Winnaarshoek

Mining area covers four farms
- Winnaarshoek
- Clapham
- Forest Hill
- Portion of Driekop
Winnaarshoek project area

Geology

- Extensive exploration drilling conducted
- Both the UG2 and Merensky reefs are present
- Average Dip of 13 degrees to southwest
- Vertical separation of 400m
- One prominent dyke and a dunite pipe
- No significant faulting
Exploration boreholes

Existing Boreholes

Phase 2 drilling

Datamine 3D DTM Model

3D VIEW LOOKING EASTWARDS
**Reserves and resources**

**UG2**
- Mineable channel to 500m below surface = 22.9M tons
- Yearly mined channel tonnage = 2.2M tons
- Resource extends at depth to support a life of mine of 20 years plus

**Merensky**
- Mineable channel to 500m below surface @ 110cm = 45.4M tons
- Yearly mined tonnage = ±2.3M tons
- Life of mine thus about ±20 years

---

**Mining**

- Optimum mining plan based on trackless mechanised room and pillar mining method.
- Practised at Kroondal Platinum and various chrome mines (Xstrata eg Thorncliffe)
- A mining height of 180cm
- Dense Media Separation technology
- Mining will start on the UG2 reef and exploitation of the Merensky reef horizon as an expansion to the project
Mining

- Access by way of two decline systems
  - Clapham shaft and Driekop shaft
  - Three portals out of each
  - Develop at minor dip of 9.5 degrees
  - Main decline development on reef
  - Reef tonnage stockpiled
  - LHD cleaning onto strike conveyors
  - Dip conveyor to surface
  - Each system to produce about 200 000 ROM tons per month

Clapham shaft
Decline shaft access

Low profile roofbolter
Low profile drillrig

Low profile loader
Infrastructure

- New access road from existing Burgersfort-Pietersburg (R37) road
- Secondary roads to the shafts, concentrator plant, etc
- Bulk water from Lebalelo Water scheme will be purified on site
- Biofilter sewage treatment works

Infrastructure

- Temporary power available November 2001 - permanent power from September 2002
- Centralised offices, workshop, ablutions, training centre and clinic at concentrator plant
- Each decline system: own offices, change house and lamproom/crush
Concentrator plant

- Dense media separation
- Conventional UG2 two-stage milling and froth flotation
- Two primary and two secondary mills ie a twin stream
- Filter cake to Impala for smelting in Rustenburg and refining by IRS in Springs
- Reef from development/stoping stockpiled on surface
- Stockpile processing starts with plant commissioning

Staffing

- Total labour force will be 1800
  - Clapham Decline - 757
  - Driekop Decline - 724
  - Concentrator - 186
  - Central Services - 133
### Staffing

- Decline development using contractors for the first two years, commencing February 2002
- Thereafter production with mine staff
- Training at Impala until facilities available on site
- Preference is to utilise local labour from the project area

### Project schedule

<table>
<thead>
<tr>
<th>Event</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commence Decline sinking</td>
<td>February 2002</td>
</tr>
<tr>
<td>Hot commissioning of concentrator plant</td>
<td>July 2003</td>
</tr>
<tr>
<td>Full monthly milling tonnage achieved</td>
<td>December 2003</td>
</tr>
</tbody>
</table>
Project financials

- Viable project
- Joint Venture: Black Economic Empowerment group
- Capital cost approximately R1600m, over a four year period
- Project will realise a profit after capital expenditure from financial year 2004
- Project cash flow will be positive from financial year 2009
- Future Merensky reef expansion from financial year 20053