored The Feasibility Study processing unit cost of US\$4.70 per tonne of mill feed. SRK obtained the details of The Feasibility Study processing cost estimate and factored the fixed and variable costs as appropriate to reflect a rate of 5200 tpd. The resulting unit cost was US\$4.50, only a small decrease because of very low labour costs in the fixed cost component. This cost has been applied to the 5200 tpd schedule.

#### **General and Administrative**

The general and administrative cost estimate of US\$0.69 per tonne from The Feasibility Study has been used in the 4200 tpd Extended Plan.

For the 5200 tpd Extended Plan, fixed and variable components of the mining cost were determined from The Feasibility Study so that the unit mining cost could be factored.

#### **Capital Costs**

#### Introduction

This section describes the capital cost estimates for the 4200 and 5200 tpd Extended Plans which both cover the mining and processing of 23 million tonnes of plant feed. The main sources of information for these capital estimates are:

- \* The Feasibility Study
- \* Previous SRK reports listed in section 1.1

- \* Reports provided by GEST
- \* Estimates of capitalized waste development provided by DSM
- \* SRK's own in-house estimates

All Extended Plan underground development in waste is capitalized at a rate of US\$1000 per meter. No contingency has been applied to capital estimates. Capital costs have been scheduled as appropriate throughout the Extended Plan period to support a simple cash flow analysis.

Due to the preliminary nature of much of the data used, and the level of detail developed by SRK, the accuracy of the capital costs range from scoping level (+/- 25%) to order-of-magnitude.

## **Feasibility Study Capital**

The Feasibility Study incorporated a total capital cost estimate of US\$37.8 million including a salvage value credit and mine closure costs. This is equivalent to US\$3.51 per tonne of mill feed. Refer to The Feasibility Study report for details.

#### **Extended Plan Capital**

The 4200 tpd Extended Plan has an estimated total capital cost of US\$89 million. This is equivalent to US\$3.92 per tonne of mill feed.

The 5200 tpd Extended Plan has an estimated total capital cost of US\$95 million as shown in Table 6. This is equivalent to US\$4.19 per tonne of mill feed. The difference between the two Extended Plans is due to an estimated US\$6 million for mill expansion. There are no other differences between the capital schedules other than the timing of the required expenditures.

Details of the 5200 tpd Extended Plan capital are provided in the following sections.

JACOBINA CAPITAL CO US\$ 000's	Feasibility Total	Extended Plan Total	
Feasibility Study Only		2004 - 2011	
Costs as Presented in The Feasibility Study	,		
Mine Capital	US\$ 000's	18,184	
Other Capital	US\$ 000's	15,673	
Mine Sustaining	US\$ 000's	2,275	
Other Sustaining	US\$ 000's	34	
Tailings Dam	US\$ 000's	852	
Salvage	US\$ 000's	-1,567	
Closure	US\$ 000's	2,309	
Feasibility Total Capital Cost	US\$ 000's	37,760	
Extended Plan			2004 - 2021
Adjusted Feasibility Study Costs			
Adjusted Feas. Study	US\$ 000's		37,760
Feasibility Mining Areas			
U/G Equipment Replacement	US\$ 000's		8,400
Exploration Dev,t	US\$ 000's		2,640
Exploration Drilling	US\$ 000's		2,720
Capital Waste Development	US\$ 000's		14,280
Itapicuru MVT Underground			
Exploration Dev,t & Drilling	US\$ 000's		500
Feasibility Study	US\$ 000's		200
Capital Waste Development	US\$ 000's		7,130
Allowance for slashing old drifts	US\$ 000's		500
Mine Capital	US\$ 000's		500
Closure	US\$ 000's		1,000
Canavieiras Underground	1100 0001		200
Exploration Dev,t	US\$ 000's		200
Exploration Drilling Feasibility Study	US\$ 000's US\$ 000's		630 200
Capital Waste Development	US\$ 000's US\$ 000's		4,250
Mine Capital	US\$ 000's		4,250 1,000
Closure	US\$ 000's		1,000
Tailings Dam	υυψ υυυ δ		1,000
For Extra Capacity	US\$ 000's		2,850
Mill Expansion	- +		-,000
Capital	US\$ 000's		6,000
Sustaining Capital			
Overall Allowance	US\$ 000's		2,900
Extended Plan Total Capital Cost	US\$ 000's		94,660

**Table 6: 5200 TPD Extended Plan Capital Cost Estimate** 

## **Adjusted Feasibility Study Costs**

The Feasibility Study capital costs have been incorporated into the Extended Plan except for changing the timing of salvage and mine closure from year 2011 to year 2019.

These capital costs are related to the tonnes mined according to The Feasibility Study in the mining areas of Joao Belo North, Itapicuru MCZ, and Serra do Corrego.

## **Feasibility Mining Areas**

In these mining areas, underground mining continues beyond the end of The Feasibility Study into the Extended Plan. These capital costs are related to the tonnes mined in the Extended Plan.

Provisions are included for underground equipment replacement.

Exploration development and drilling capital costs are based partly on DSM internal memo, "Proposed Underground Exploration Program at Jacobina, August 25, 2003", and partly on the application of the estimating factor US\$0.32 per tonne of inferred resources. This factor is based on experience at Jacobina in converting inferred resources to indicated resources.

Estimates of capital waste development were provided by DSM.

## Itapicuru MVT Underground

The Feasibility Study covered mining of the Itapicuru Basal Reef in the MCZ area (Morro do Cuscuz), but not in the Itapicuru MVT area (Morro do Vento).

This area requires exploration development and drilling to convert inferred resources to indicated resources. A capital estimate was made based on a previously established estimating factor of US\$0.32 per tonne of inferred resources to drill. Costs for undertaking a feasibility study are included. For Itapicuru MVT, and for the other mining areas described below, underground waste development has been estimated from conceptual mining plans shown on plans and cross sections. Some of the existing mine workings will be slashed out to larger dimensions, and a capital allowance is included for this work, which has not yet been detailed. An unspecified allowance of US\$0.5 million for mine capital is included for costs associated with re-opening Itapicuru MVT. Closure costs for Itapicuru MVT are estimated at US\$1.0 million based on The Feasibility Study.

## Canavieiras Underground

The Canavieiras Mine was not included in The Feasibility Study.

Exploration development and drilling capital costs are based on previous work by DSM. It is expected that a feasibility study would be completed to support the decision to re-open Canavieiras Mine. Quantities of waste development were estimated by DSM, and an allowance for slashing out existing drifts was added by SRK. Mine capital includes items such as electrical upgrade, access road upgrade, ventilation fans, small local maintenance shop, air compressors, ore stockpile pad, and mine water management. The closure cost is an estimate based on The Feasibility Study.

## **Tailings Dam**

Capital costs shown were developed in previous studies, and provide for a total storage capacity of 29.4 million tonnes which is more than enough.

## Mill Expansion

GEST estimated a capital cost of US\$43.4 million to expand the mill to 12,000 tpd capacity. This would be achieved by adding two additional SAG mills and creating three parallel lines.

SRK estimated a capital cost of US\$6 million for mill expansion to 5200 tpd. This estimate has not been verified by GEST.

## **Sustaining Capital**

The annual sustaining capital provided in The Feasibility Study has been projected into the period of the Extended Plans at similar annual rates.

#### **Economic Evaluation**

#### **Model Description**

The 4200 and 5200 tpd Extended Plans have been evaluated using a simple pre-tax cash flow model. The economic results are provided in terms of annual cash flows, net present values (NPV) at 5%, 7% and 10% discounting, and project internal rate of return (IRR).

The cash flow model includes the following assumptions:

- \* Extended Plans with a production ramp up period followed by steady production at the full rates of 4200 or 5200 tpd
- \* Mining of 23 million tonnes at an average grades of 2.51 g/t gold
- \* Metallurgical recovery of 96.5%
- \* A base case gold price of US\$375 per ounce
- \* Operating costs at full production of; underground mining US\$7.80/t (4200 tpd) and US\$7.40/t (5200 tpd), milling costs of US\$4.70/t (4200 tpd) and US\$4.60/t (5200 tpd), general and administration US\$0.69/t (4200 tpd) and US\$0.66/t (5200 tpd)
- \* Total Extended Plan capital costs of US\$89 million (4200 tpd) and US\$95 million (5200 tpd)
- \* US\$6 million for mill expansion to 5200 tpd

#### **Economic Results**

Table 7 shows the economic results at a gold price of US\$375/ounce. The 7000 tpd Extended Plan has slightly higher, but not significantly higher, net present values ("NPV") while the 4200 tpd Extended Plan has a significantly better internal rate of return ("IRR") of 60% versus 43% at the higher production rate.

Higher gold prices, above US\$375/ounce, favour the NPV's of the higher production rate. At a gold price of US\$400/ounce, for example, the difference in NPV values between the two versions becomes greater (NPV at 7% of US\$156 M versus \$164 M).

SRK's additional comments on the comparison at US\$375/ounce are:

- \* Operating costs are slightly higher at 4200 tpd because the milling unit cost is US\$0.20 per tonne higher.
- \* G & A unit costs have not been factored to reflect a true difference between the two versions. The 7000 tpd Extended Plan should have a slightly lower G & A cost.
- \* As previously noted, the main difference in capital costs is the mill expansion.

Jacobina Cash Flow Model Results		4200TPD	5200TPD
Total Mine Life	Years	15.8	13.1
Years at Full Production	Years	14.0	10.0
Total Mined Ounces	Au ounce	1,822,900	1,822,900
Total Recovered Ounces	Au ounce	1,758,500	1,758,500
Gold Price	US\$/ounce	\$375	\$375
Gross Revenue	US\$ millions	\$659	\$659
Operating Costs	US\$ millions	\$297	\$287
Total Capital Cost <sup>(1)</sup>	US\$ millions	\$89	\$95
Cumulative Cash Flow	US\$ millions	\$267	\$271
NPV (5%) <sup>(2)</sup>	US\$ millions	\$159	\$174
NPV (7%)	US\$ millions	\$132	\$147
NPV (10%)	US\$ millions	\$100	\$114
IRR ` ´	%	59%	55%
Average Mined Ounce/Year	ounce/year	121,000	154,100
Metallurgical Recovery	%	96.5%	96.5%
Cash Cost/Recovered Ounce	US\$/ounce	\$169	\$163
(1) Includes pre-production and sustaining capital, plus c (2) Pre-tax NPV and IRR values	losure and equipment salva	age	

**Table 7: Extended Plan Economic Comparison** 

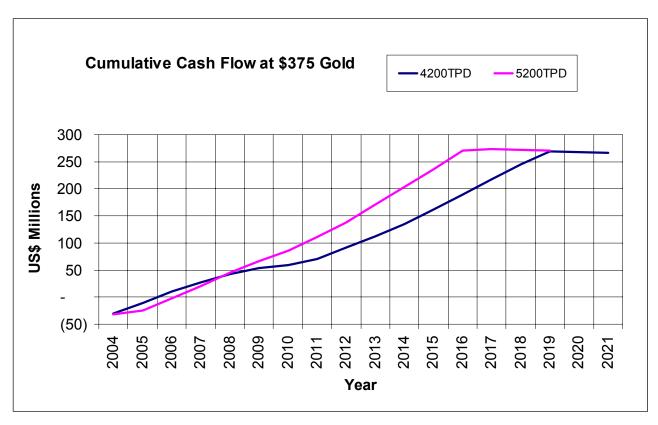


Figure 7: Cumulative Cash Flow Comparison

Figure 7 compares the cumulative cash flows between the two Extended Plans. It illustrates the one year longer payback period associated with the mill expansion in the 5200 tpd plan. More capital is at risk for approximately one year. It is not until year 2009 that the 5200 tpd cumulative cash flow surpasses the 4200 tpd cash flow.

At a higher gold price of US\$450/ounce, the shape of these two curves and their relationship to each other are very similar. The 5200 tpd cumulative cash flow surpasses the 4200 tpd cash flow one year earlier in 2008.

## **Project Sensitivity**

Gold Price Sensitivity Jacobina 5200TPD Extended Plan													
Gold Price	Price Change US\$/Oz	-20% 300	-10% 338	Base 375	+10% 413	+20% 450							
Cum. Cash Flow	US\$ millions	\$141	\$207	\$271	\$337	\$402							
NPV (5%) <sup>(1)</sup>	US\$ millions	\$83	\$129	\$174	\$220	\$264							
US\$ millions	US\$ millions	\$67	\$108	\$147	\$187	\$226							
US\$ millions	US\$ millions	\$49	\$82	\$114	\$148	\$180							
%	%	29%	42%	55%	68%	81%							
(1) Pre-tax NPV and IR	R values												

Table 8: Gold Price Sensitivity for 5200TPD Extended Plan

Table 8 shows how the 5200TPD economic parameters vary with changes in the price of gold.

## **Risks and Opportunities**

#### **Risks**

This study is based on mineral resources that include inferred resources. There is significant uncertainty as to their actual conversion to "mineable tonnes", and this could impact the results of this study.

The results of this current study depend on SRK's operating and capital costs estimates. These estimates are preliminary in nature, with an associated range of uncertainty that can affect the results of this study. Costs will be affected by changes in the exchange rate between the Brazilian Real and the US dollar. No contingency has been added to capital cost estimates.

The 5200 tpd Extended Plan involves more risk than the 4200 tpd Extended Plan because a higher production rate is required, more capital is required up front, the payback period is one year longer.

The specific activities required in 2004 and 2005 that are required to prepare Canavieiras for production in 2006 and Itapicuru MVT for production in 2007 have not been examined in detail, or carefully scheduled as part of this study. These activities include exploration development and exploration drilling, feasibility studies, capitalized waste development, and slashing out some of the existing drifts to larger dimensions. Also in 2005, mill expansion work will have to be started. Until these activities are fully defined and scheduled, there is a risk that the start up timing of these two mining areas may have to be adjusted. It is SRK's opinion that any such production schedule adjustments would not significantly change the results of this study.

#### **Opportunities**

There is an opportunity to achieve higher revenues than the base case gold price of US\$375/ounce used in this study. At the time of writing, the gold price is in the range of US\$410 to 415/ounce.

#### **Conclusions and Recommendations**

SRK makes the following conclusions:

- It is reasonable to expect that a 5200 tpd underground production rate can be reliably achieved at Jacobina, and this depends on the successful conversion of inferred resources to potentially "mineable tonnes"
- 2) The most significant physical differences between the 5200 tpd Extended Plan, and the 4200 tpd Extended Plan, are the higher annual gold ounce production, and the shortening of the mine life.
- 3) At a gold price of US\$375/ounce, net present values at 5% to 10% discounting are slightly higher for the 5200 tpd plan compared to the 4200 tpd plan, and at a gold price of US\$450/ounce the difference increases in favour of the higher production rate.
- 4) The 4200 tpd Extended Plan has a slightly better IRR than the 5200 tpd plan, 59% versus 55% at the base case gold price of US\$375/ounce.
- 5) The 5200 tpd Extended Plan has a slightly lower cash cost per ounce than the 4200 tpd plan, US\$163/ounce versus US\$169/ounce. Economies of scale related to the production increase are small because of relatively low fixed costs due to low labour costs.
- 6) The 5200 tpd Extended Plan involves slightly higher risk due to more capital being required initially, and a one year longer payback period. Also, it takes several years for the 5200 tpd cumulative cash flow to surpass that generated by the 4200 tpd plan.
- 7) It is SRK's opinion that it is reasonable for DSM to pursue a higher production rate at Jacobina, in the range of the 5200 tpd considered in this study. Such a decision depends on DSM's corporate objectives and risk tolerance, their outlook for the price of gold, and the availability and cost of capital.
- 8) If a higher Jacobina production rate is adopted as a goal of DSM, SRK recommends a feasibility study be completed to verify the economics.

#### **References**

SRK: Preliminary Financial Analysis of the Jacobina Property, Brazil, September 2002

Micon International Ltd: Review of the Exploration Potential of, and a Proposed Exploration Program for, the Jacobina Property, Bahia State, Brazil, February 2003

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SNC-Lavalin Engineers & Constructors (SNC-Lavalin), Dynatec Corporation and Micon International Ltd: Jacobina Mine Project, Brazil, Feasibility Study Report, September 2003.

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Engenharia e Consultoria Ltda, ("GEST"): Projecto Jacobina – Expansao De 4,200 TPD Para 12,000 TPD, Scoping Study, December 2003

# **Appendices**

## Appendix A

Projecto Jacobina – Expansao De 4,200 TPD Para 12,000 TPD, Scoping Study, December 2003

# **Appendix B: LoM Production Schedules**

4200 tpd Extended Plan 5200 tpd Extended Plan

	4200TPD	EXTENDE	ED																				
	P: 41:	[		FEASIBILITY PERIOD																			
easibility	Areas	Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Totals
asibility	Joao	Tonnes				1,080,00				1,080,00	912,00												7,476,86 ton
		Au g/t		2.05	2.18	2.34	2.16	2.16	2.05	1.73	2.10												2.10
asibility	Basal	Tonnes		72,458		288,00	288,00	288,00	288,00	288,00	504,00												2,304,45 tor
a aibilitu	0	Au g/t Tonnes		2.80	2.41	2.68	2.29	2.35	2.50	2.57	2.64												2.52
sibility	Serra do	Au g/t		32,240 2.36	144,00 2.77	144,00 2.33	144,00 2.77	144,00 1.63	144,00 1.69	144,00 1.81	69,000 1.76												965,24 to 2.14
Total	Feas	7.6.9.1		189.6	1,512.	1,512.	1,512.	1,512.	1,512.	1,512.	1,485.												10,747kt
easibility	Feas			2.39	2.28	2.40	2.24	2.15	2.10	1.90	2.27												2.19 gr
Quantity (	Grade <b>Additional</b>																						758,24 ou
	2.42 Joao Belo	kt										662.0	662.0	662.0	662.0	685.9	737.0	737.0	674.1				5,482
5,462	3000tp 1095kt/	NL										002.0	002.0	002.0	002.0	000.9	737.0	131.0	074.1				5,462 - -
376	2.27 Itapic Basal	kt										80.0	80.0	80.0	80.0	56.1							376
	800tpd 292kt/																						- -
2,055	3.17 Itapicuru	kt										255.0	255.0	255.0	255.0	255.0	260.0	260.0	260.0				2,055
	700tpd 256kt/																						<u>-</u>
1,057	2.51 Serra do 410tpd 150kt/	kt										150.0	150.0	150.0	150.0	150.0	150.0	150.0	6.9				1,057 -
2,898	3.38 Canavieira	kt									27	365	365	365	365	365	365	365	316.5				2,899
	1000tp 365kt/																						- 
tal For A	Additional Areas																						-
1,868.5	kt	kt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0	1,512.0	1,512.0	1,512.0	1,512.0	1,512.0	1,512.0	1,512.0	1,257.5	0.0	0.0	0.0	11,868. kt
2.790 A	Au g/t	Au g/t	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	2.78	2.78	2.78	2.78	2.78	2.79	2.79	2.82	0.00	0.00	0.00	2.790 Gı
		Au Ounce	-	-	-	-	-	-	-	-	2,935	135,225	135,225	135,225	135,225	135,340	135,729	135,729	113,997	-	-	-	1,064,63 Ou
0		m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0		m m	0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	0	0	0 0	0	0 0	0	0	
				-	-	-		-	-		-				-					-			
cobina G	Grand Total	kt		189.6	2 1,512.0	3 1,512.0	4 1,512.0	5 1,512.0	6 1,512.0	7 1,512.0	8 1,512.0	9 1,512.0	10 1,512.0	11 1,512.0	12 1,512.0	13 1,512.0	14 1,512.0	15 1,512.0	16 1,257.5	17	18	19	22 64 514
		Au g/t		2.39	2.28	2.40	2.24	2.15	2.10	1,512.0	2.29	2.78	2.78	2.78	2.78	2.78	2.79	2.79	2.82		_		22,615kt 2.51 Gr
		Au Ounce		14,562	110,835	116,854	109,030	104,307	102,154	92,247	111,193	135,225	135,225	135,225	135,225	135,340	135,729	135,729	113,997	_	_	_	1,822,87 Ot
	Underground Fe			190	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,258	-	_	-	22,615
	Open Pit Feed	kt		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	,
	Canavieiras rati	0		-	-	-	-	-	-	-	0.02	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.25	-	-	-	22,615 che
	Tonnes per day Target Tonnes Difference	Target			4142 1,512.0 -	4142 1,512.0 -	4142 1,512.0 -	4142 1,512.0 -	4142 1,512.0 -	4142 1,512.0 -	1,512.0 -	1,512.0 -	1,512.0 -	1,512.0 -	1,512.0 -	1,512.0 -	1,512.0 -	1,512.0			1,512.0 (1,512.0)		
				First Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	0.8				
				LIIPI LEGI,		2	3	4	5	Ö	/	0	9	10		12	13	14	0.0				

15 year ounces Average/year 1,694,318 121,000

		5200TPD EX	XTENDE	D PLAN																	
							FEAS	SIBILITY PE	RIOD												
Feasibilit	у		Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Totals
Feasibility		Joao Belo	Tonnes Au g/t		84,864 2.05	1,080,000 2.18	1,080,000 2.34	1,080,000 2.16	1,080,000 2.16	1,080,000 2.05	1,080,000 1.73	912,000 2.10									7,476,864 tonnes 2.10
Feasibility		Basal Reef	Tonnes		72,458	288,000	288,000	288,000	288,000	288,000	288,000	504,000									2,304,458 tonnes
Feasibility		Serra do Correg	1 1		2.80 32,240 2.36	2.41 144,000	2.68 144,000 2.33	2.29 144,000 2.77	2.35 144,000 1.63	2.50 144,000 1.69	2.57 144,000	2.64 69,000 1.76									2.52 965,240 tonnes 2.14
Total		Feas KTonnes	Au g/t		189.6	2.77 1,512.0	1,512.0	1,512.0	1,512.0	1,512.0	1.81 1,512.0	1,485.0									2.14 10,747 ktonnes
Feasibility		Feas Grade			2.39	2.28	2.40	2.24	2.15	2.10	1.90	2.27									2.19 grade
Quantity	Grade	Additional Area	as																		758,247 ounce
5,482	2.42	Joao Belo North 3000tpd 1095kt/a	n kt										1,095.0	1,095.0	1,095.0	1,095.0	1,102.0				5,482
376	2.27	Itapic Basal MC 800tpd 292kt/a	Z kt										78.0	78.0	78.0	78.0	64.1				376
2,055	3.17	Itapicuru MVT 700tpd 256kt/a	kt					130	156	156	156	183	255.0	255.0	255.0	255.0	254.0				2,055
1,057	2.51	Serra do Correg 410tpd 150kt/a	go kt										150.0	150.0	150.0	150.0	235.4	221.5			1,057
2,898	3.38		kt				200	256	230	230	230	230	320	320	320	320	242.5				2,899 - -
Total For	Addi	tional																			-
11,868.5 2.790	kt Au g/t	t	kt Au g/t Au Ounce	0.0	0.0	0.0 0.00	200.0 3.38 21,742	386.0 3.31 41,075	386.0 3.30 40,898	386.0 3.30 40,898	386.0 3.30 40,898	413.0 3.29 43,649	1,898.0 2.69 163,936	1,898.0 2.69 163,936	1,898.0 2.69 163,936	1,898.0 2.69 163,936	1,898.0 2.65 161,836	221.5 2.51 17,889	0.0	0.0 0.00	11,868.5 kt 2.790 Grade 1,064,631 Ounce
0			m m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	COT_CUTICE
0			m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Jacobina	Gran	nd			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
_ , .			<mark>kt</mark> Au g/t		189.6 2.39	1,512.0 2.28	1,712.0 2.52	1,898.0 2.46	1,898.0 2.38	1,898.0 2.34	1,898.0 2.18	1,898.0 2.49	1,898.0 2.69	1,898.0 2.69	1,898.0 2.69	1,898.0 2.69	1,898.0 2.65	221.5 2.51	-	-	22,615 kt 2.51 Grade
			Au Ounce		14,562	110,835	138,596	150,105	145,205	143,053	133,145	151,907	163,936	163,936	163,936	163,936	161,836	17,889	-	-	1,822,878 Ounces
		Underground Fee Open Pit Feed Canavieiras ratio	d kt kt		190 - -	1,512 - -	1,712 - 0.12	1,898 - 0.13	1,898 - 0.12	1,898 - 0.12	1,898 - 0.12	1,898 - 0.12	1,898 - 0.17	1,898 - 0.17	1,898 - 0.17	1,898 - 0.17	1,898 - 0.13	222 - -	- - -	- - -	22,615 - 22,615 check
		Tonnes per day T Target Tonnes Difference	arget			4142 1,512.0 -	4700 1,715.5 (3.5)	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 -	5200 1,898.0 (1,676.5)	5200 1,898.0 (1,898.0)	5200 1,898.0 (1,898.0)	
				I	First Year			1 Full production	2 n at 5200tpd	3	4	5	6	7	8	9	10	0.1			

## **SIGNATURE**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Form 6-K to be signed on its behalf by the undersigned, thereunto duly authorized.

<u>Desert Sun Mining Corp. -- SEC File No. 000-29610</u> (Registrant)

Date: March 22, 2004 By /s/ Stan Bharti

Stan Bharti, President/CEO/Director