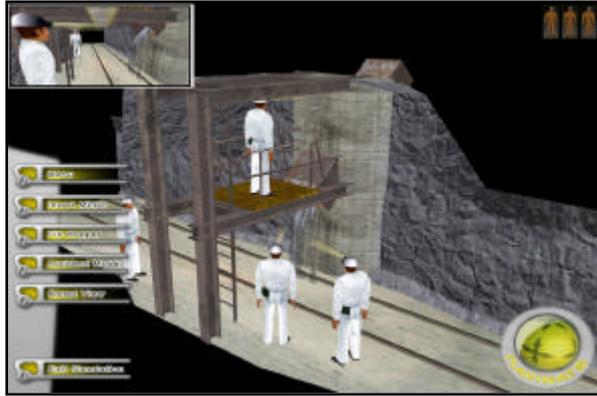


# the Naledi3d Factory

## Industrial safety – showing the impact of a mine mud rush (2005)

**Purpose:** Due to the nature of deep-level mines, particularly gold mines, the working environment is generally considered hazardous. Consequently, a huge amount of resources is dedicated to safety awareness and training - so as to help mining teams to better understand the consequences of unsafe actions or conditions, as well as to identify safety hazards and to take corrective action in good time. Unsafe procedures can (and do) lead to fatalities and Virtual Reality is a powerful tool to visually demonstrate good and bad safety practice - and the consequences of each.

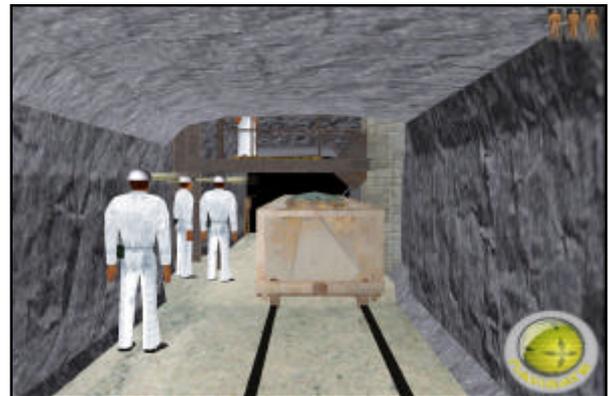


**Partner:**  
AngloGold Ashanti



**In a Nutshell:**  
The virtual mine shaft comprises a chute, rail line and work platform (safety area). The chute feeds ore to the train, which consists of three hoppers. While under normal conditions, the ore is safely loaded into hoppers, occasionally an accident (mud rush) occurs - during which any miners in the wrong location will be fully or partially buried.

**The mud rush:**  
In the case of a mud rush, a blocked chute can result in the accumulation of thousands of tonnes of rock and water behind the blockage, which can rush out as the blockage is cleared - an extremely hazardous situation. Procedures are in place to cater for this event, however if these are not adhered to, there is a good chance that severe injuries and/or fatalities will result. This model addresses this issue and shows visually the risks associated with being in the wrong place in this situation.



**Interactive safety awareness:**  
The facilitator uses the VR model as a simulation that demonstrates the hazards associated with a mud rush. 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 mud rush 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, for example through the inclusion of background mine sounds as well as screams when a simulated incident occurs.

