UG2 ore separation project

- Objectives
  - Increased pgm recoveries
  - Increased throughput
  - Reduced working costs
- Costs - R100 million
- Safety
  - 806,822 man hours worked
  - 2 reportable accidents
  - 1 lost time accident
  - Peaked at around 1,000 contractors on site

AG mill circuit
Circuit changes

- Autogenous milling
- High grade / low grade separation
  - Pebble ports
  - Trommel screens
  - Crushers
  - Fine screening
- High grade / Low grade regrinding
- Low grade flotation

Commissioning problems

- Primary high grade rougher tails
- Chokes / spillage
- Classification screens
- Regrind mill ball loads
- Wear rates
- Crushers
Current issues

- Plant availability
- High Grade/low grade split
- Grind
- Flotation performance

Current issues

- Recoveries at pre-expansion levels
- Throughput (tph) increased by 13%
- High grade/low grade split at 80:20
Milling rate

[Bar chart showing milling rate from Sep-00 to Aug-01 with a trend line.]
Milling rate

- Crusher plant
- Upgrading of cleaner-recleaner circuit
- Upgrading and automation of reagent addition
- New slag plant
- Best practices
  - Density control
  - Reagent optimisation
  - Classification optimisation
  - Open-cast treatment

Smelter expansion project
Outcome of smelter expansion

Acid plant upgrade
- Total cost - R 30 million (budget R33 million)
- Commissioned November 2000 - on time
- Achieving designed conversion rate and running time

New Pierce Smith Converters
- Total cost - R 44 million (budget R46 million)
- Commissioned December 2000
  - planned November 2000
- Achieving expected output

Outcome of smelter expansion

- New 38 MW furnace
- Total cost - R123 million (budget R132 million)
- Commissioned March 2001 - on time
- Operation much improved compared to No.5 furnace
Current smelter projects

- Furnace off-gas cleaning
- Installation of Sulfacid technology (Lurgi)
- 50% reduction in current furnace SO₂ emissions
- Modular installation
- Planned commissioning July 2002
- Total cost R55 million

Current smelter projects

New dryer

- Niro spray dryer
- For thickener and dry concentrate silo
- Capacity of 50 tons per hour dry concentrate
- Planned commissioning November 2002
- Total cost R88 million