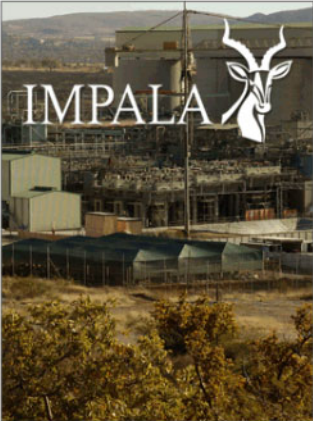# Mineral Resource Management (MRM)
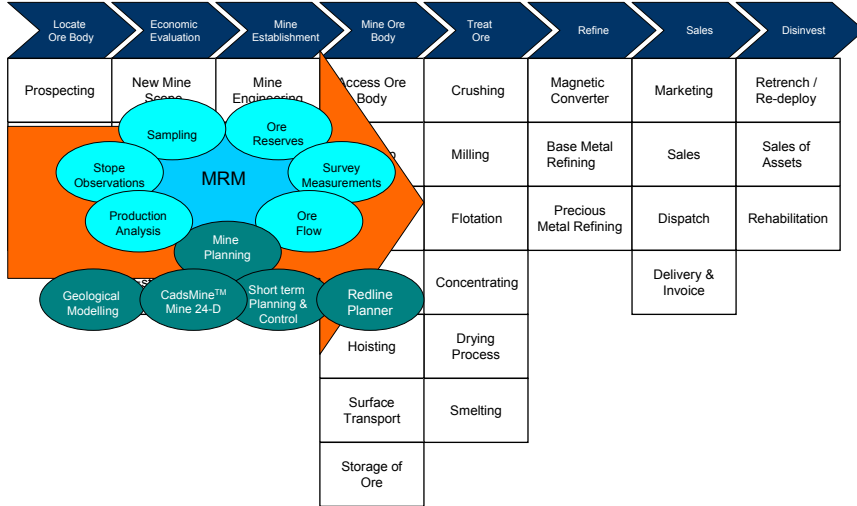
Emmanuel
Acheampong
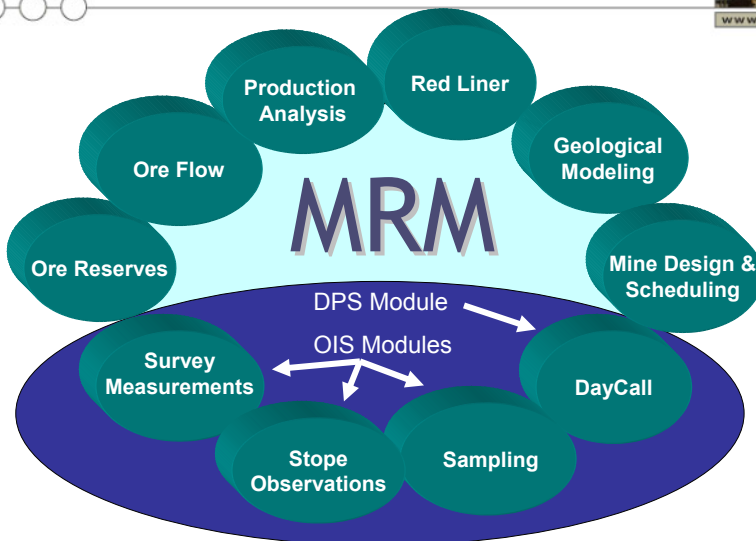1 Dec 2004

---

# Rationale for MRM

- MRM provides an integrated business solution for the management and control of mining activities

- It focuses on the processes of defining, planning, depleting and reconciling ore reserves/resources

IMPALA

# IMPALA MRM System in relation to the mining value chain

| Locate Ore Body | Economic Evaluation | Mine Establishment | Mine Ore Body | Treat Ore | Refine | Sales | Disinvest |
|---|---|---|---|---|---|---|---|
| Prospecting | New Mine Scope | Mine Engineering | Access Ore Body | Crushing | Magnetic Converter | Marketing | Retrench / Re-deploy |
| | | | | Milling | Base Metal Refining | Sales | Sales of Assets |
| | | | | Flotation | Precious Metal Refining | Dispatch | Rehabilitation |
| | | | | Concentrating | | Delivery & Invoice | |
| | | | | Hoisting | Drying Process | | |
| | | | | Surface Transport | Smelting | | |
| | | | | Storage of Ore | | | |

MRM

Sampling · Ore Reserves · Stope Observations · Survey Measurements · Production Analysis · Ore Flow · Mine Planning

Geological Modelling · CadsMine™ Mine 24-D · Short term Planning & Control · Redline Planner

---

# IMPALA MRM – comparison with current Mining Technical Systems

Production Analysis · Red Liner · Geological Modeling · Ore Flow · Ore Reserves · Mine Design & Scheduling

## MRM

DPS Module

OIS Modules

Survey Measurements · Stope Observations · Sampling · DayCall

## Potential benefits

- Realistic visualizations of mining conditions using 3-D technology
- Improved interpretation of geologically disturbed areas
- Optimizing of half-levels and therefore shaft capacities
- Optimizing on-reef and off-reef development
- Optimal scheduling of teams
- Timely increase in and scheduling of mining rates in areas of excess capacity, especially in mechanized sections

## Potential benefits (cont'd)

- Continuous and dynamic rolling business plan
- Ease of creating different planning what-if scenarios
- Integrated communications between and sharing of information by service departments
- No data duplication or re-handling
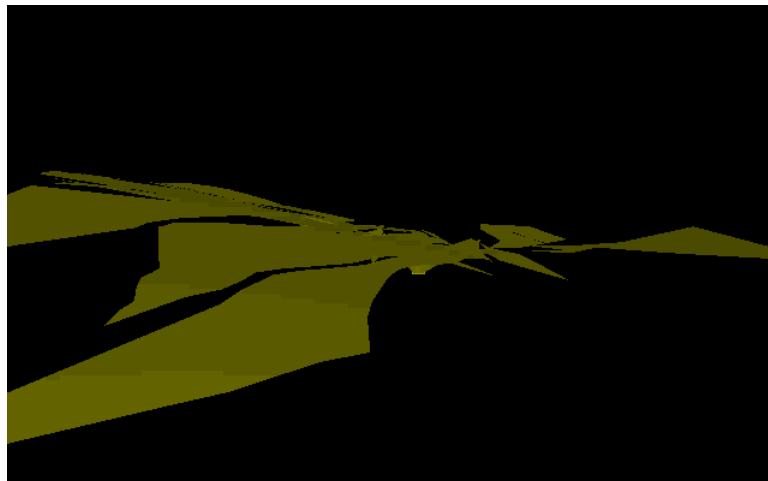
## Potential non-tangible benefits

- Mining processes (planning, modeling, etc) more streamlined
- Decision-makers able to make more timely and informed decisions
- End-users empowered through skills development
- Continuity and management of collective knowledge base
- Current industry practices maintained and potentially exceeded
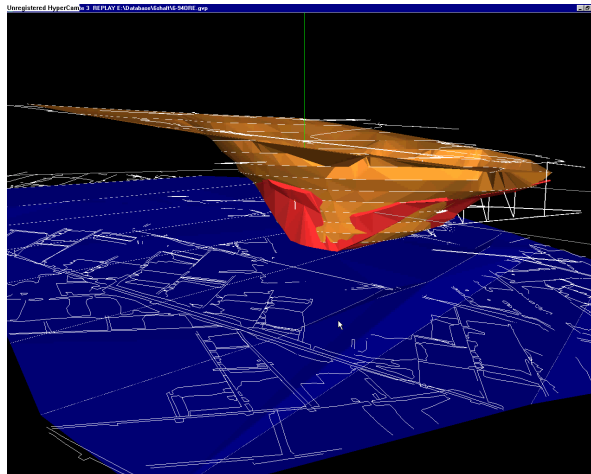
## 3-D Geological Models
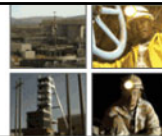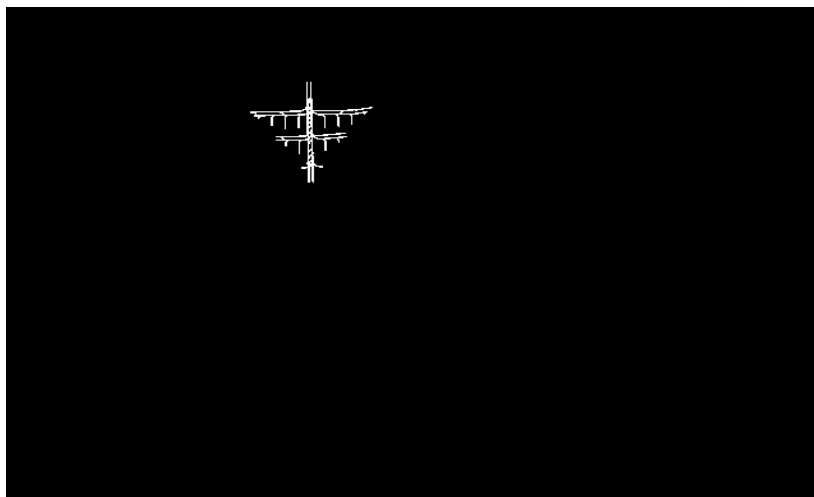
14#

# 3-D Geological Models

A portion of 6#

# Create mine layout and schedule life-of-mine plan

# High-level project plan and implementation status

| | 2004 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Project Launch | ☺ | | | | | | | | |
| Infrastructure set-up | | ☺ | | | | | | | |
| Software set-up & configuration | | ☺ | | | | | | | |
| Geological Modeling | | Training | Hands Holding | | ☺ | GO LIVE | | | |
| Mine Planning (BP) | | Training | Hands Holding | | ☺ | GO LIVE | | | |
| Mine Planning (Life of Mine Plan) | | | Hands Holding | | | ☺ | GO LIVE | | |
| Monthly Planning | | | Training | Hands Holding | | ☺ | GO LIVE | | |
| Sampling | | Training | Training | Hands Holding | ☺ | GO LIVE | | | |
| Stope Observations | | | Training | Hands Holding | | ☺ | GO LIVE | | |
| Ore Reserves | | | | Training | Hands Holding | | ☺ | GO LIVE | |
| Survey Measurements | | | | Training | Hands Holding | | ☺ | GO LIVE | |
| Redline Planner | | | | Training | | Hands Holding | ☺ | GO LIVE | |
| Ore Flow / Ore Accounting | | | | | Training | Hands Holding | ☺ | GO LIVE | |
| Dynamic Reporting | | | | Training | | Hands Holding | GO LIVE | ☺ | |

11

---

# Mineral Resource Management (MRM)

IMPALA

**Emmanuel Acheampong**
**1 Dec 2004**