

the Naledi3d Factory Industrial safety – energy awareness (2008)

Purpose: Energy awareness is paramount to ensuring safe working in mines & VR is a powerful tool to visually demonstrate the consequences of wrong behaviour or unsafe actions. The focus of this project is to help learners better understand energy & the consequences of poor, or no energy management. This revolutionary approach is based on the premise that energy (in one form or another) is behind most accidents. By showing what energy is, the miner has a better chance to manage his own safe working environment.



Partner:
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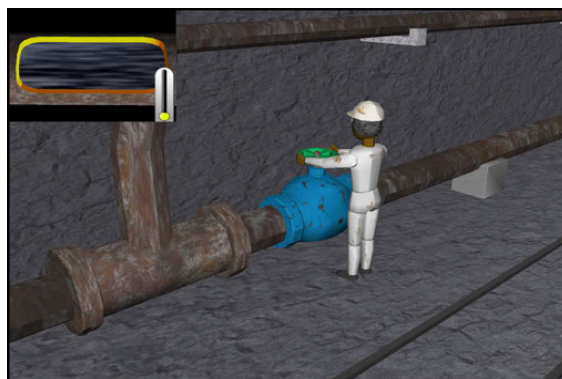


In a Nutshell:
A range of VR simulations show the learner how to effectively manage energy in a typical mining environment. This is achieved by showing the consequences of poor energy management, preventive measures and emergency procedures, using four environments (1) underground (2) vertical shaft (3) above ground & (4) tailings storage facility.

The high-energy hazards

In a mine, energy can manifest itself in many ways. Based on the premise that prevention is better than cure the topics addressed include:

- (1) Explosions;
- (2) Geological energy (rock-bursts, fall of ground and stope face roof drops);
- (3) Motion & weight (locomotives, pumps / pipes, backfill bags, winches and eyebolts, compressed air, cage, conveyors and tailings storage facilities);
- (4) Corrosive energy;
- (5) Radioactive Energy; and
- (6) Chemical energy (pressure build-up and resulting shockwaves, flammable environments).



Interactive safety awareness:

Fourteen small VR simulations (*Interactive3d learning objects*) are used to develop a rudimentary understanding of energy, its potential hazards and the dangers of uncontrolled energy. Typically, the learner is able to move around the simulation and identify hazards and take preventative steps; or if an incident occurs, respond immediately to rectify the situation. The simulation looks at: (1) what energy is and how it affects us; (2) some different forms of energy; (3) the fact that all forms of energy have the potential to do harm or be fatal; (4) energy is present everywhere; and finally, (5) we need energy to do our work.

