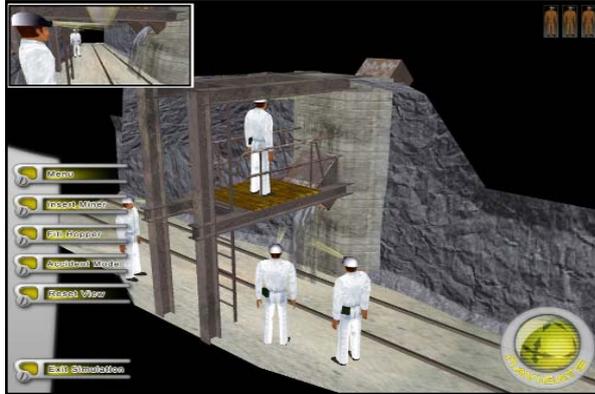


## the Naledi3d Factory Industrial safety – showing the impact of a mine mudrush (2005)

**Purpose:** Because of the nature of the environment, mines, and particularly gold mines, are hazardous working environments. Consequently, large resources are put into safety awareness and training. In the case of a “Mudrush” a blocked chute can result in thousands of tons of rock and water accumulating behind it – which can rush out as the blockage is cleared. Unsafe procedures can (and do) lead to fatalities. VR is a powerful tool to demonstrate good and bad practice – and the consequences of each.



**Partner:**

AngloGold Ashanti

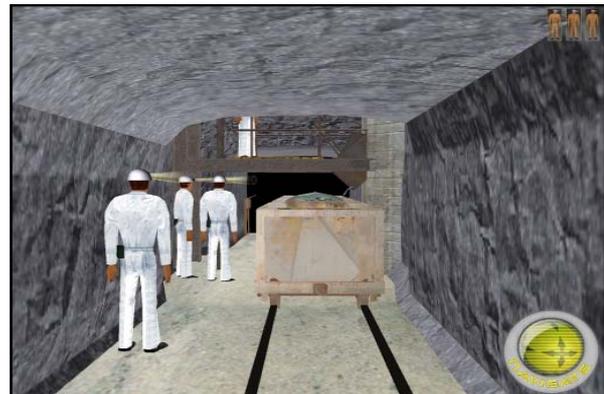


**In a Nutshell:**

The virtual mineshaft comprises a chute, rail line, and work platform (safety area). The chute is used to feed “stof” (ore) to the train, which consists of three hoppers. Normally the stof is loaded into the hopper. However, occasionally an accident occurs and any miners in the wrong location are either fully or partially buried.

### Anglo American Fatality Alert 150 August 2004:

*“A water inrush from an orepass resulted in the death of five people and slight injury to five others in an underground mine. The orepass had not been in use for some time prior to the accident. Fissure water had accumulated in the orepass despite the provision of drain holes and a permeable control chute arrangement design (large link chains). The five workmen who died were performing maintenance work on the box front from an elevated platform”*



### Interactive safety awareness:

The trainer or facilitator uses the VR model to demonstrate this dangerous hazard. Up to seven miners can be located along the haulage (with one operator on the platform) and one of five levels of accident severity can be configured. When the mudrush occurs, the affected miners change colour – red (fatal); yellow (injured); and green (safe). The scene can be rotated and viewed from any angle. A portal can be activated to see a selected miner's view of the scene. Audio is also used to add realism, both as background mine sounds as well as screams when an incident occurs.

