Welcome to ASSMANG MANGANESE BLACK ROCK MINE OPERATIONS
ASSMANG MANGANESE

BLACK ROCK MINE OPERATIONS

Presentation 12 April 2005
CONTENTS

• Introduction and Geology
• Ore Resources
• Mining Processes & Capabilities
• Recent History
• The Future
Assmang’s manganese mining operations are situated in the Northern Cape Province of South Africa.
Introduction to ASSMANG

- Operates in the Northern Cape Province
- High Grade Manganese at Nchwaning
- Low Grade Manganese at Gloria
- Exports ore through Port Elizabeth and Durban
- Supplies Assmang Subsidiary Feralloys plant at Cato Ridge
KMF divided into HIGH GRADE and LOW GRADE areas

Two major grades required by World Market:
High + 48 Mn
Low + 38 Mn

Preparation for converting to the new mining licence has reached an advanced stage
STRATIGRAPHIC COLUMN OF THE KMF
Manganese Orebodies 6 m thick.

Parting between No1 and No 2 orebody = 20 m

No 2 body lower in Mn and Higher in Fe
CONTENTS

- Introduction and Geology
- Ore Resources
  - Gloria
  - Nchwaning Orebody No 1
  - Nchwaning Orebody No 2
- Mining Processes & Capabilities
- Recent History
- The Future
GLORIA MINING AREA RESOURCES

<table>
<thead>
<tr>
<th>GRADE</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 38%</td>
<td>7,690,930</td>
<td>65,128,908</td>
<td>38,597,425</td>
<td>111,417,263</td>
</tr>
<tr>
<td>36-38%</td>
<td>1,864,250</td>
<td>17,608,171</td>
<td>10,435,152</td>
<td>29,907,573</td>
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<tr>
<td>&lt; 36%</td>
<td>31,126</td>
<td>243,452</td>
<td>21,220,071</td>
<td>21,494,649</td>
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<tr>
<td>TOTAL</td>
<td>9,586,306</td>
<td>82,980,531</td>
<td>70,252,648</td>
<td>162,819,485</td>
</tr>
</tbody>
</table>

GRADE DISTRIBUTION

Mn < 36 %

Mn 36 - 38 %

Mn > 38 %
**NCHWANING MINING AREA – No 1 Ore body**

<table>
<thead>
<tr>
<th>GRADE</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mn &lt; 46%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mn &gt; 48%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mn 46 - 48%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 48%</td>
<td>3,299,083</td>
<td>63,780,416</td>
<td></td>
<td>67,079,499</td>
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<tr>
<td>46 - 48%</td>
<td>1,564,436</td>
<td>10,999,802</td>
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<td>12,564,238</td>
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<tr>
<td>&lt; 46%</td>
<td>3,983,415</td>
<td>64,588,325</td>
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<td>68,571,740</td>
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<tr>
<td>TOTAL</td>
<td>8,846,934</td>
<td>139,368,543</td>
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<td>148,215,477</td>
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</table>
### NCHWANING MINING AREA – No 2 Ore body

**Mn < 46 %**

<table>
<thead>
<tr>
<th>GRADE</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 48%</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>46- 48%</td>
<td>1,845,834</td>
<td></td>
<td>1,845,834</td>
<td></td>
</tr>
<tr>
<td>&lt; 46%</td>
<td>180,112,897</td>
<td></td>
<td>180,112,897</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>181,958,731</td>
<td></td>
<td>181,958,731</td>
<td></td>
</tr>
</tbody>
</table>

**Mn 46 - 48 %**
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ROOM & PILLAR MINING (7 x 7 m pillars, 8 m wide Roadways)

BLASTING ON DAY SHIFT (Face advance between 3.3 and 4.0 m)

12 t LHD & 25 t BELL TRUCKS MOVE ORE TO NEAREST CONVEYOR

UNDERGROUND CRUSHING TO −150 mm
WASHING & SCREENING PLANT ON SURFACE
ORE IS SPLIT INTO VARIOUS SIZE FRACTIONS
SURFACE STOCKPILES @ 300 – 400 t EACH TRACKED ON COMPUTER
SELECTED SURFACE STOCKPILES LOADED ONTO TRAINS
INSTALLED CAPACITIES

- Total current hoisting capabilities are 5.8 Mtpa
  - Nch 2 vertical # @ 1.6 Mtpa (High Grade)
  - Nch 3 decline @ 2.8 Mtpa (High Grade)
  - Gloria decline @ 1.4 Mtpa (Low Grade)

- Current surface plant capacities are 4.5 Mpta
  - Gloria Surface plant @ 1.83 Mtpa
  - Nchwaning surface plant @ 2.67 Mtpa

- Ore loading and Rail capacity ± 3.5 Mtpa

- Estimated capacity of Port Elizabeth Harbour ± 4.2 Mtpa
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  – Financials
  – Nchwaning 3 project
• The Future
RECENT COST/TON FIGURES

Year | Cost/Ton
--- | ---
98/99 | R170
99/00 | R163
00/01 | R140
'01/02 | R158
'02/03 | R175
'03/04 | R168
RECENT SALES PROFILE

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>98/99</td>
<td>1,475,060</td>
</tr>
<tr>
<td>99/00</td>
<td>1,360,171</td>
</tr>
<tr>
<td>00/01</td>
<td>1,444,961</td>
</tr>
<tr>
<td>'01/02</td>
<td>1,403,615</td>
</tr>
<tr>
<td>'02/03</td>
<td>1,581,560</td>
</tr>
<tr>
<td>'03/04</td>
<td>1,794,155</td>
</tr>
</tbody>
</table>
NCHWANING 3 – Objectives

- Achieve a 20% reduction in unit operating cost
- Loader and hauler operations are to be separated
- Underground facilities required to handle multiple grades simultaneously
- Minimize ore handling between face and surface plant
Nchwaning 3

• WHY?
  - To replace diminishing reserves
  - Establish low cost mine
  - Provide for Future Growth

• WHAT?
  - Men & Material Shaft 5.6m dia & 419m deep
  - Vent shaft 5.6m raisebored
  - Decline 4.4 x 8.2m x 2200 m @ 11.5 degrees
NCHWANING 3 PROJECT STATUS

- Project Start Date was June 1999
- Planned completion date August 2003
- Revised completion date March 2005
- Planned capital cost R 517 million
- Revised capital cost R 775 million
- Delays and Additional costs due to:
  - Design changes
  - Delays due to water and ground conditions
  - Main contractor defaulting
26 May 2004 - First production of high grade ore from the underground mining operation
NCHWANING 3 PROJECT

Contingency plan

• In order to offset the negative effects of the delayed project a temporary ore pass was introduced.

• This allowed for 409 633 production tons since 26 May 2004.

• All the production was specifically suited to Cato Ridge, resulting in improved efficiencies.
The commissioning of the Nchwaning 3 mine marks the beginning of a new era in the long history of Assmang. The future of Assmang as a reliable supplier of high quality manganese ore is assured.
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THE FUTURE

- ASSMANG have access to an excellent high grade orebody on the No 1 manganese seam.
- ASSMANG can relatively easily access and mine the No 2 medium grade orebody to supply blast and electric furnaces.
- ASSMANG has made significant capital investments to position for future demand.
- Sales volumes are increasing while operating costs are improving.
- ASSMANG is actively pursuing continuous improvement policies.
FUTURE PLANS

- ASSMANG aims to be a reliable supplier of high grade ore for the next 30 years.
- ASSMANG aims to significantly grow market share in China by supplying medium grade to the blast and electric furnaces.
- This strategy could see a doubling of ore output within the next 6 to 8 years.
- ASSMANG is committed to optimising the available ore resources by constructing DMS and Sinter facilities by 2010.
- ASSMANG will remain aggressively involved in the logistics of ore transport and shipping to ensure the anticipated volume growth.
CONCLUSION

• At ASSMANG energy is not everything …
  …. it is the only thing.

• We do it better!