Surface Mine Truck Safety Training*

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Workplace accidents in the mining industry reduce production, increase costs, and result in temporary, permanent, and even fatal injuries to mine workers. Accidents are a major concern in day-to-day mining operations and are expensive in terms of both cost and employee morale.

One of the most important tools for on-the-job accident prevention is worker training. However, the cost of training is high, particularly when the training attempts to provide a realistic and compelling image of risks associated with mining and proper techniques for avoiding those risks. Preparing video demonstrations, conducting safety training tours of work sites, and on-site safety briefings can all be effective training tools, but are expensive and disruptive to daily operations. As a general rule, the more realistic the current training exercises are, the more expensive they are.

As an alternative to on-site and video training, virtual reality technology offers an excellent medium for simulating real world situations. The Mine Vehicle Safety Simulator (MVSS) developed at the University of Nevada is an example of such a virtual reality training tool. MVSS provides a cost-effective simulation of mine vehicle operation. Benefits of MVSS include interactive training, which can be tailored to the trainee's needs, versus static videos of training scenarios, and low work-place disturbance as opposed to on-site training.

This paper provides a brief overview of the accident prevention challenge facing the surface mining industry with particular reference to off-highway haulage trucks that are typically used in this type of mining. It discusses the industry trend to explore new techniques for training workers and preventing accidents, describes the goals, concepts, and technology that underlie MVSS and provides an overview of its capabilities and operational modes. Finally, the effectiveness of MVSS as a training tool and its future potential is discussed.

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