

Project Title: Enhanced Mobile Equipment Experiential Learning and Safety Technology Demonstration

Organization: West Virginia University Foundation.

Partnerships: West Virginia Department of Miners Health, Safety & Training

Investigator(s): James M. Dean

Focus Area: Safety and Training

SYNOPSIS

Problem Statement and Justification: According to the Mine Safety and Health Administration, between 2000 and 2010 nearly 800 miners were injured and 6 killed in accidents involving shuttle cars and scoops in underground coal mines. Most of these accidents occur because the equipment operator is not aware of the presence of personnel near the mine equipment. Despite the availability and delivery of specific training on the dangers presented by mobile underground mining equipment, accidents involving mobile equipment continue to be a significant share of total fatal and non-fatal accidents in underground coal mines.

Impact of the Research: Machine mounted cameras and proximity detection systems can improve the ability of equipment operators to know when individuals may be in harm's way, but without proper training, there may be a tendency for operators to rely too much on this technology and neither represents a failsafe system. Realistic experiential training, for operators and apprentice miners, is needed to fully impart the dangers presented by mobile equipment, the limitations of any technological West Virginia Department of Miners Health, Safety & Training aids, and best safety practices by everyone to reduce significantly the number of accidents involving mobile equipment. West Virginia University Mining and Industrial Extension (MIE) propose to create and provide the research based experiential training necessary to improve the safe operation of shuttle cars and scoops in underground coal mines.

Objective(s) and Research Approach: The first specific aim will be the creation of the key components of the demonstration and curriculum. The startup committee of three equipment operators and three management representatives will provide coverage of areas of concern that have not been addressed to the point that the decision to implement the technology can be made. This information will be used to formulate a training curriculum to address these weaknesses. The second specific aim will be to execute the training curriculum which will include training exercises at the simulated mine facility by various parties, and demonstrations for industry, research organizations, and government regulators. The third specific aim will be to provide evidence that the training conducted as part of this effort has been effective. The Investigator will follow the model described in NIOSH publication No. 99-142 *A Mode/for Research on Training Effectiveness or Training Intervention Effectiveness Research (TIER)* as a guide to for the effectiveness assessment.