



# Koorfontein Mines Visitors Presentation

08 September 2009



# Agenda

- **Introduction**
- **Health, Safety, Environment**
- **Operations**
  - Mining
  - Maintenance
  - Plant
- **Human Resources**
- **LOM Plan**
- **4 Seam Development**



“Our vision is to be a competitive and reliable low cost supplier of energy coal and a respected employer”



**Koorfontein Mines**  
**Vision, Mission and Value Statement**  
 'The best way to predict the future is to create it'



**Vision Statement**

To be a competitive and reliable low cost supplier of energy coal and a respected employer.

Our Vision ensures that our shareholders, managers and employees move in the same direction. The Vision Statement of a company does not show the specific road, but only shows the direction.

**Mission Statement**

- What:** A large underground mining and coal processing company supplying energy coal at contractual quantities.
- For Whom:** To local power stations and, through BMAG, to the export market.
- Where:** From Koorfontein Mines in the Mpumalanga Province.
- Why:** To generate acceptable returns for our shareholders and provide a reliable supply of the correct quantity and quality of coal to our customers.
- How:** Through the optimal deployment of our assets, the alignment of the stakeholders to our company vision, and training and development of our people, we will:
- Operate in a safe, reliable, competitive manner
  - Strive to become a benchmark underground mining and processing company through continuous improvement and the use of standardised and effective management systems and processes
  - Will foster a culture that is conducive to teamwork, participation and enjoyment.


The Mission of Koorfontein Mines provides focus and meaning, not only to the business, but also to all external stakeholders. The Mission Statement defines what business Koorfontein is in. It is the roadmap for achieving our Vision.

**Our Values**

<b>ZERO HARM</b>	<ul style="list-style-type: none"> <li>• Ensure a safe working environment</li> <li>• Compliance to rules is absolute</li> <li>• Prevent harm to people, environment and equipment</li> <li>• Zero Harm is achievable and is everyone's responsibility</li> </ul>
<b>RESPECT</b>	<ul style="list-style-type: none"> <li>• Treat people fairly</li> <li>• Recognise that people make the difference</li> <li>• Accept accountability for our behaviour</li> <li>• Value and leverage the strength in diversity</li> </ul>
<b>TEAMWORK</b>	<ul style="list-style-type: none"> <li>• Encourage participation</li> <li>• Pursue common goals</li> <li>• Ensure consistent and transparent communication</li> </ul>
<b>EXCELLENCE</b>	<ul style="list-style-type: none"> <li>• Develop people to their full potential</li> <li>• Ensure predictable continuous improvement</li> <li>• Stretch our capabilities to benchmark performances</li> <li>• Sustain a high performance innovative culture</li> </ul>



Accepted by the Leadership of Koorfontein Mines on 21 October 2005

  
 MIKE GIBSON  
 GENERAL MANAGER

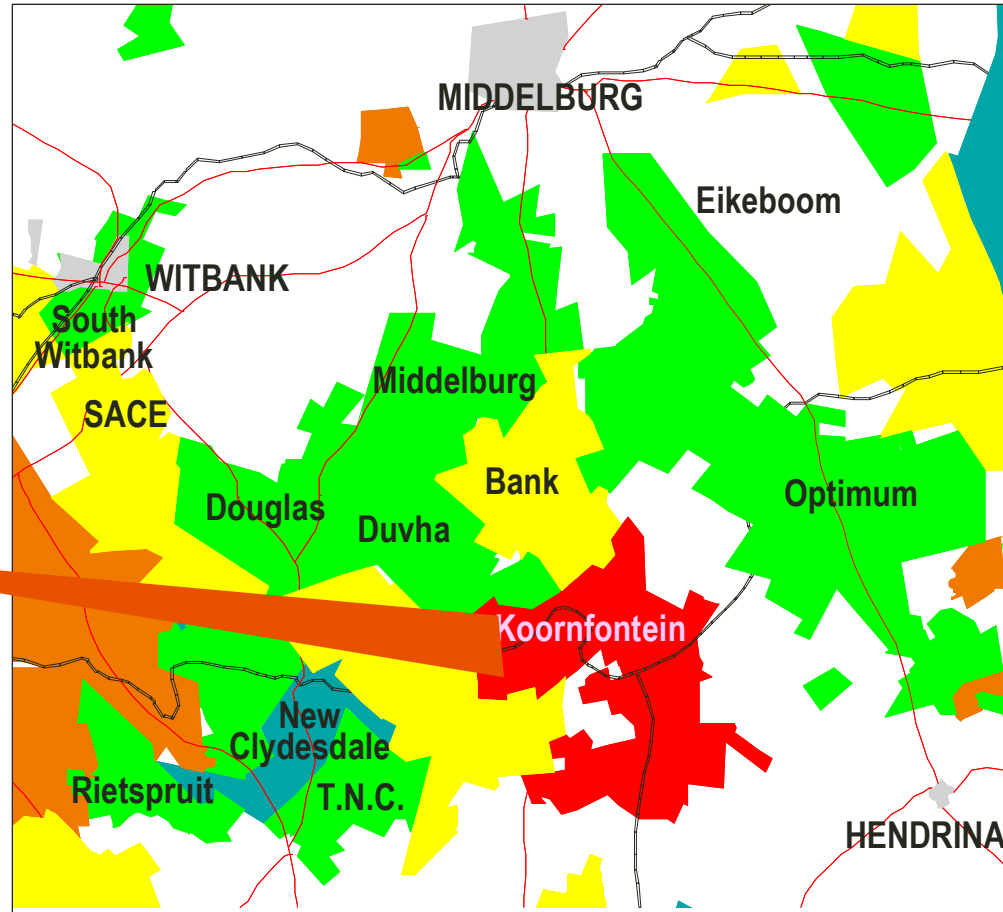
  
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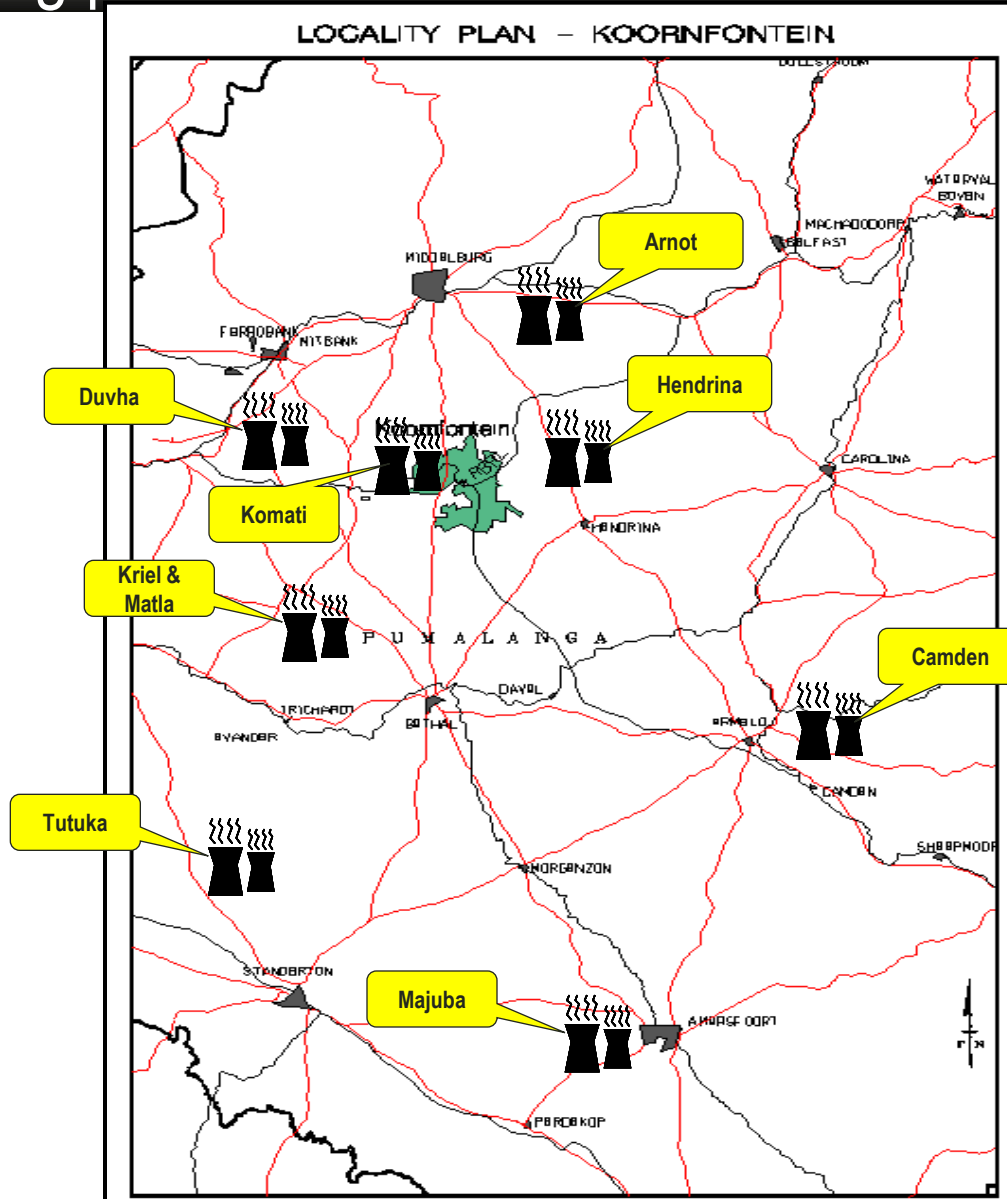
# Introduction

## Locality map



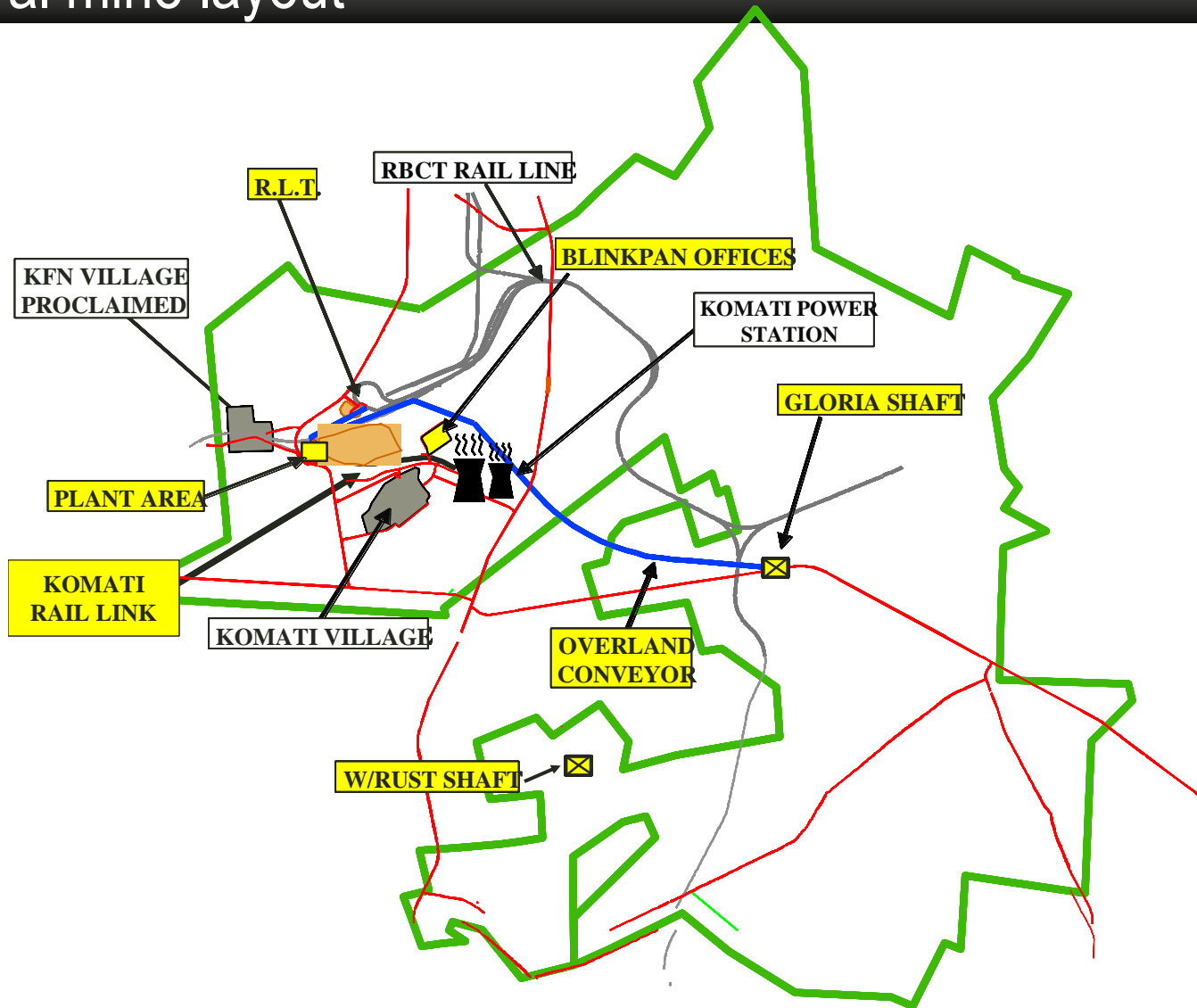
# Introduction

## Surrounding power stations



# Introduction

## General mine layout



# Introduction

## History

- 1948 Koornfontein Steenkoolmyne & TNC
- 1964 Blinkpan Colliery
- 1970 Haasfontein Export Mine
- 1987 Rationalisation into Koornfontein Mines
- 1988 Gloria Project Commenced
- 1991 TNC & Komati Closed - Gloria Commissioned
- 2002 Blinkpan Operation Closure
- 2003 Koornfontein and Douglas Management Integration
- 2005 Koornfontein Mines Management Restructuring
- 2007 Sales Process approved and completed



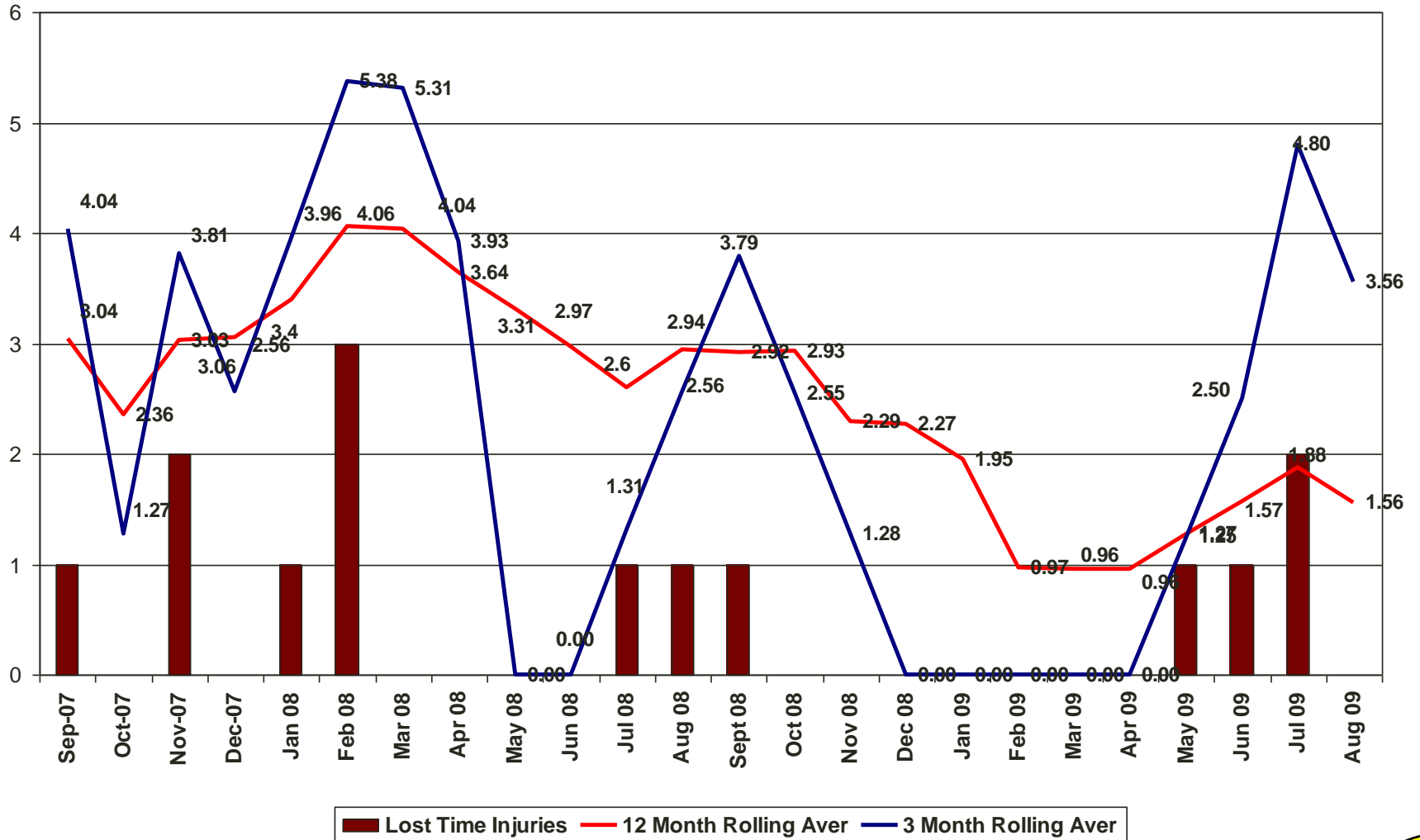
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- LOM Plan
- 4 Seam Development



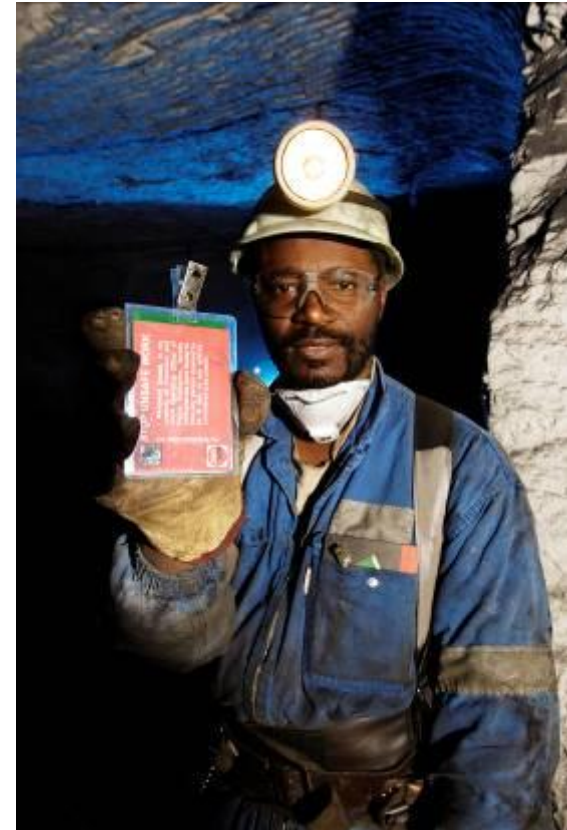


# Lost Time Injuries and Rolling Averages



## Strategy – Control mechanisms

- **Fatality Prevention**
  - Fatal Risk Management
  - Mobile Equipment Safety
  - Contractor Management
- **Behavioural Safety**
  - Management Walkabouts
  - Eliminating At Risk Behaviour
- **Safety Leadership**
  - Leadership Capability Assessment And Training
  - Communications (Mass Meetings)
  - Operational Discipline



## Strategy – Control mechanisms

- **Dust**

Daily monitoring of the continuous miner dust levels

- **Noise**

Daily monitoring of noise levels in high risk areas

- **HIV / AIDS and TB**

- Pre-employment medicals
- Chronic Medication Monitoring System



## Strategy – Control mechanisms

- **EMPR**

- Obtained DME approval in October 2001
- Covers the operational phase and decommissioning phase
- Addendum to EMPR completed in August 2002
- Amendment to include the opencast submitted in 2009

- **Integrated Water Management Plan**

- Plan submitted in 2009



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# Operations - Mining Geology

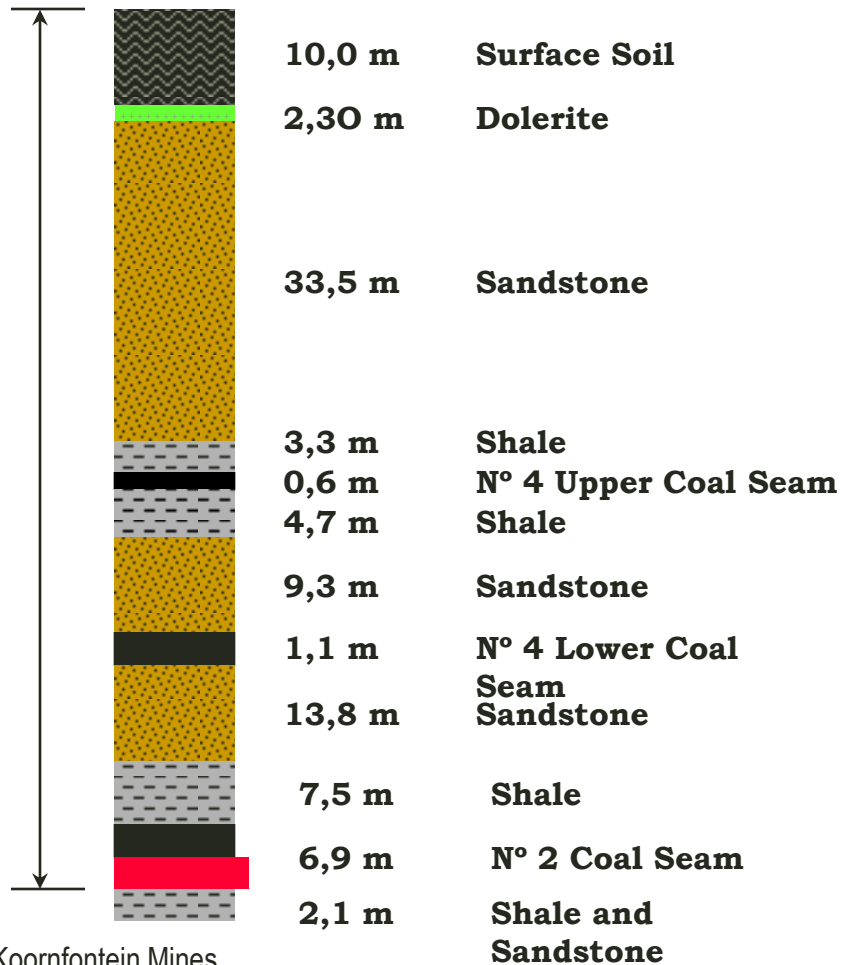
- The coal seams are situated
  - In the Vryheid formation
  - Karoo system
- No 2 seam mined for export product
- Secondary wash for Eskom market
- 4 Seam previously mined for Eskom



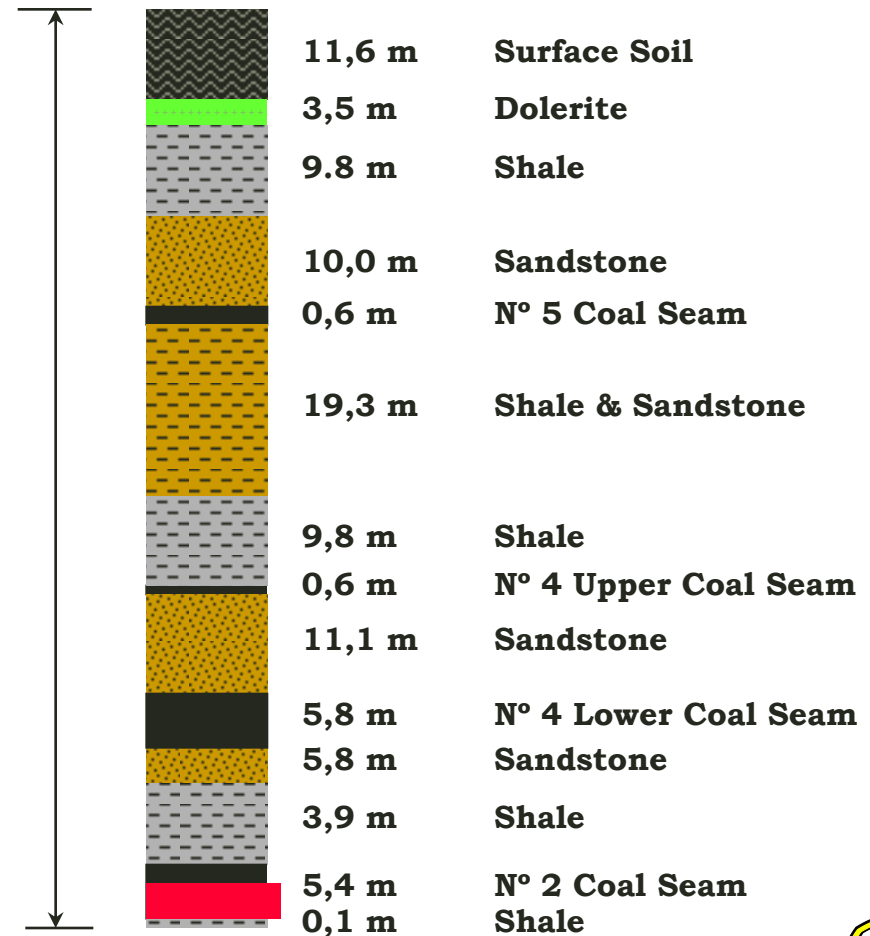
# Operations - Mining

## Typical Stratigraphic Column

### Typical Gloria



### Typical Blinkpan



# Operations - Mining

## Mining no. 2 coal seam

### Typical Dimensions

- Average Depth Below Surface 92 m
- Average Seam Thickness 6.0 m
- Select Horizon Thickness 3.7 m

### Mining Methods

- Bord & Pillar
- Checker Board Stopping
- Bottom Coaling





# Operations - Mining

## Mining machines

General Information				Equipment Type				
	<u>No Sect</u>	<u>Shift Type</u>	<u>Sect No</u>	<u>CM's</u>	<u>SC's</u>	<u>RBb's</u>	<u>FB's</u>	<u>Belt System</u>
<b><u>Wilmansrust</u></b>								
2 SEAM	1	3-Shift	1	12HM21 Manual	10SC22D 20T (3 OF)	ARO	BUFFALO M500	1200MM
2 SEAM	1	3-Shift	7	12HM21 Manual	10SC22D 20T (3 OF)	ARO	BUFFALO M500	1200MM
2 SEAM	1	3-Shift	23	12HM21 JNA 1	10SC22D 20T (3 OF)	ARO	BUFFALO M500	1200MM
<b><u>Gloria</u></b>								
2 SEAM	1	2-Shift	6	12HM31B Manual	2x10SC22D 1X10SC22B	ARO	BUFFALO M500	1200MM
2 SEAM	1	3-Shift	8	12HM31A JNA 1	10SC22B 10T (3 OF)	ARO	BUFFALO M500	1200MM
2 SEAM	1	3-Shift	10	12HM31B JNA 1	10SC22B 10T (3 OF)	ARO	BUFFALO M500	1200MM



# Operations - Mining

## Conveyors and coal clearance

### Conveyor sizes

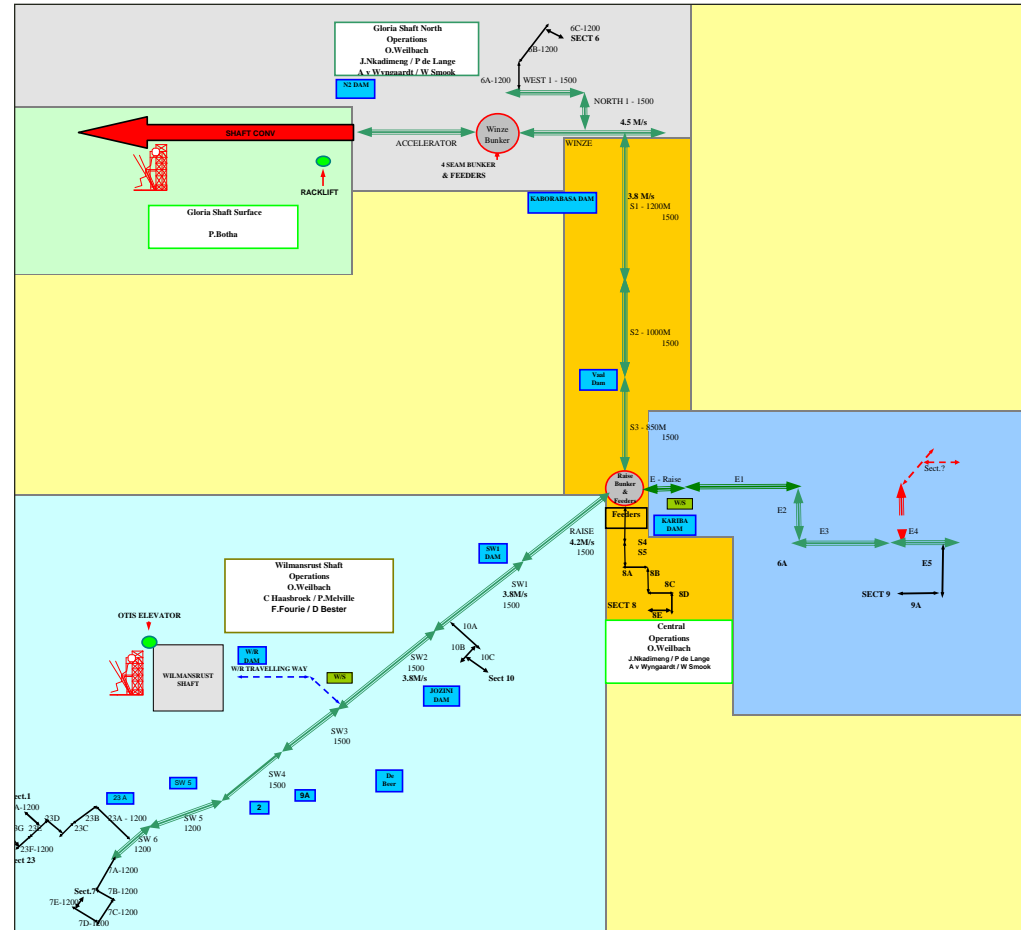
- Total UG length (20km)
- 48 Installed drives
- Main belts (1500/1200mm)
- Section belts (1200mm)

### Crushers

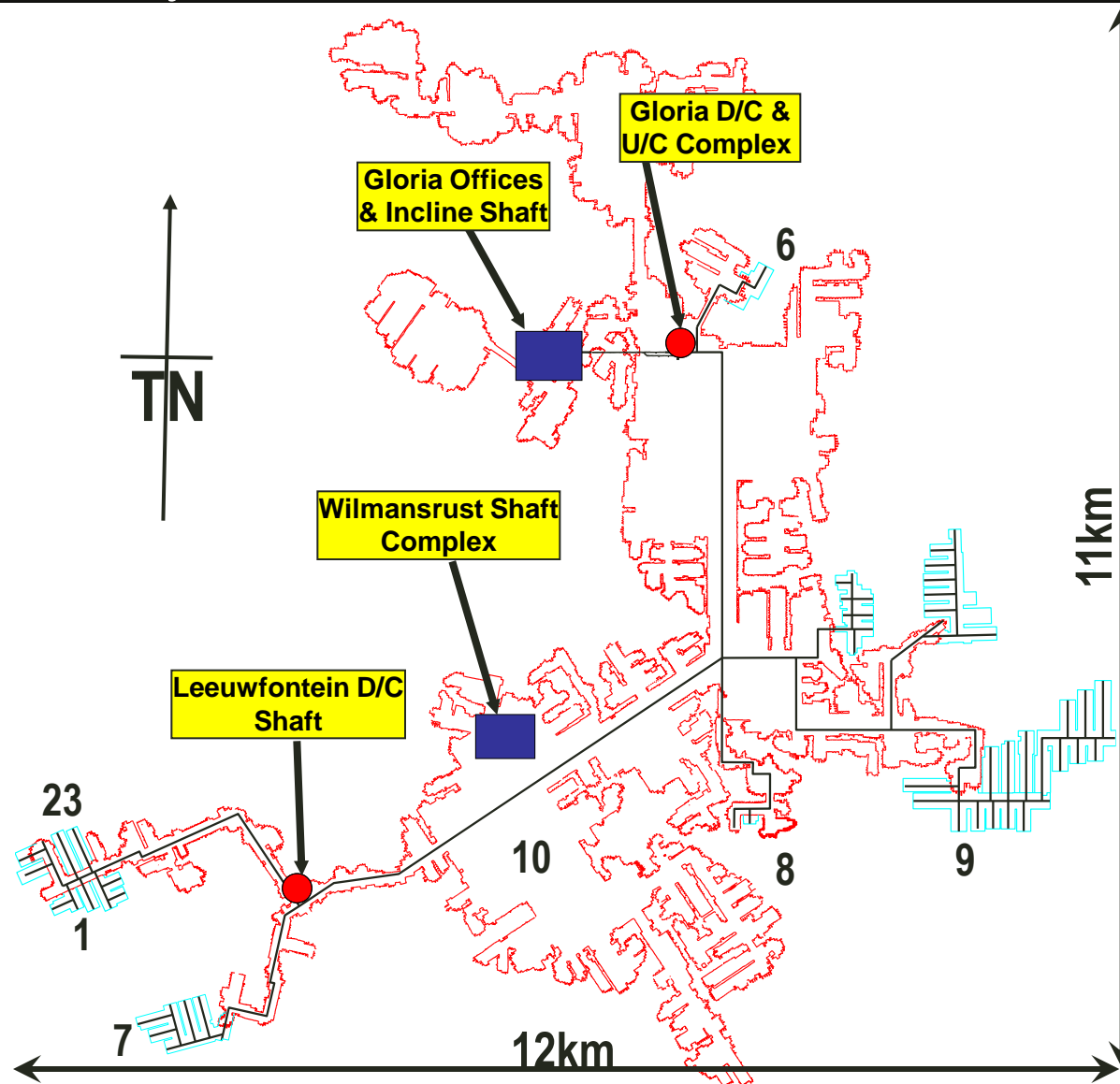
- Bradford Breaker

### Surge capacities

- Underground
  - Winze (800t)
  - Raise (1,600t)
- Surface
  - 14,000 tons



# Operations - Mining Underground layout



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# Maintenance

## Infrastructure and equipment

### **Workshops**

- Diesel Workshops Surface & Underground
- Main Mechanical and Electrical Surface Workshop
- Underground Cable Repair Workshop

### **Outbye Machinery**

- 52 LDV's including Transporters
- 12 LHD's
- 14 MPV's
- 20 Other Equipment

### **Rotable Stores**



# Maintenance

## Availabilities – YTD 2009/10

- Continuous Miners 93%
- Shuttle Cars 93%
- Roofbolters 97%
- Feeder Breakers 99%
- Conveyor Stream 98%



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## Coal beneficiation methodologies

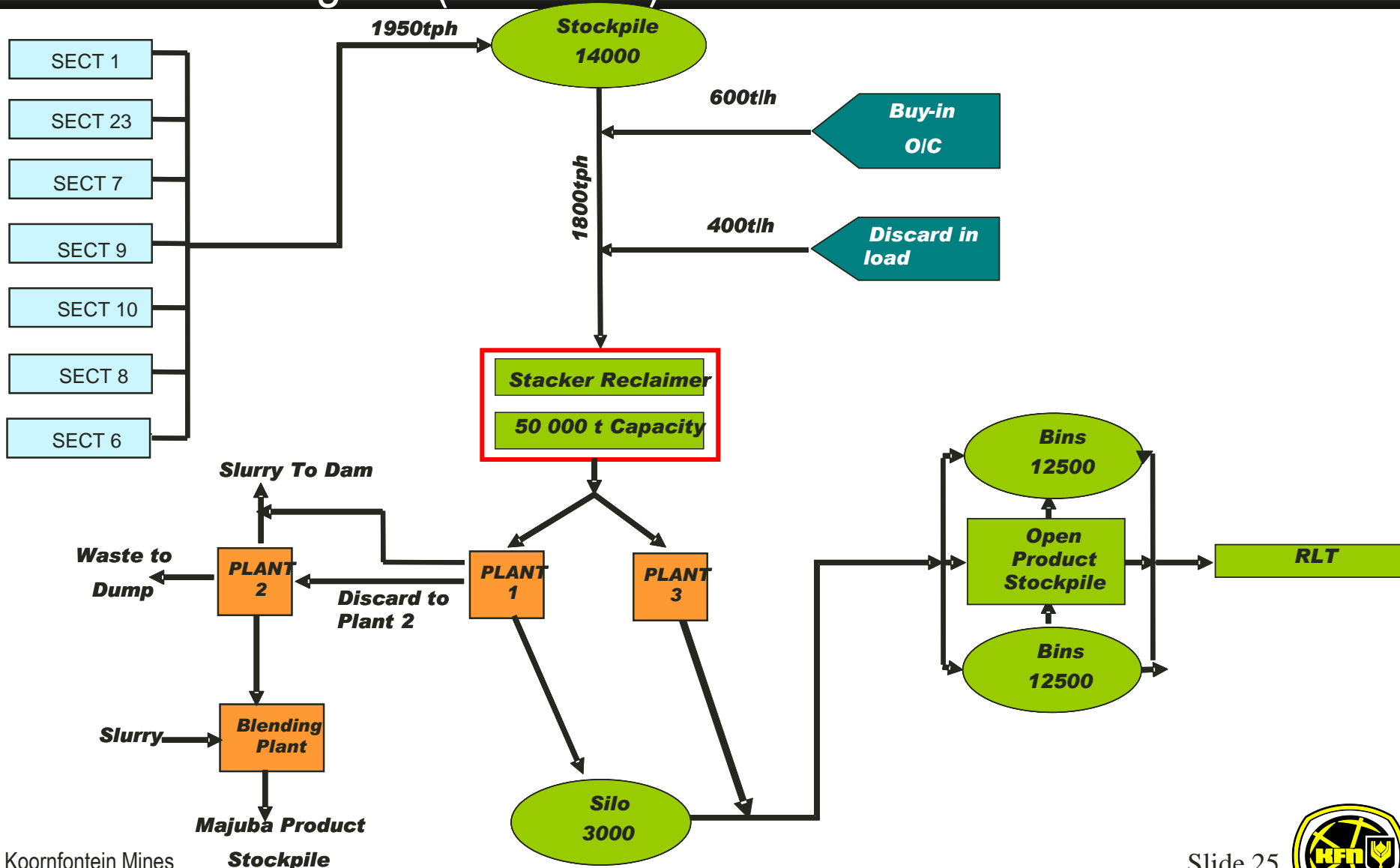
- **Dense medium separation utilizing drum separators and Cyclones**
  - 3 x 180 tph Wemco drum plants
  - 3 x dense medium cyclone plants, N°1 plant with 4 x 610mm cyclones and plants N° 2 and 3 each with 2 x 660mm cyclones
- **Gravity concentration utilizing Spiral concentrators**
  - 3 x spiral concentrator plants, N°1 plant with 4 banks Multotec concentrators and N°2 with 2 banks MX7 concentrators
- **Flotation technology**
  - 1 x mechanical cell flotation plant
  - 1 x column flotation plant
  - 4 x thickeners





# Plant

## Coal flow diagram (total mine)



# Maintenance

## Infrastructure and equipment

### **Workshops**

- Fitter Workshops
- Electrical Workshops
- Boilermaker Workshop
- Instrumentation Workshop
- Transport Workshop

### **Machinery**

- 34 LDV's including Transporters



# Plant

## Production volumes and equipment used

- 3 Plants operating independently of the other
- On coal hours of 560 hours per month
- Daily capacity - 25,200t
- Raw coal feed - 1260 tph to beneficiation plant
- Clean coal output - 819 tph
- Washed sizes
  - -80mm + 12mm – Wemco Drums
  - -12mm + 0.5mm - Dense Medium Separation Cyclones
  - -0.5mm + 0.01mm – Spirals Concentrators
  - -0.01mm – Flotation & Thickener



# Plant

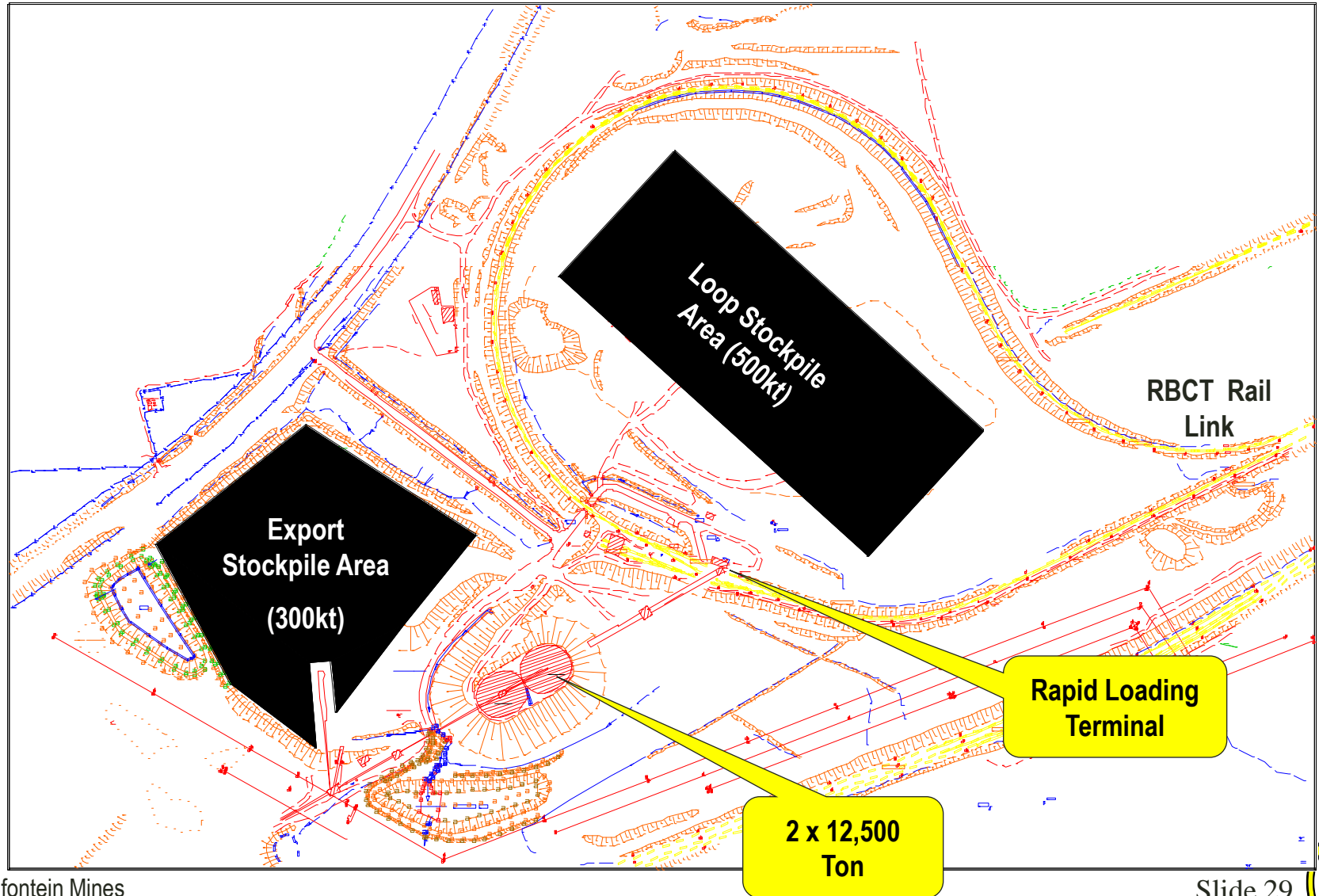
## Product specification – export

- Annual principal product quality parameters  
– Air dried
- NAR - 5900 kcal
- Calorific value - 27.06 MJ/Kg
- Ash content - 14.0%
- Volatile matter - 25.0%
- Total sulphur - 0.58%
- Hard grove index - 51
- Total moisture - 8.1%



# Plant

## Export load-out and stockpiles



# Plant

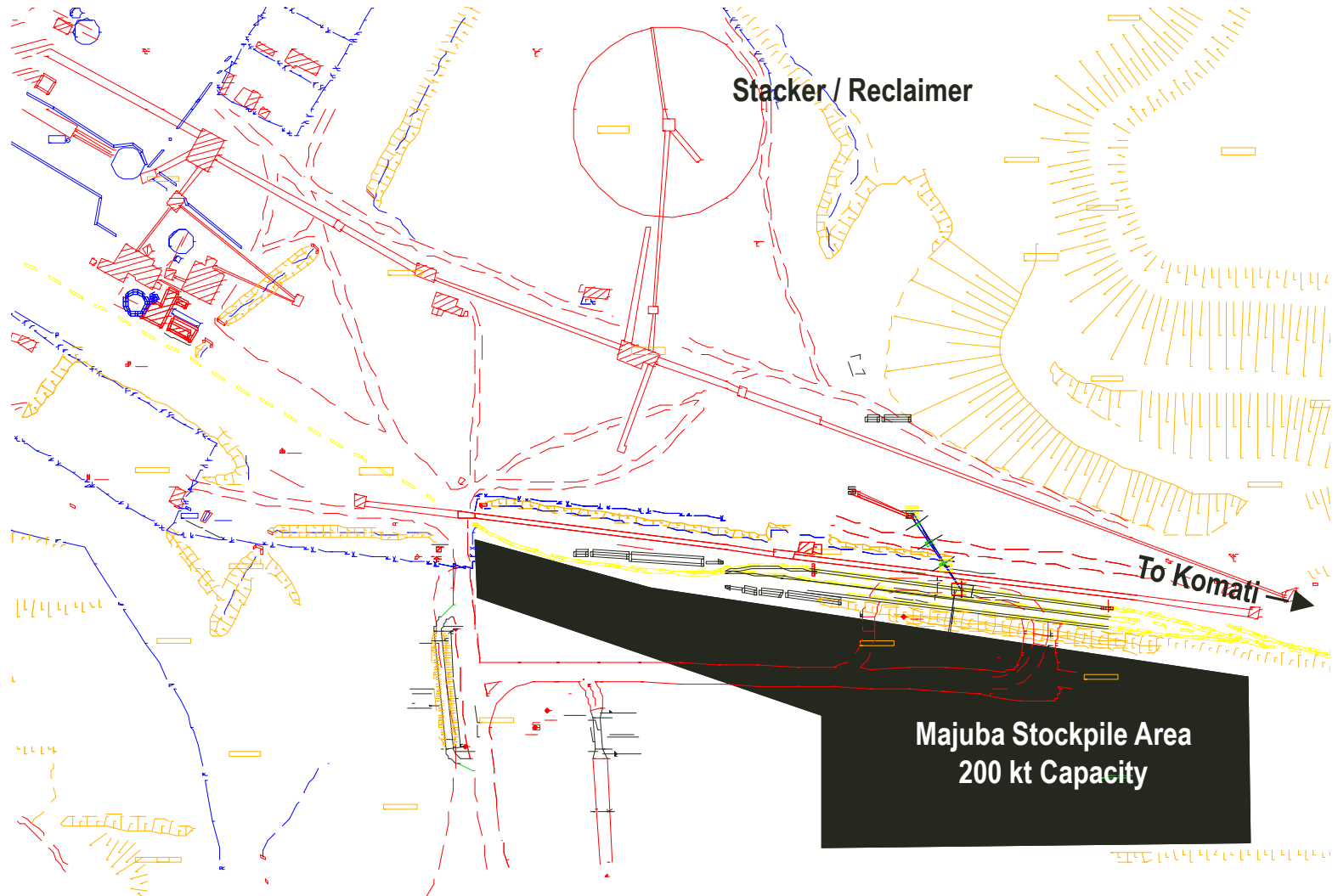
## Product specification – Eskom

- Annual principal product quality parameters – Air dried
- Calorific value - 19.0 to 23.0 MJ/Kg
- Ash content - <36.0%
- Volatile matter - 20.0% to 24.0%
- Total sulphur - 1.2%
- Abrasive index - <450
- Total moisture - <12.0%



# Plant

## Majuba stockpile area



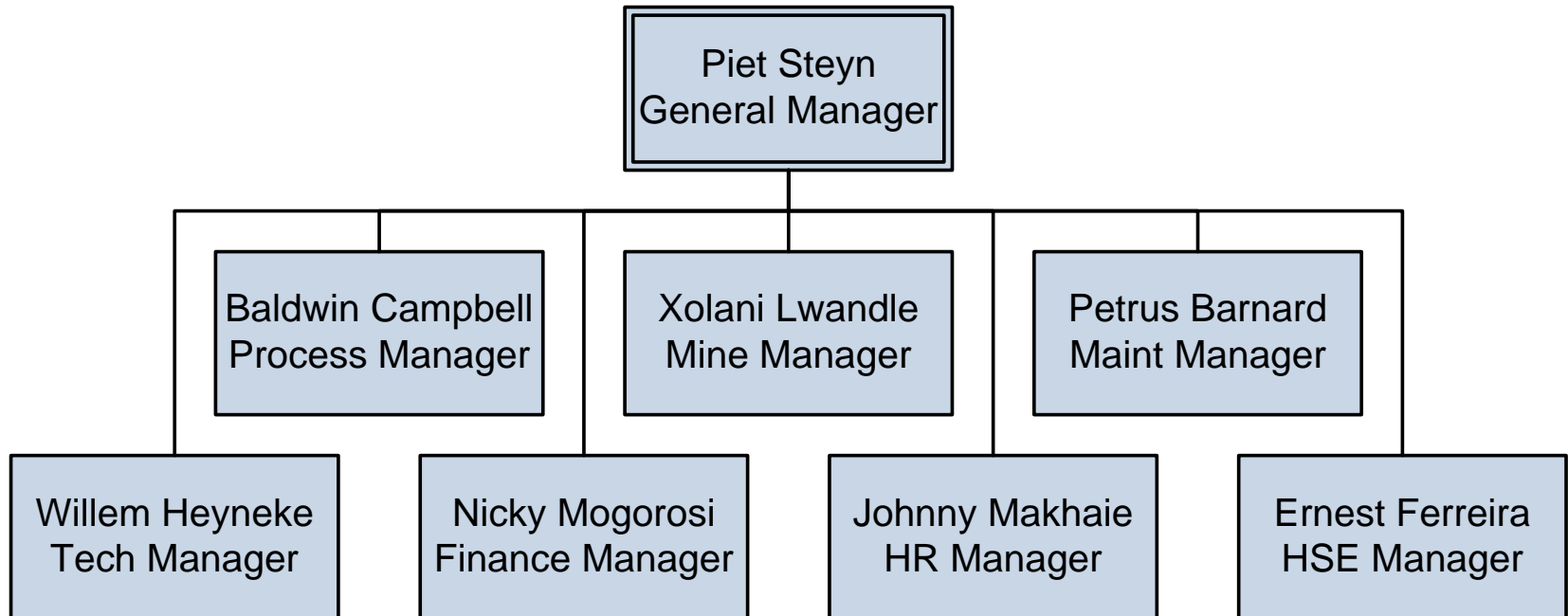
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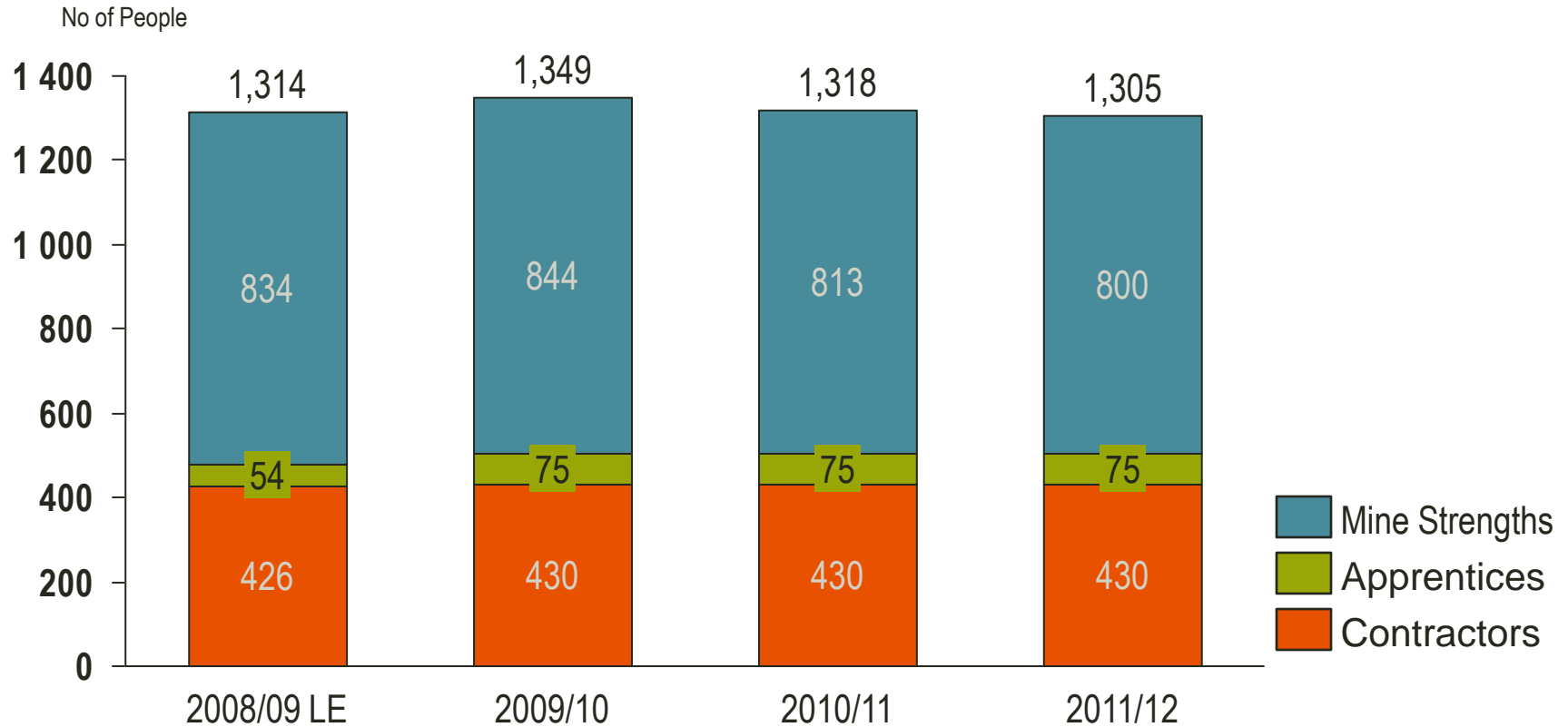




# Human Resources Management structure



# Labour



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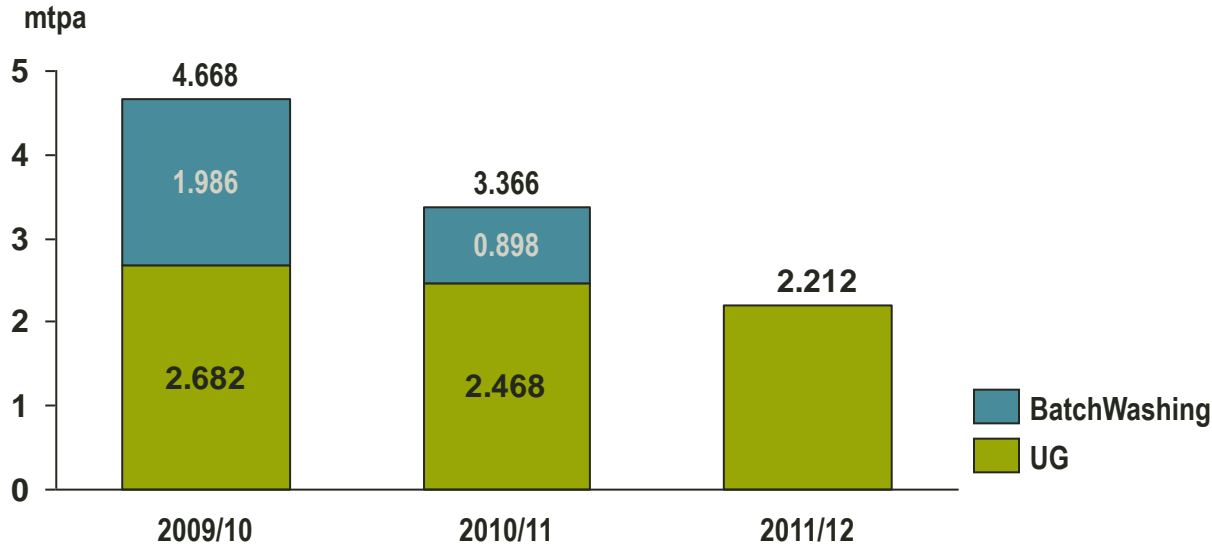


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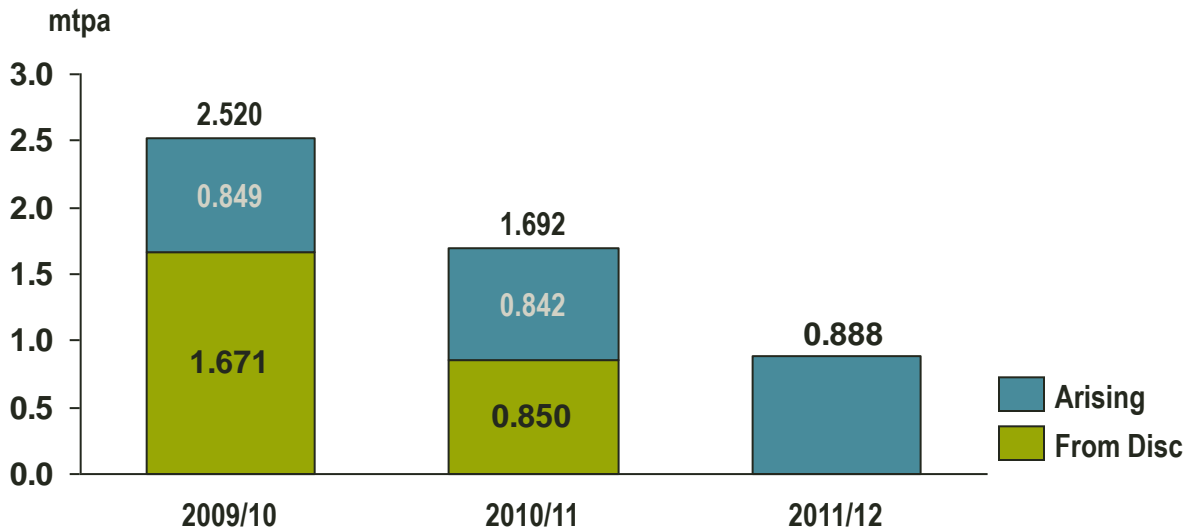
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# LOM Plant Feed Profile (2-seam)



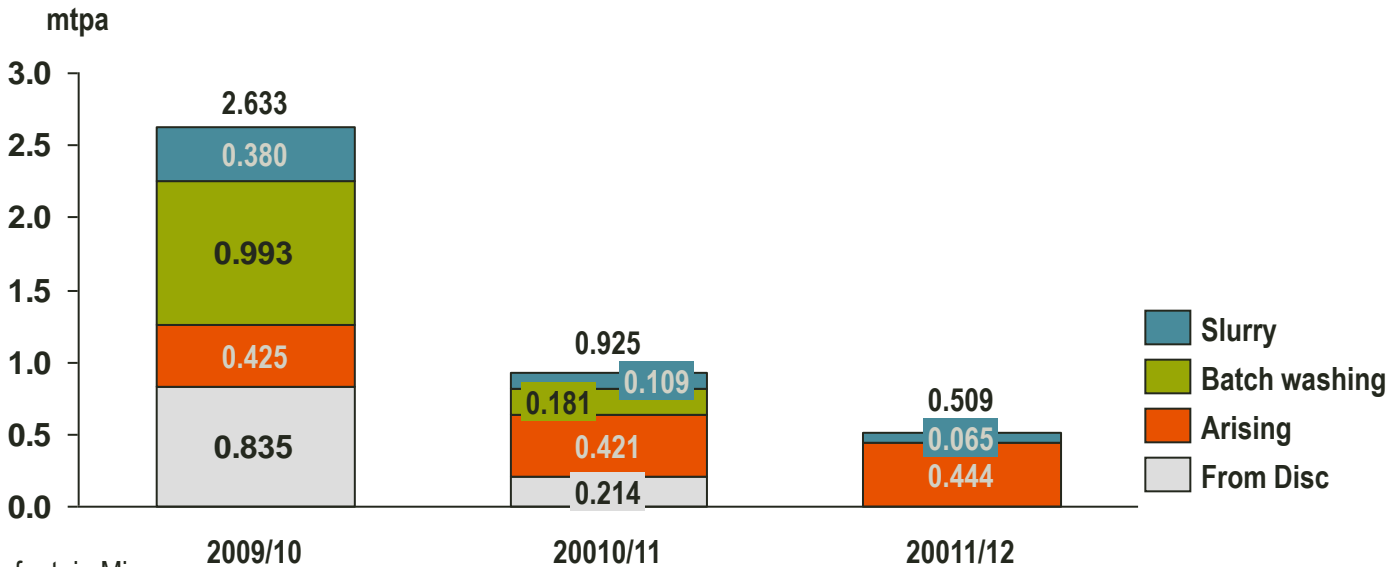
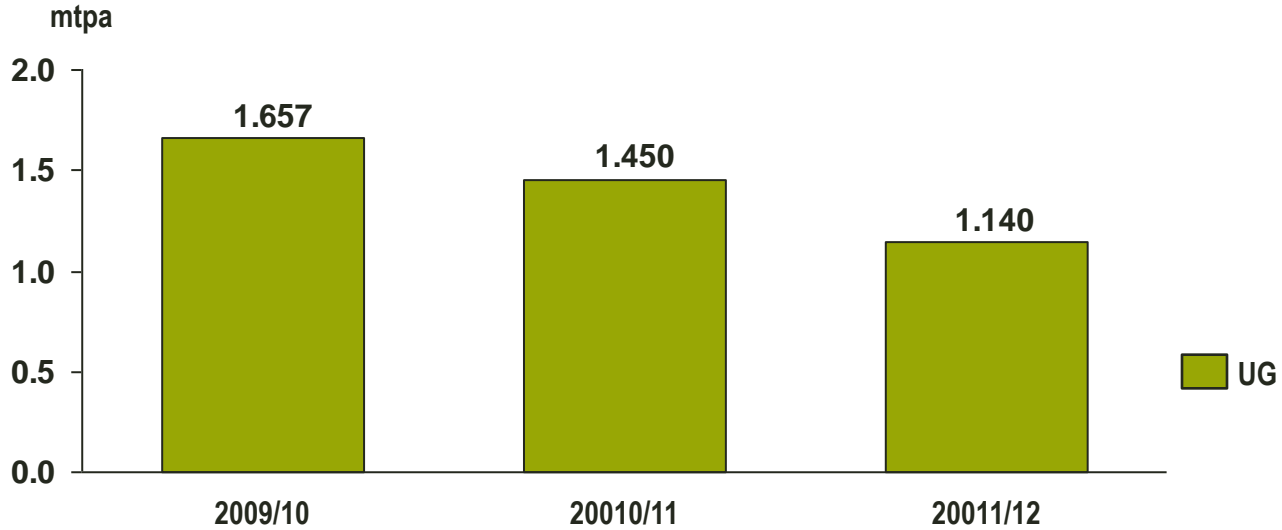
Plant 1 & 3  
Export / Eskom Market



Plant 2  
Eskom Market



# Saleable Profile (2-Seam)



Export

Eskom

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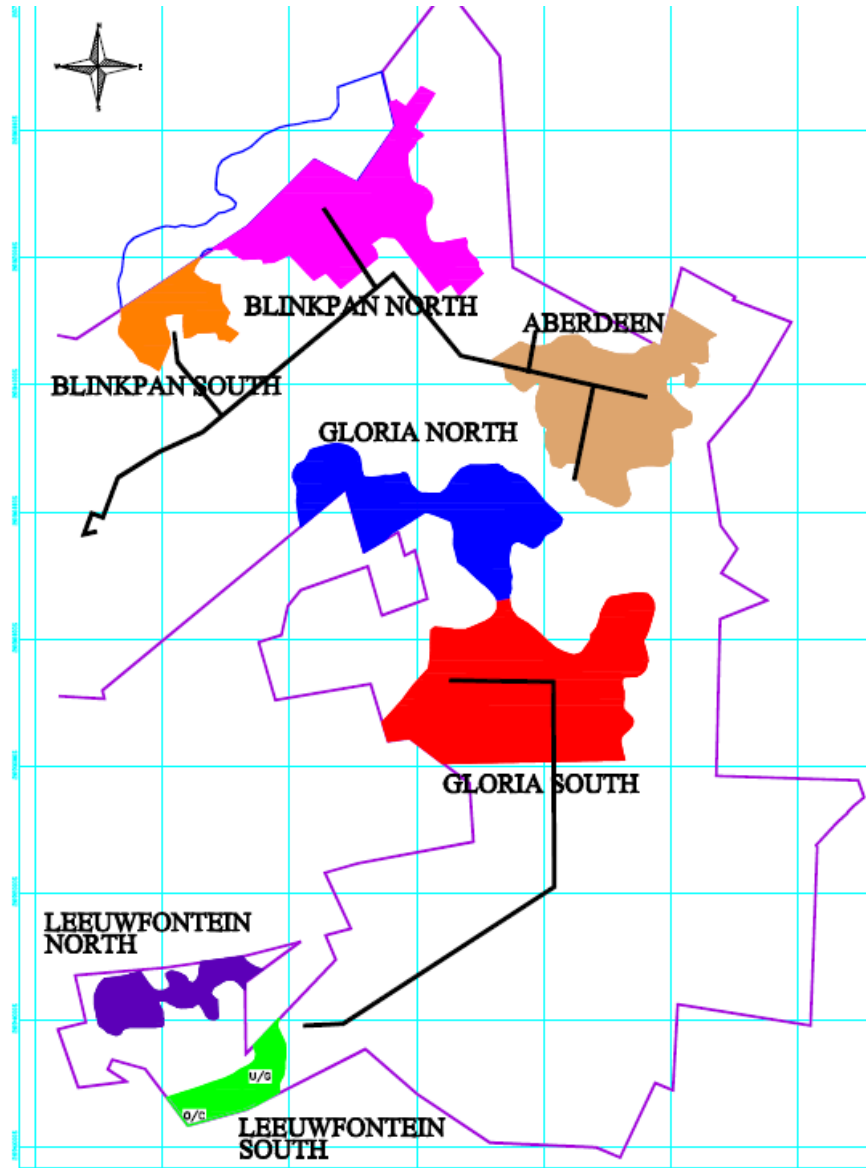
# 4-Seam Feasibility Study

- Study undertaken by RSV
- Completed study in January 2009
- Board to approve





# Resource Blocks



# 4-Seam Mining Schedule

