

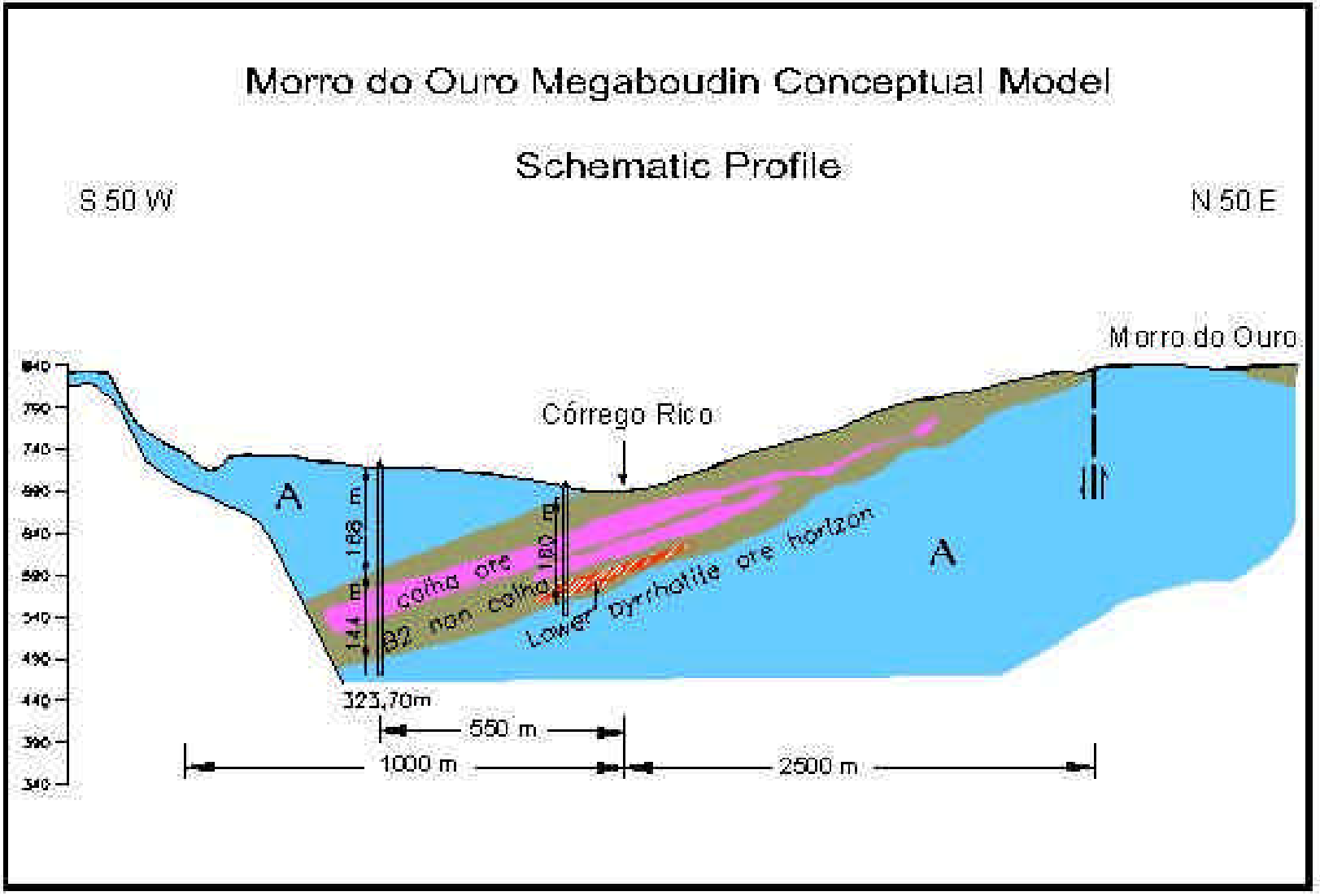
RIO PARACATU MINERAÇÃO S.A.
MORRO DO OURO
GOLD MINE

EXPANSION PROJECT
III

March 2005

EXPANSION BACKGROUND

MORRO DO OURO GOLD MINE



RPM CHALLENGES AND OPPORTUNITIES

- CHALLENGE:

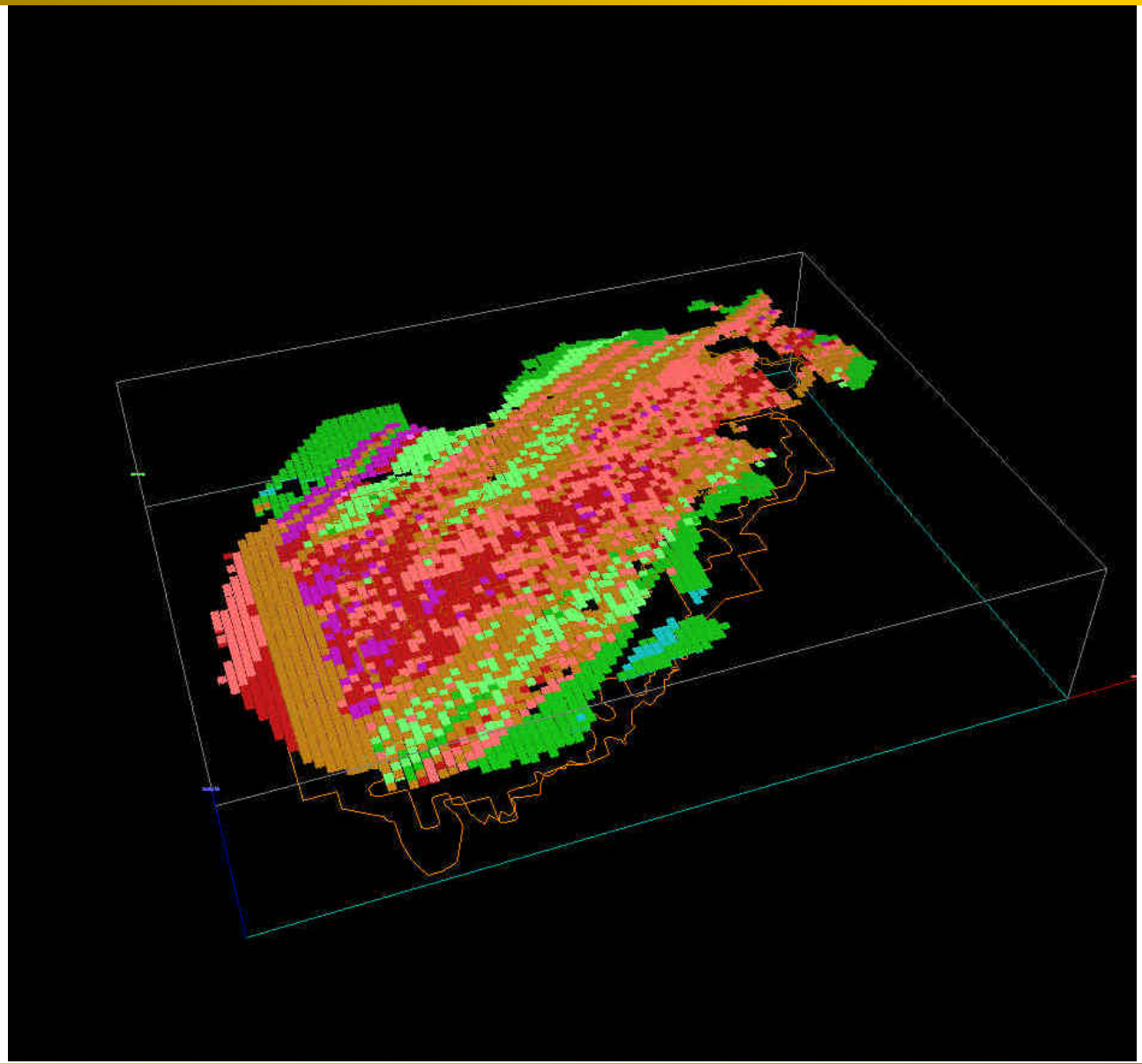
  - Increase in Ore Hardness (WI) as mining proceeds to deeper levels, leading to lower plant throughput and therefore lower gold production

- OPPORTUNITIES:

  - Increase in scale and process optimization can maximize NPV by:
    - diluting fixed costs
    - lowering variable costs
    - increasing gold recovery
    - turning resources into ore reserves

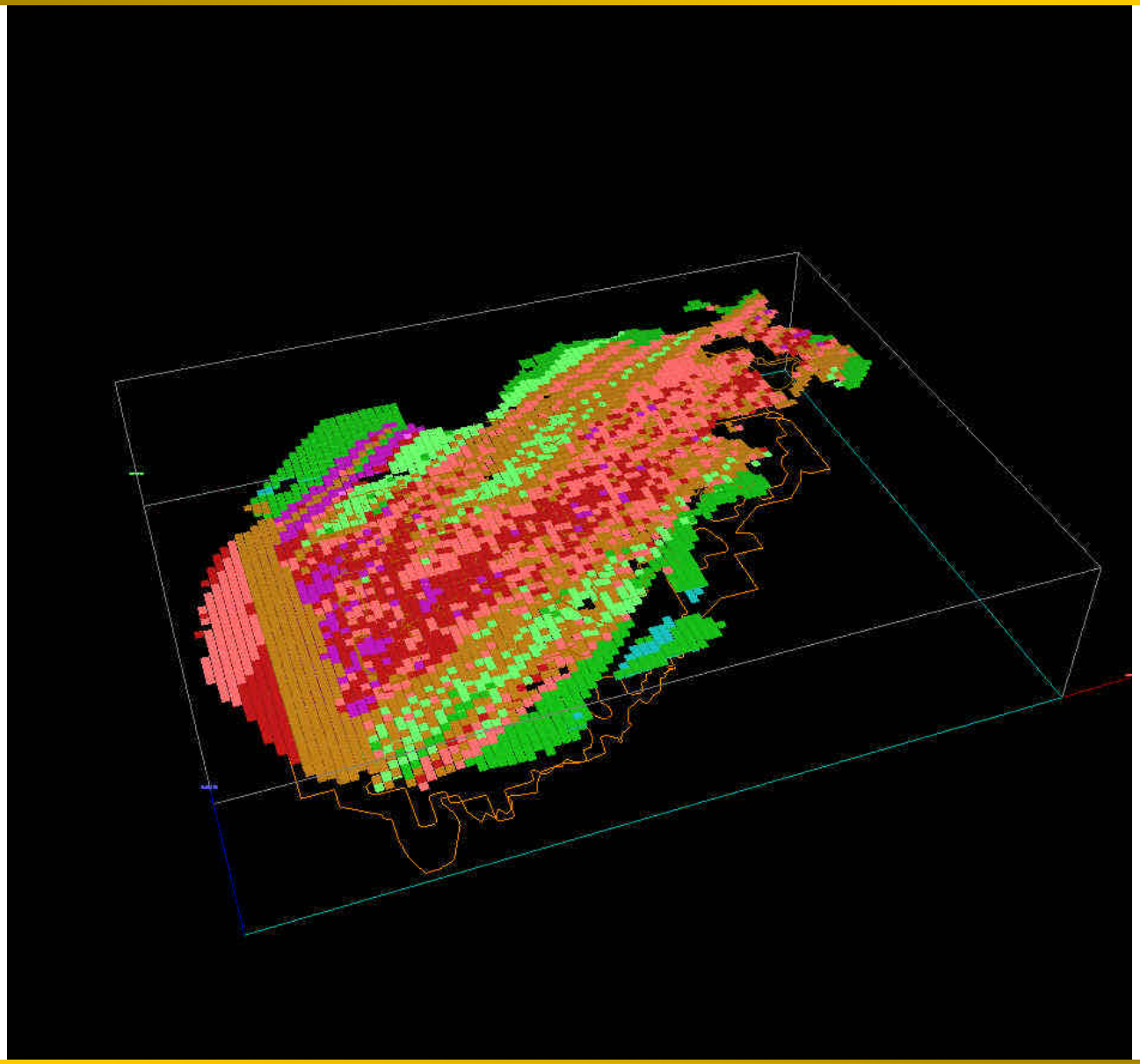
MORRO DO OURO GOLD MINE

US$ 350/oz



MORRO DO OURO GOLD MINE

US$ 375/oz



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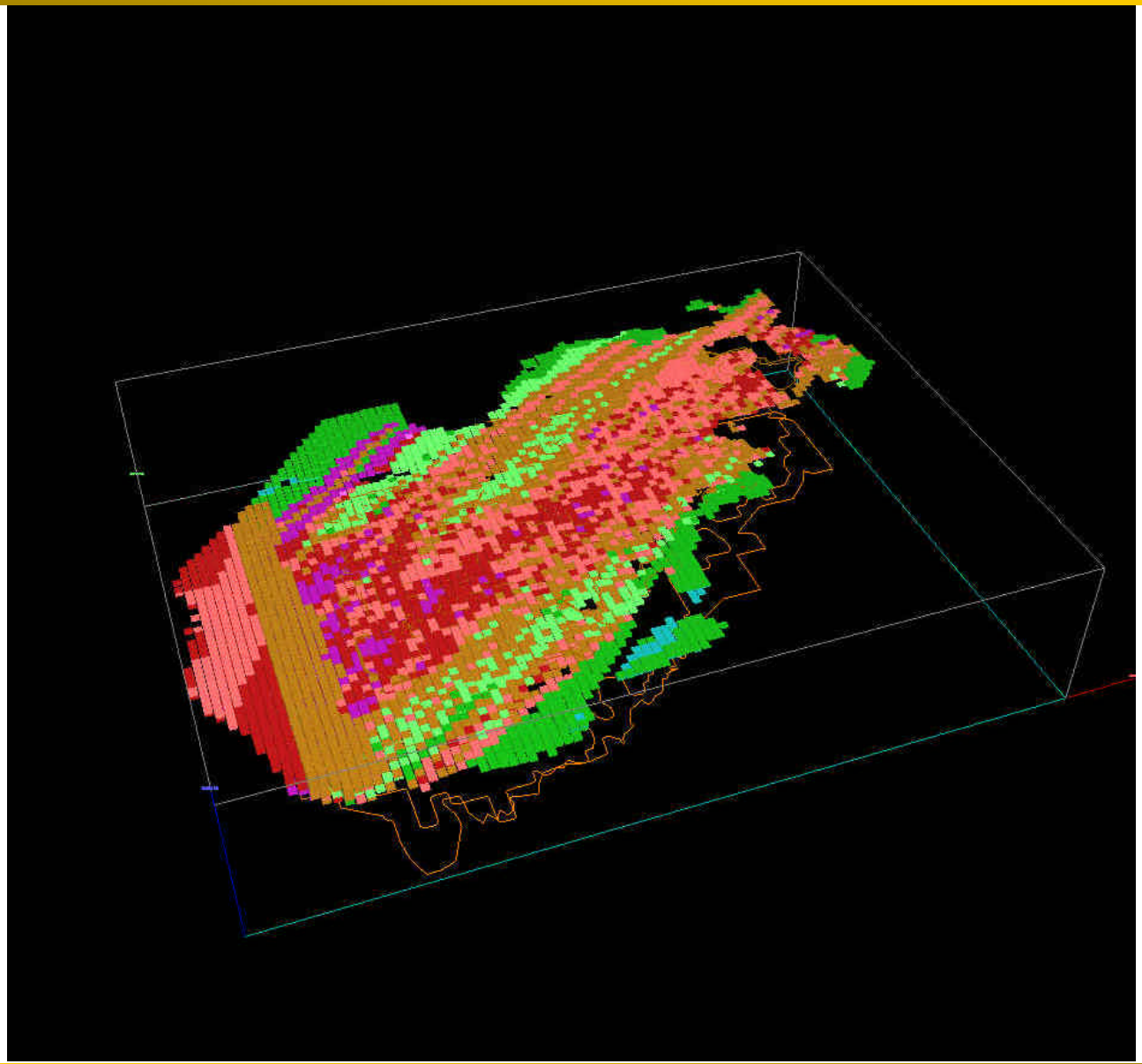
US$ 400/oz



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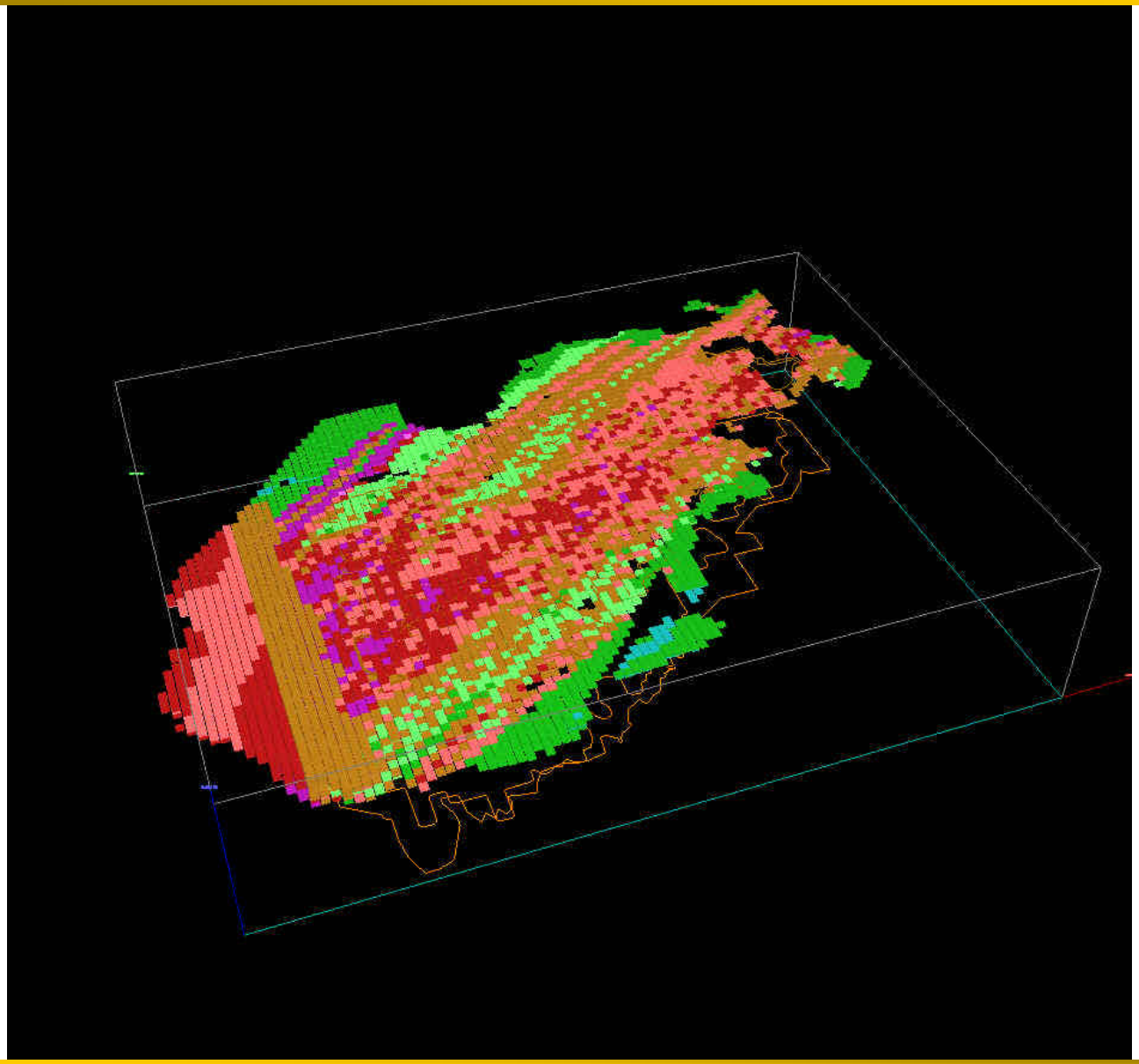
US$ 425/oz



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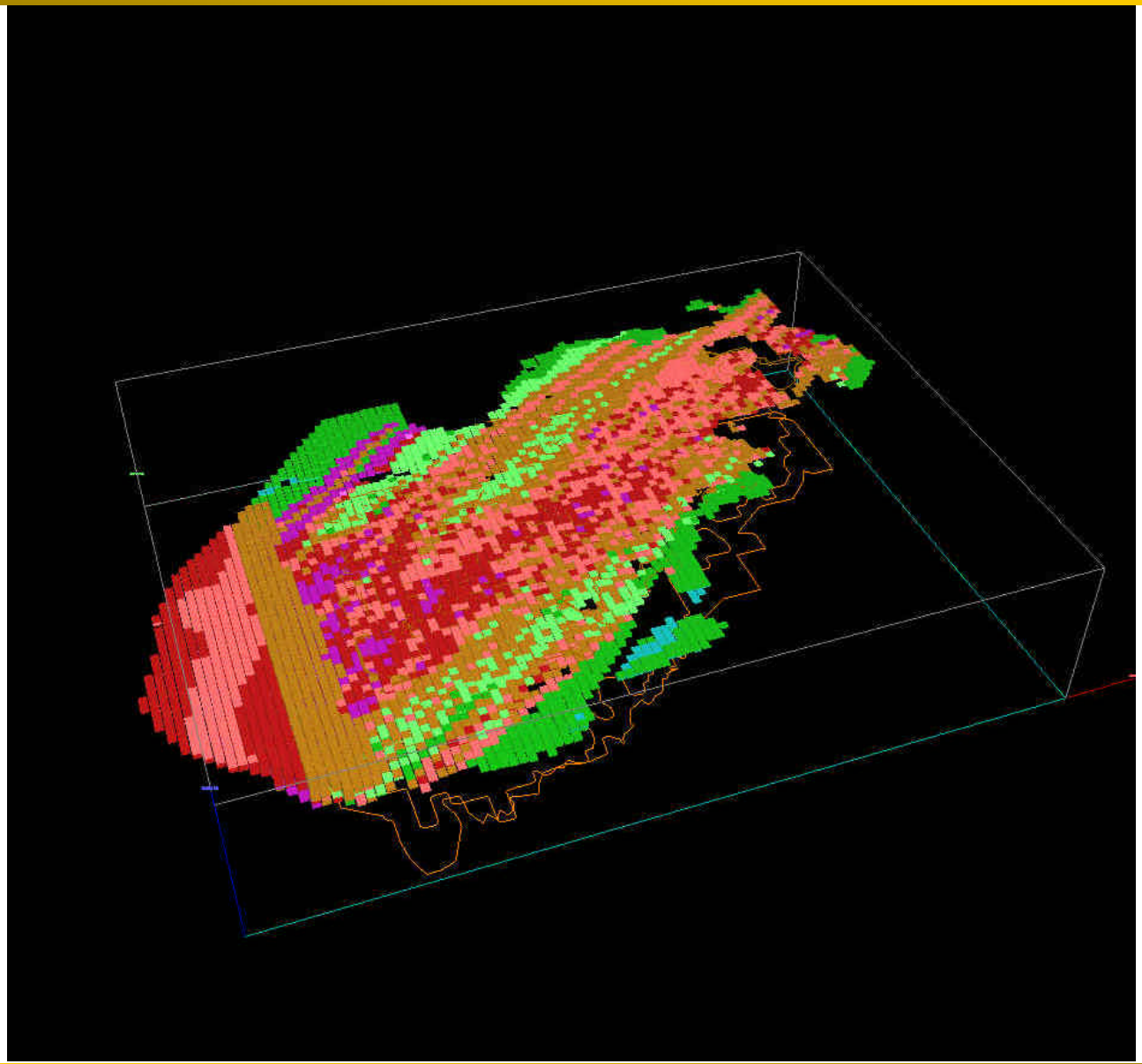
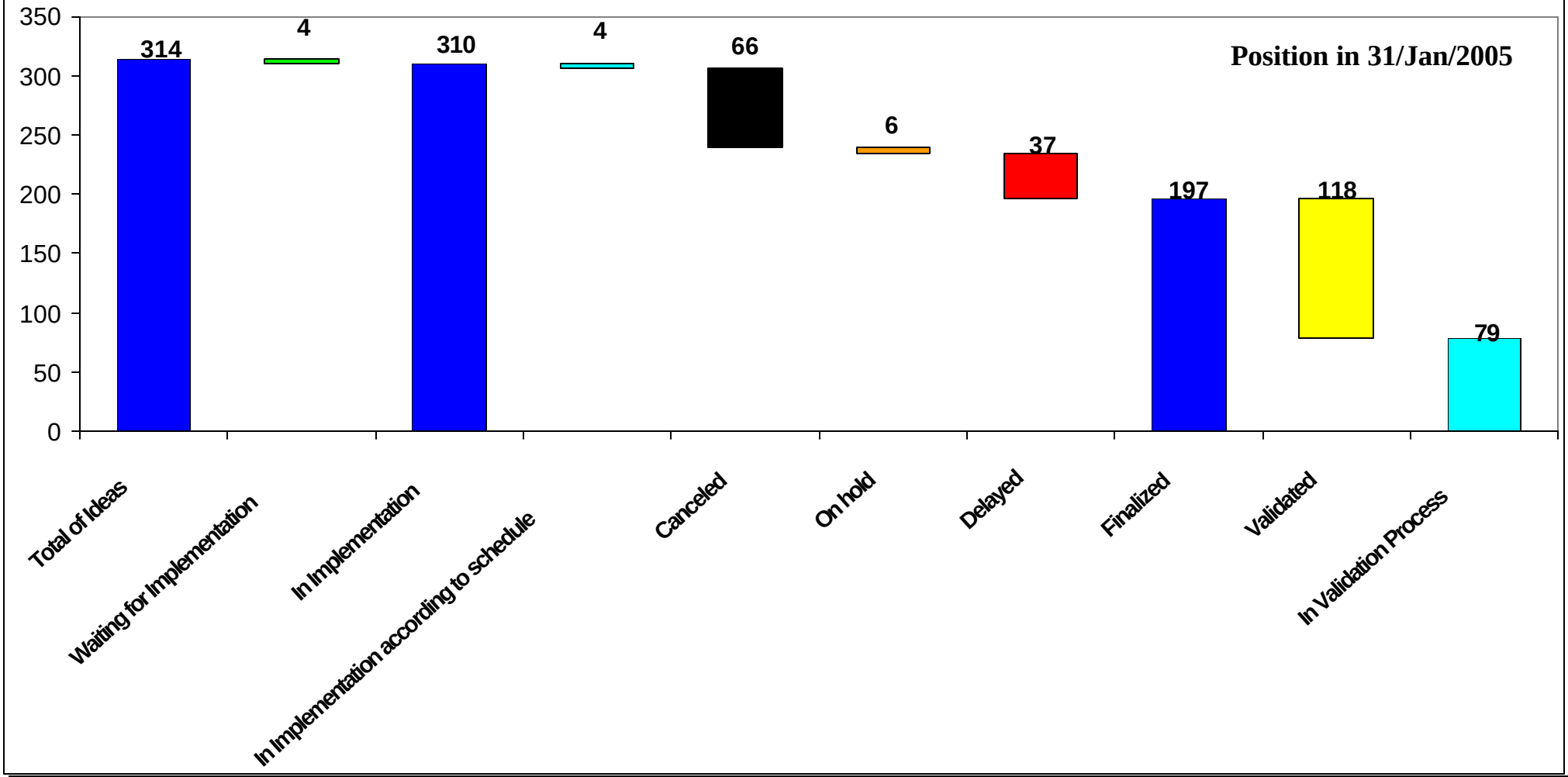
US$ 450/oz



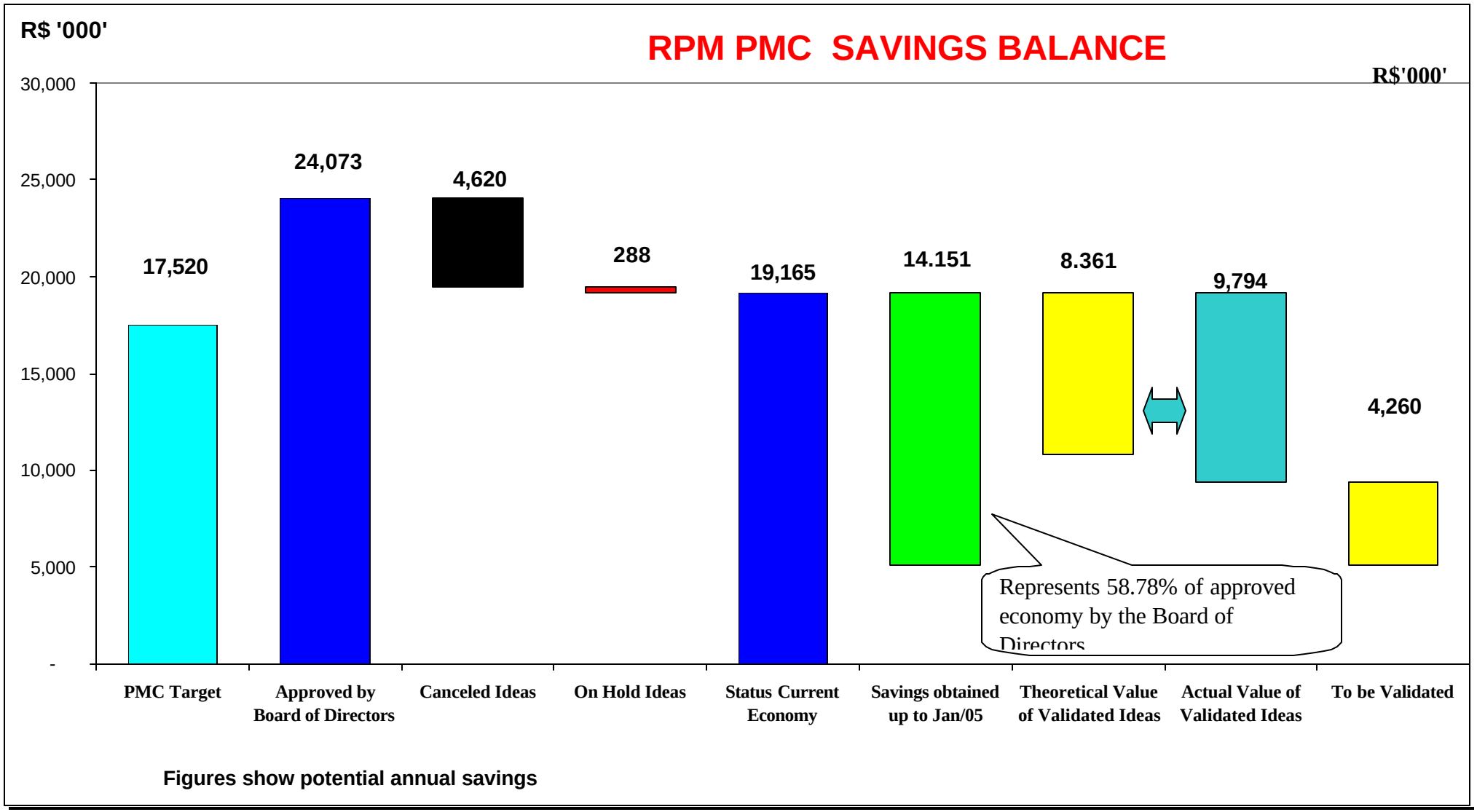
RPM CONTINUOS IMPROVEMENT PROGRAM

MORRO DO OURO GOLD MINE

RPM PMC IDEAS - Summary

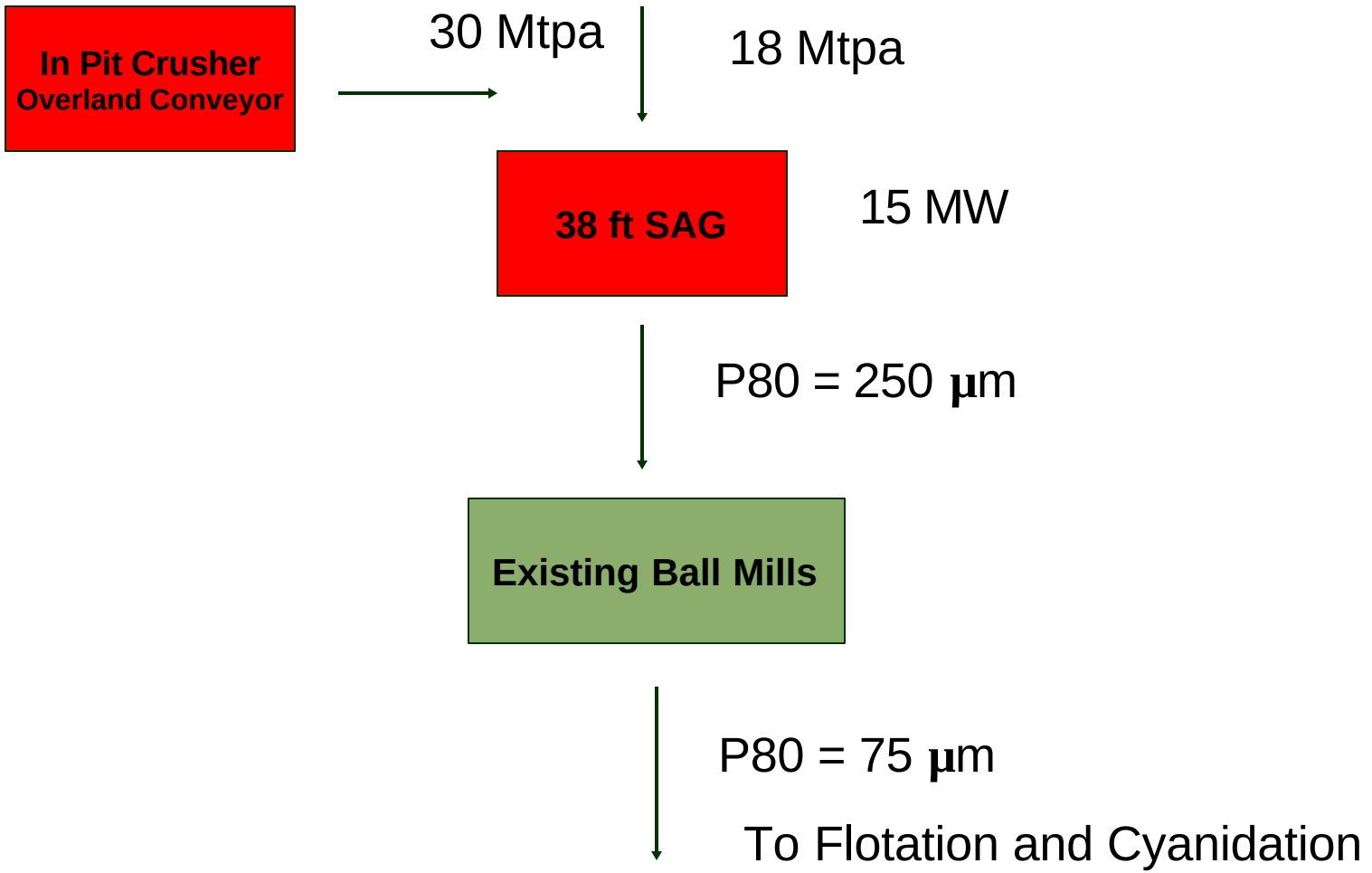


MORRO DO OURO GOLD MINE



OPTIONS FOR INCREASING IN SCALE

ADDITION OF GRINDING CAPACITY



MORRO DO OURO GOLD MINE

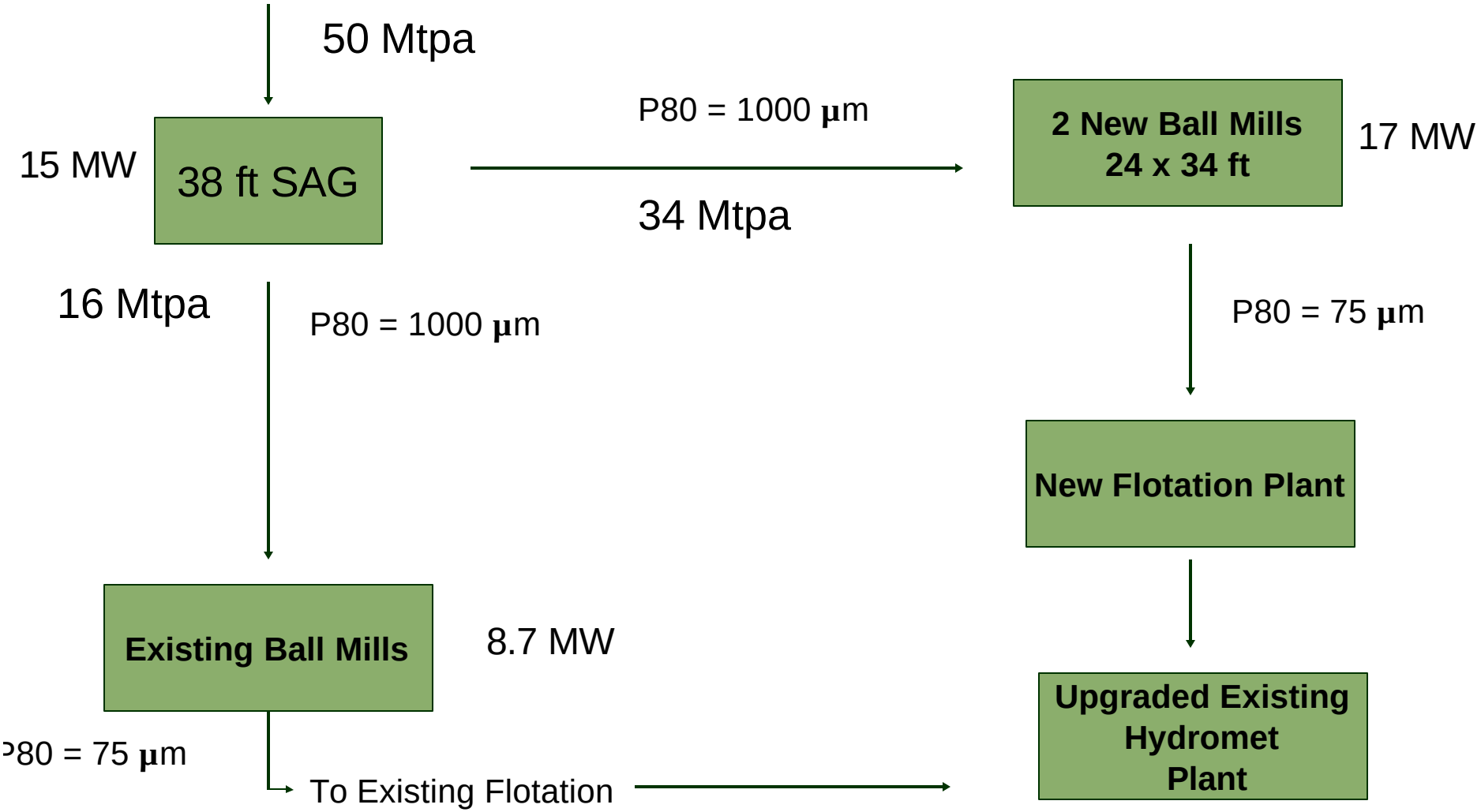
Results

Year	2007	2008	2009	2010	2011
Total Ore Processed (ton 000)	22,272	28,516	30,046	30,046	23,901
Wi Blend (kWh/t)	6.30	8.44	7.23	8.19	9.75
Total Oper. Cost (US$/ton)	2.11	2.17	2.02	2.06	2.46
Total Oper. Cost (US$/oz.)	181	179	178	162	192
Total Gold Production (kg)	8,074	10,777	10,601	11,880	9,544
Total Gold Production (oz)	259,574	346,497	340,845	381,941	306,846

PLANT CAPACITY STUDY

MORRO DO OURO GOLD MINE

STAGED ADDITION OF GRINDING CAPACITY



ADDITION OF GRINDING CAPACITY

30 Mtpa

38 ft SAG

15 MW

P80 = 250 µm

Existing Ball Mills

P80 = 75 µm

To Existing Flotation and Cyanidation

> 20 Mtpa

New SAG

New Ball Mills

New Flotation and Hydromet Plant

Advantages

- NO INTERFERENCE WITH ON GOING PRODUCTION
- CAN BE IMPLEMENTED IN STAGES WITH NO DELAYS ON CURRENT PLAN

Critical Issue

- LICENSING FOR PUMPING EXTRA MAKE UP WATER FROM NEARBY RIVERS

PROJECT LICENSING

Environmental Licensing And Implementation

- STAGE 1: Grinding Expansion (38´Sag Installation)
  - Required Installation And Operation Licenses (LI was Granted In February 2004, While LO To Be Granted In April 2007)
  - No EIS Study Required as no major environmental impacts were credited for going from 18 to 30 Mtpy, considering mining of ore that was above the wate table level

MORRO DO OURO GOLD MINE

LICENÇA DE INSTALAÇÃO

GOVERNO DO ESTADO DE MINAS GERAIS
SECRETARIA DE ESTADO DE MEIO AMBIENTE E DESENVOLVIMENTO SUSTENTÁVEL
CONSELHO ESTADUAL DE POLÍTICA AMBIENTAL

feam
FUNDAÇÃO ESTADUAL DO MEIO AMBIENTE

CERTIFICADO Nº 035 **VALIDADE:** 11 / 02 / 2008

LICENÇA AMBIENTAL

O Conselho Estadual de Política Ambiental - COPAM, através de seu órgão seccional, Fundação Estadual do Meio Ambiente, nos termos do art. 4º, inciso VIII, da Lei 12.585, de 17 de julho de 1997 e do art. 33, § 1º, alínea "f" do Decreto 43.278, de 22 de abril de 2003 e com base no artigo 9º do Decreto 39.424, de 05 de fevereiro de 1998 concede à **RIO PARACATU MINERAÇÃO S/A - RPM (RIO TINTO BRASIL LTDA – RTZ), Licença de Instalação,** para expansão da planta de hidrometalurgia e beneficiamento , autorizando o início da implantação, de acordo com as especificações constantes dos planos, programas e projetos aprovados, incluindo as medidas de controle ambiental e demais condicionantes a serem atendidas nas próximas fases de sua implementação, no município de Paracatu, no Estado de Minas Gerais, conforme processo administrativo de n.º 099/1985/028/2003.

[X] Sem condicionantes

[ ] Com condicionantes
(válida somente acompanhado das condicionantes anexas)
A concessão da licença deverá atender ao art. 6º da DN COPAM 13/95, sob pena de revogação da mesma.

Esta licença não autoriza a operação do empreendimento, bem como não dispensa nem substitui a obtenção, pelo requerente, de certidões, alvarás, licenças e autorizações, de qualquer natureza, exigidos pela legislação federal, estadual e municipal.

Belo Horizonte, 11 de fevereiro de 2004.

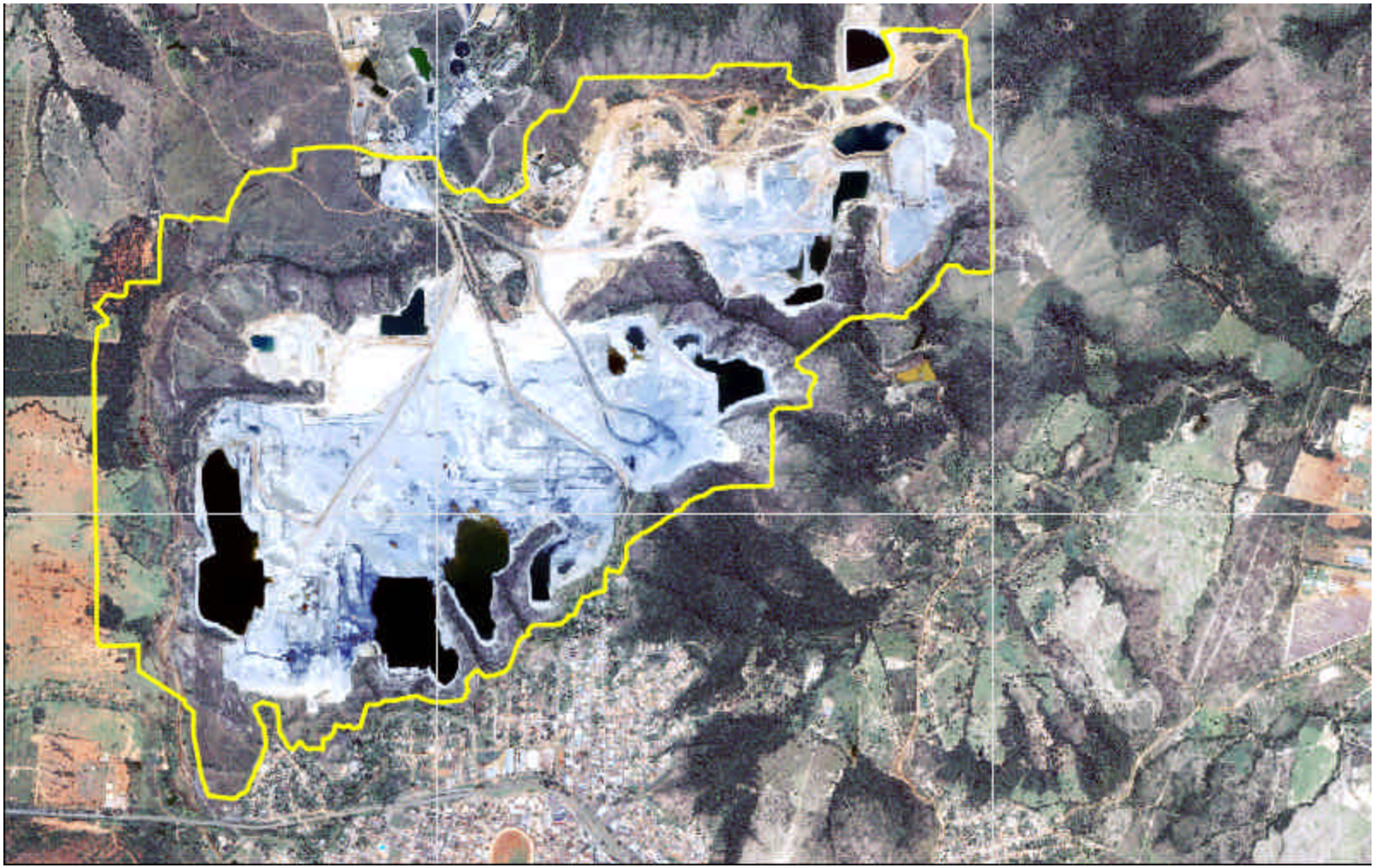
ILMAR BASTOS SANTOS
Presidente da FEAM

R

Environmental Licensing And Implementation

- STAGE 2: Mining Of Reserves Below The 692 Level and Western Rico Creek Area
  - Required Previous (LP), Installation (LI) And Operation Licenses (LO)
  - Required EIA to be conducted

MORRO DO OURO GOLD MINE



Córrego Rico Bedrock Deviation

Environmental Licensing And Implementation

- Time Schedule For Stage 2
  - EIA/RIMA Preparation: finalized
  - EIA/RIMA Discussion With FEAM: Nov 2004 To June 2005
  - Previous License Granted: July 2005
  - Basic And Detailed Engineering: Jan 2005 - June 2005
  - PCA and RCA preparation: Apr 2005- Jun 2005
  - Installation License Granted: Dec 2005
  - Implementation Water Table Lowering and Creek Deviation: Jan To Dec 2006
  - Operation License Granted: up to Jan 2007
  - Start Up mining of – 692 level reserves: Jan 2007

PROJECT IMPLEMENTATION SCHEDULE

MORRO DO OURO GOLD MINE

- Start Basic Engineering: May 2005
- Undertake Plant Capacity Study: February to June 2005
- Define Strategy for Future Expansions: June 2005
- Complete Cost Estimate and Request Approval for Major Equipment: October 2005
- Complete Definite Cost Estimate and Request Approval for Balance of Funds: November 2005
- SAG Mill Acquisition and Manufacture: July 2005 to November 2006

MORRO DO OURO GOLD MINE

- Main Subestation: November 2005 to September 2006
- Crushing Plant and Overland conveyor: August 2005 to December 2006
- Previous License to Mine Below Water Table: July 2005
- Installation License to Mine Below Water Table: Dec 2005
- Project Start up: July 2007

Thank you

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RIO PARACATU MINERAÇÃO S.A.

MORRO DO OURO GOLD MINE

2005

MORRO DO OURO GOLD MINE

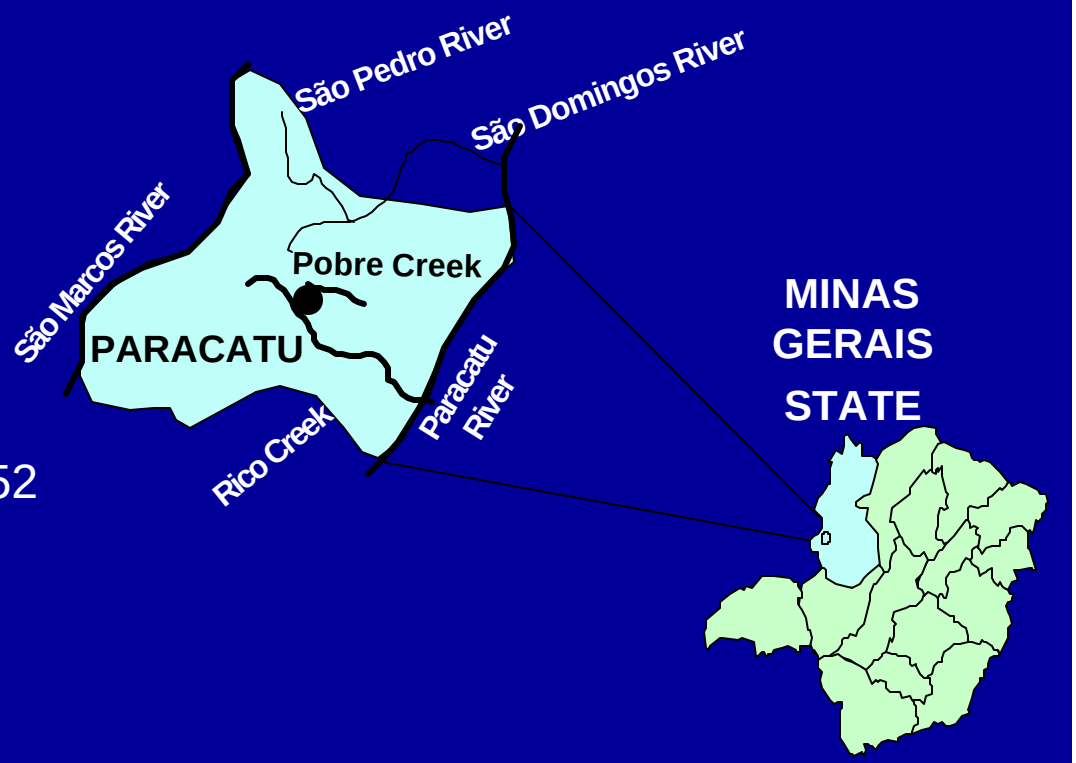
PARACATU REGION

POPULATION

TOTAL	75,200
URBAN ZONE	63,000
HOSPITALS	02
COLLEGES	04

ELEMENTARY AND HIGH SCHOOLS : 52

TECHNICAL SCHOOL : 02



ECONOMY :

MINERALS: GOLD, LIMESTONE, ZINC AND LEAD

AGRICULTURAL PRODUCTS.: SOY BEAN, CORN, BEANS, FRUITS, COTTON, CATTLE RAISING : MILK AND MEAT.

MORRO DO OURO GOLD MINE

MINE DEVELOPMENT HIGHLIGHTS

1980 - RTZ Mineração begins exploration for gold

1985 - RPM is registered as a gold mining company

1986 - RPM is granted the mining licence

1987 - Start up of operations - First bullion produced (December)

1992 - Start up of the Optimisation project

1996 - February - Start up of the mine fleet

1997 - June - Start up of the expansion project

1997 - October - Start up of the B2 ore mining

1999 - September - Start up of the 5th Mill

2002 – SAG Mill Pilot Plant Testwork

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CAPITAL COSTS
(Historical US$M up to December 2004)

	ACTUAL
EXPLORATION - 1980 to 1985	7.0
CONSTRUCTION PHASE – 1986/19887	65.0
OPTIMIZATION PROJECT – 1991/1992	18.3
MINING EQUIPMENT - 1995/1996	14.3
EXPANSION PROJECT - 1996/1998	47.3
5th Mill – 1999/2000	6.2
OTHER – 1988 to 2004	57,2
TOTAL	206.9

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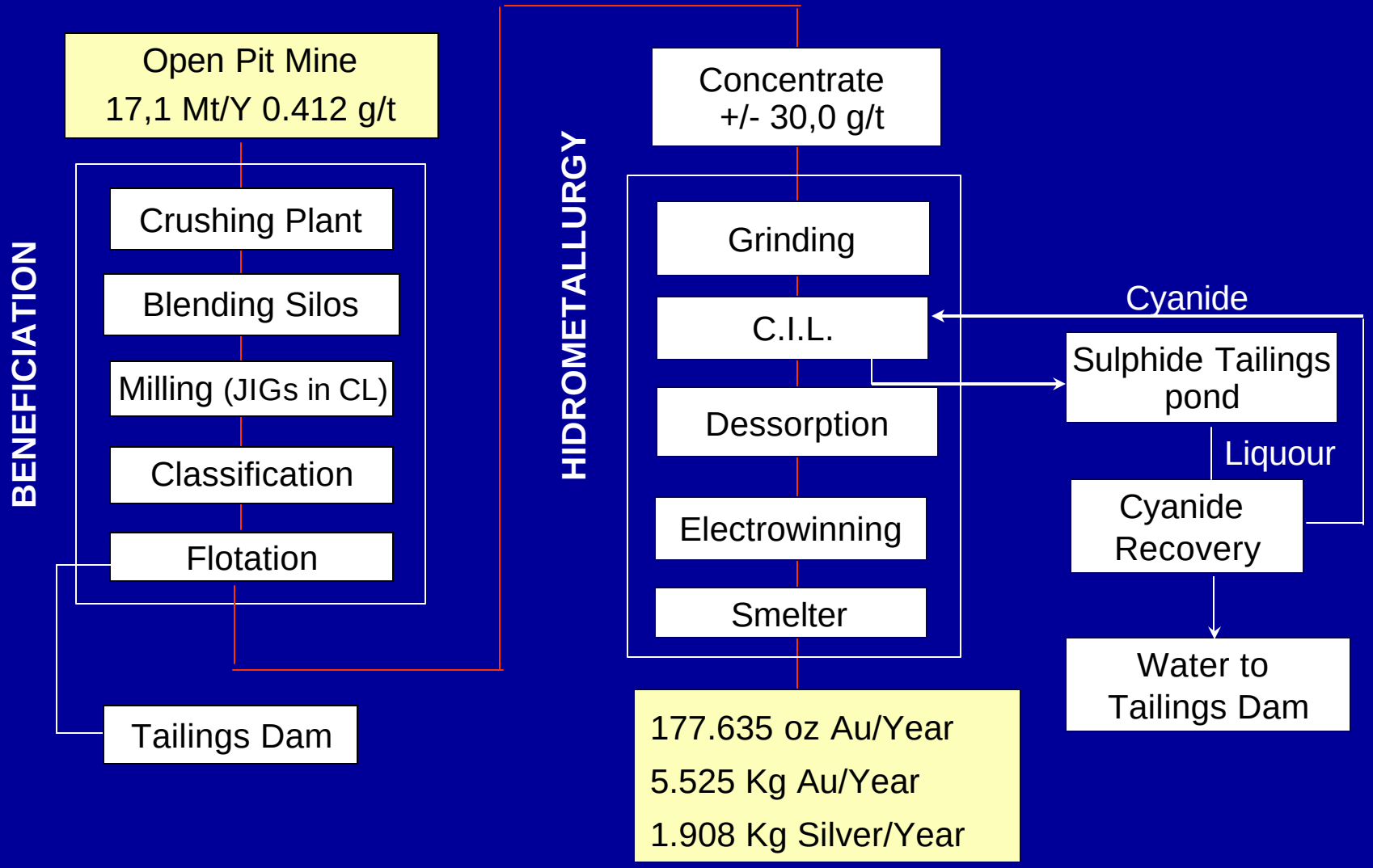
SIMPLIFIED FLOWSHEET



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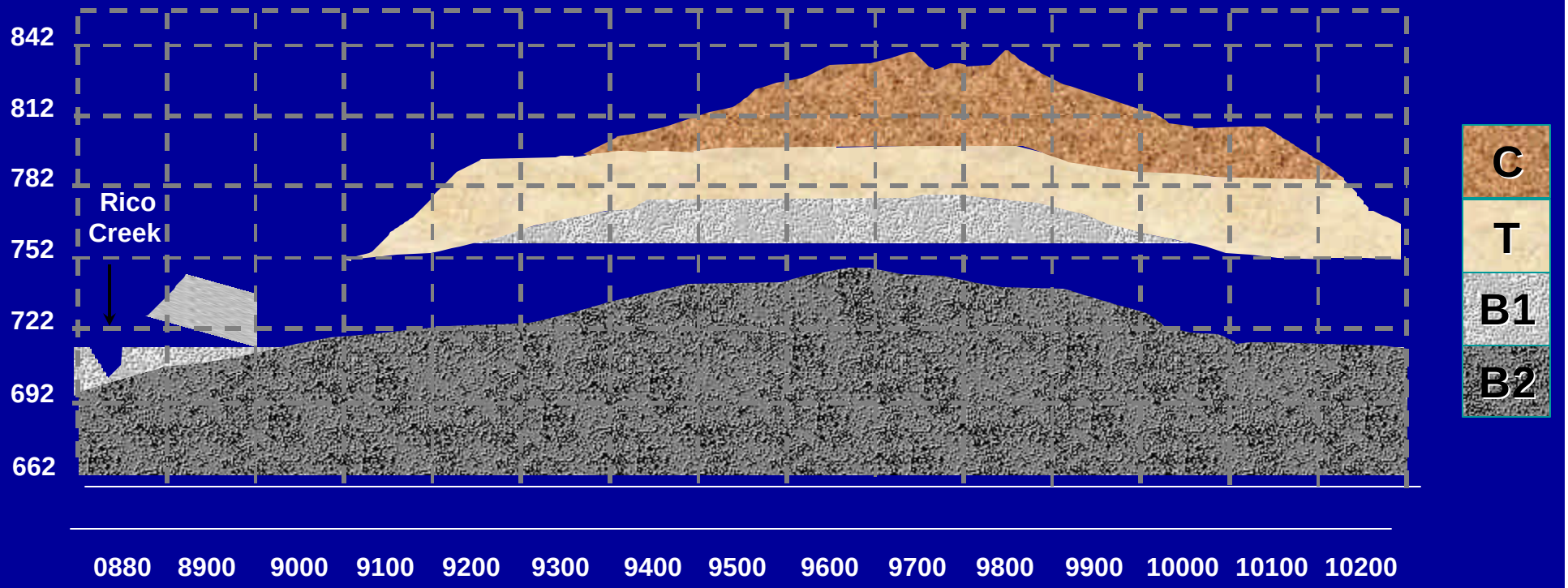
RESERVES



MORRO DO OURO GOLD MINE

GEOLOGIC PROFILE OF THE MINE



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ORE RESERVES

US$ 350/oz

	1985		2004	
ORE	Mt.	Grade (g) Au/t	Mt.	Grade (g) Au/t
CT	97.6	0.58		
B1			96.3	0,35
B2			508.1	0,42
Total	97.6	0.58	604.4	0,41

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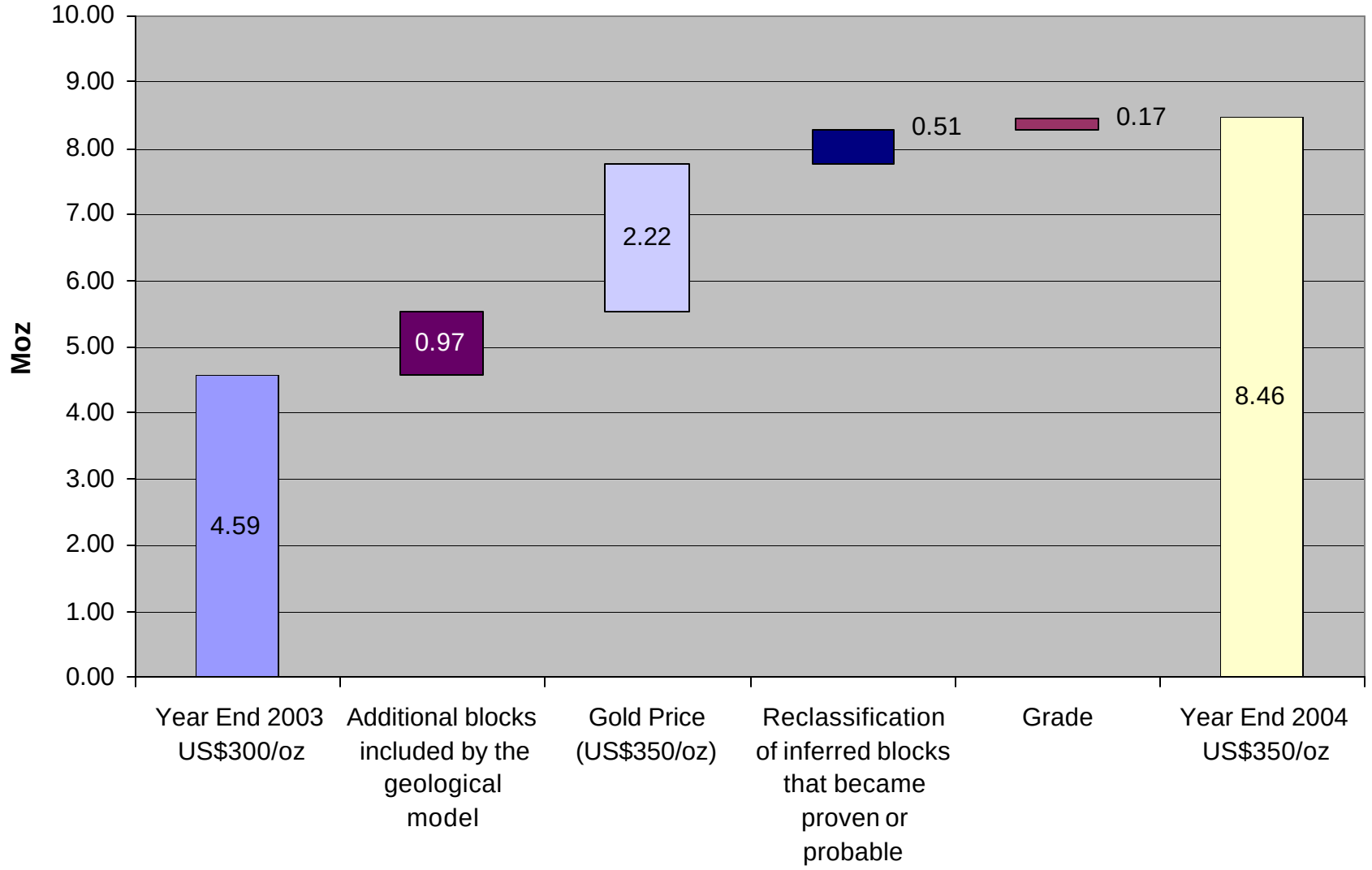
Justification for increase in Gold content – Reserve statement year end 2004



MANPOWER ORGANISATION



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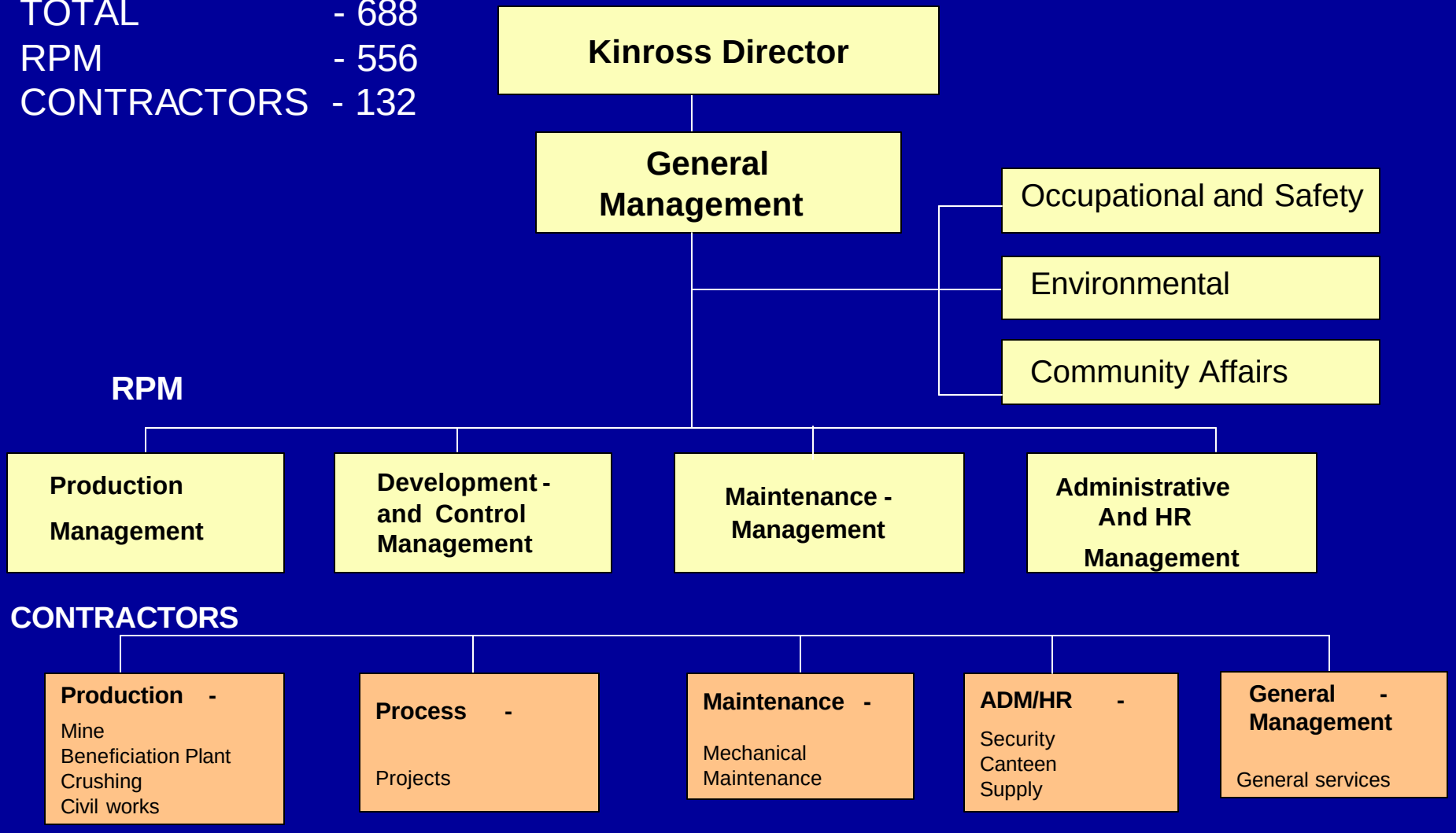
HUMAN RESOURCES

- TOTAL - 688
- RPM - 556
- CONTRACTORS - 132



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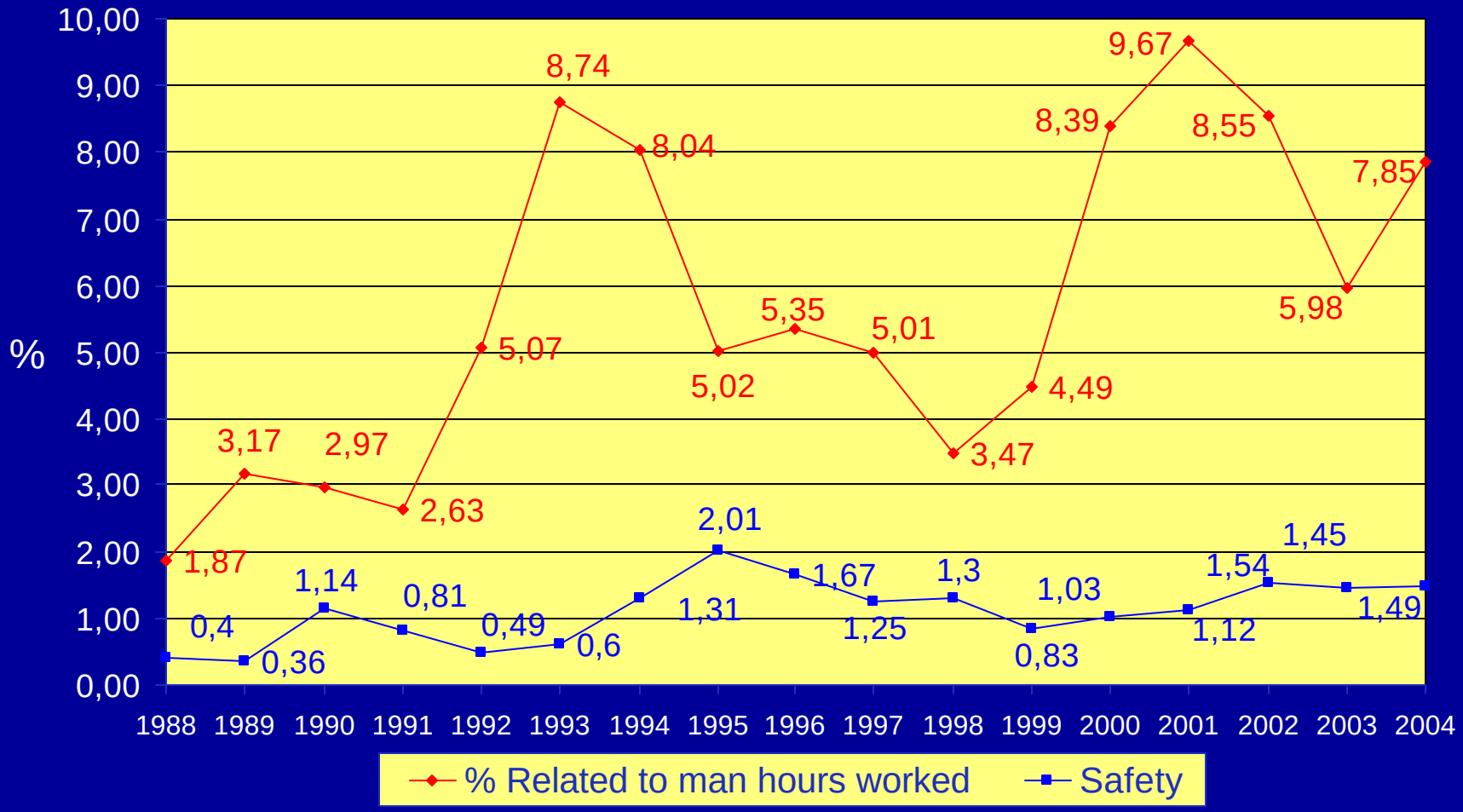
MAN HOURS TRAINED



ENVIRONMENT



MORRO DO OURO GOLD MINE



MORRO DO OURO GOLD MINE



MORRO DO OURO GOLD MINE



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POLICY REGARDING THE ENVIRONMENT

- **Policy**

  RPM acknowledges the fact that the ore extraction and processing activity is a potential environmental impact producer and takes upon itself the responsibility to establish plans, programs and measures to eliminate or minimise such impact and to take action to protect the environment.

- **Instruments:**

  - Environmental Impact Evaluation
    - Evaluate to anticipate any eventual environmental effects due to new activities or projects.

  - Environmental Control Plan
    - A series of activities, measures and programs aiming at minimising and controlling impacts.

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POLICY REGARDING THE ENVIRONMENT

- Monitoring
  - Regular follow up on environmental quality parameters aiming at evaluating the control plan's efficiency.
- Internal Environmental Audit
  - A systematic process of inspection, analysis and evaluation of general or specific conditions of the environmental issues in the company.
- Plan for mined areas recovery and mine closure establishes the guidelines for the areas future use.

INDUSTRIAL SAFETY SYSTEM AT RPM



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INDUSTRIAL SAFETY SYSTEMS AT RPM

- **RPM - Adopt the NOSA MBO System**
- **NOSA MBO System**
  - Objectives : To Educate, To Train, To Motivate — Management and workforce
  - To Prevent
    - Accidents and Occupational Diseases
- **Chapters**
  - Premises and housekeeping
  - Mechanical, Electrical and Personal Safeguarding
  - Fire Prevention and Protection
  - Incident (accident) recording and investigation
  - Safety Organisation
  - Environment
- **Du Pont auditing system**
- **RPM Health and Safety Standards**

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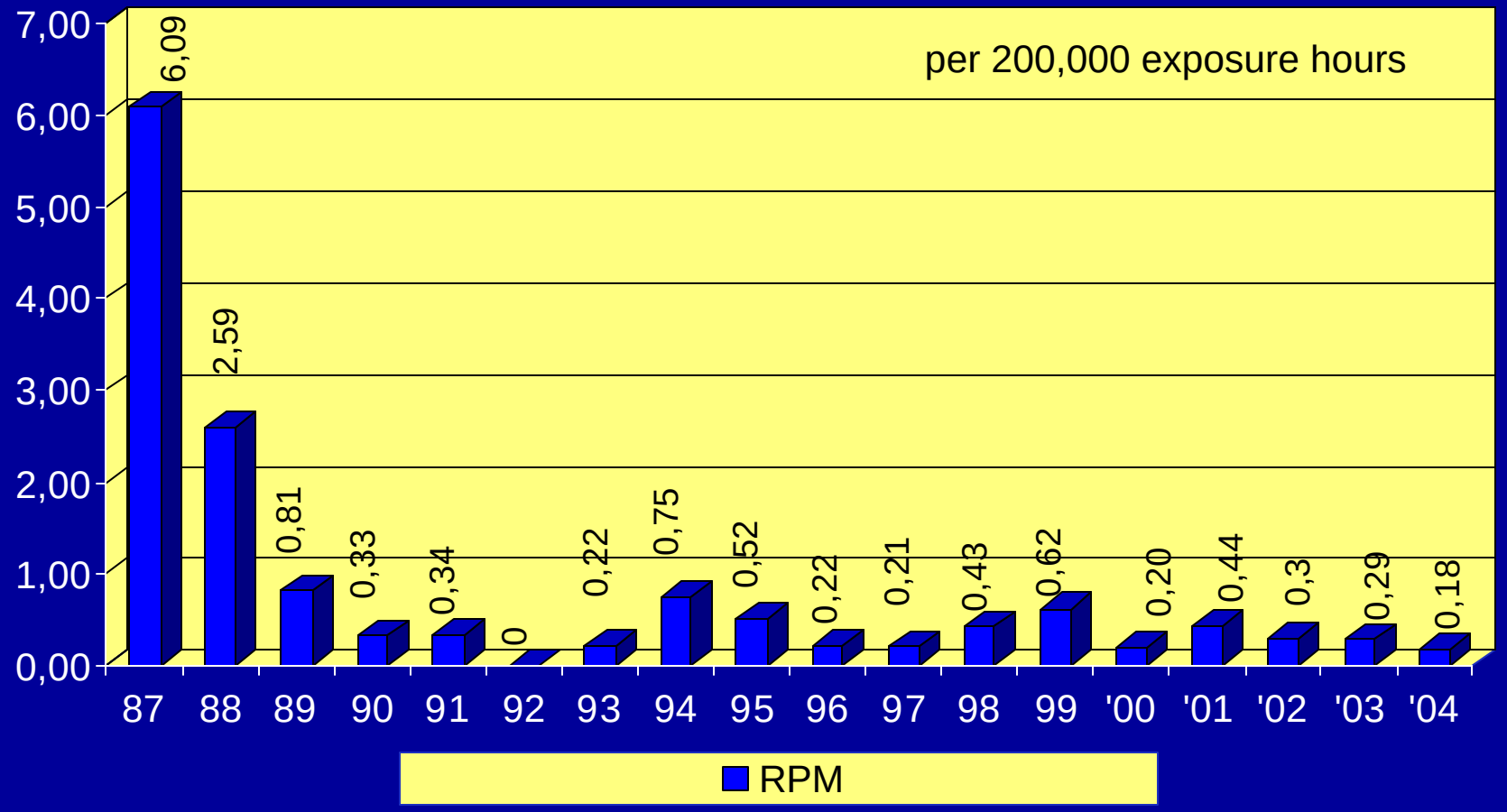
LOST TIME INJURY FREQUENCY RATE

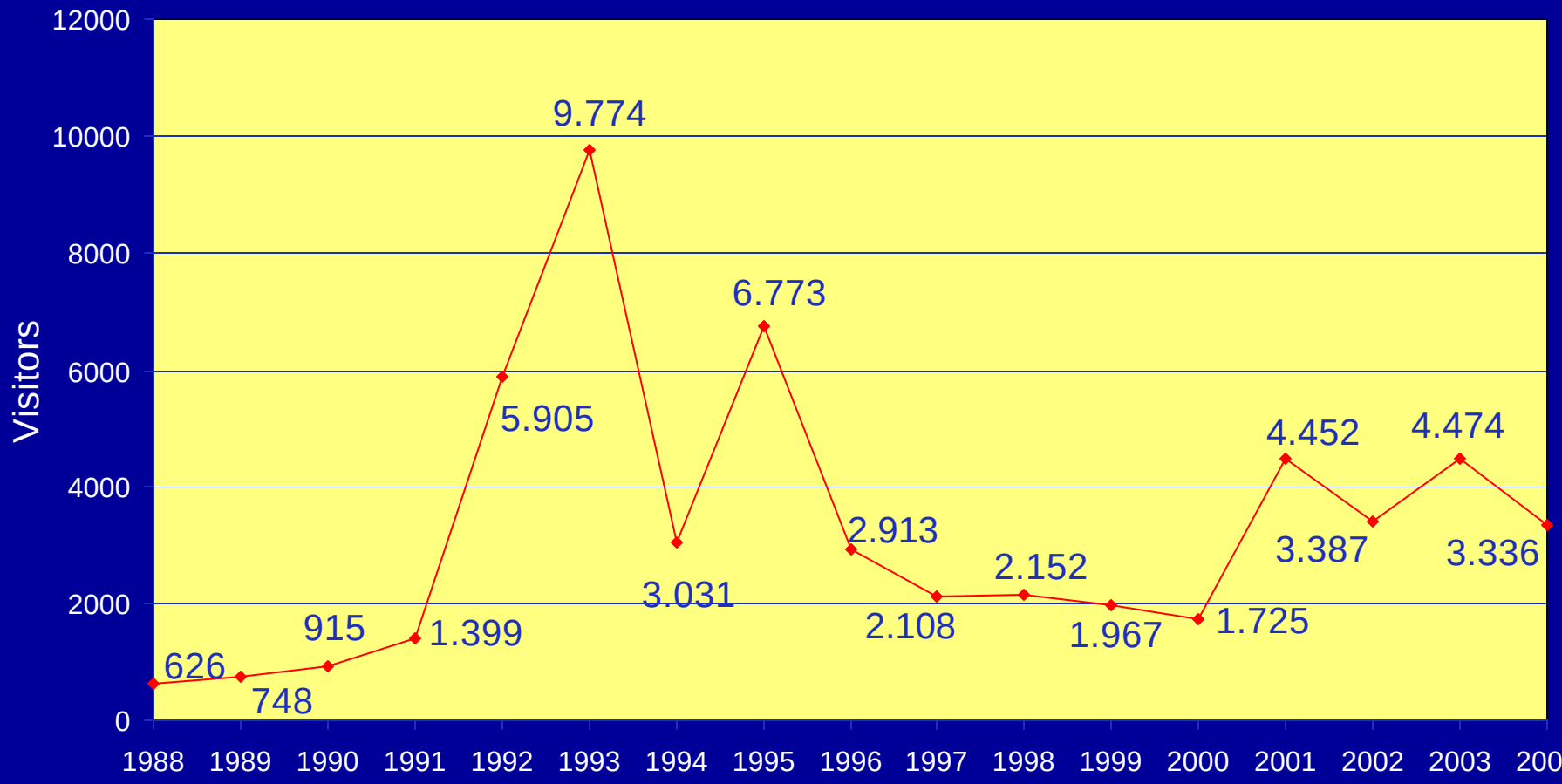


COMMUNITY RELATIONS



MORRO DO OURO GOLD MINE

MINE VISITS



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COMMUNITY RELATIONSHIP

- **Policy**

  RPM is committed to responsible participation in the affairs of the local community and maintains a good relationship with its neighbourhood, looking for mutual respect, active partnership and long term commitment.

- **Actions / programmes**
  - Permanent contacts with:
    - City hall, city court, union, chamber of commerce,
      Religious institutions, environmental organisations, communities associations
  - Press conferences
  - Visits and meetings with neighbours
  - Tree planting programme, seedlings donations
  - Visits - open doors programme
  - Community consultation programme – survey - meetings

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KEY COMMUNITY INVOLVEMENT

- Job Generation Programme
- ADESP (Economic and Social Development Agency)
- Senai (Further Education)
- Meu Primeiro Emprego (My First Job)
- Seminário de Parcerias (Partnership Seminar)
- Educação Ambiental (Environmental Education).
- Trabalho Voluntário (Voluntary work)
- Parque Ecológico (Ecological Park)
- Reserva do Acangaú (Nature Reserve of Acangaú)
- Parceria com Cetec para avaliação do Córrego Rico
  (Partnership with Cetec to evaluate remediation of Creek Rico).









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PARTNERSHIP SEMINAR

112 SPONSORED PROJECTS

Projects

- **Social development**
- **Income and Job generation**

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PARTNERSHIPS







- Several projects in partnership with the community.

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ENVIRONMENTAL EDUCATION

Environmental Education provided to students of the Paracatu community and to employees of RPM and Contractors.



Lecture – Dom Elizeu School



Trails' Observatory – Mundéu Reserve

MORRO DO OURO GOLD MINE

ENVIRONMENTAL EDUCATION

CEAM – Environmental Education Centre



Ecological Trails



<u>Visits</u>

2,353 people

Lectures in the schools

6,139 students

Teacher training courses

80 teachers

MORRO DO OURO GOLD MINE

AWARDS AND CERTIFICATES

- Company to win the first Minas Ecologia Award – 1995.
- First Brazilian Gold Mine to achieve ISO 14001 - in 2000.
- Member of Environmental NGO “Amda” – since 1992.
- Achieved Child Friendly certificate by NGO ABRINQ - since 2002.
- Rated as a “Great Place to Work” – Exame Magazine 2003 and 2004.
- First Brazilian Gold Mine to achieve SA 8000 - in 2004.
- Classified as one of the best companies for people management by Valor Carreira Magazine - in 2004.