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NIOSH Releases New Computer-Based Training Exercise Called MERITS

Objective

As mines become safer and disasters fewer, a time may come when no employees in the mining industry have any practical experience in managing a mine emergency. To fill an emerging gap in mine emergency response training, a multidisciplinary team of researchers and computer programmers from the NIOSH Pittsburgh Research Laboratory has developed an intervention for mining personnel who would be in leadership positions in the command center during emergencies. It is called MERITS, a computer-based emergency simulation exercise. MERITS is short for "Mine Emergency Response Interactive Training Simulation." It provides trainees an opportunity to gain command center experience during a simulated underground coal mine emergency. MERITS allows trainees to practice information gathering, situation assessment, decision-making, and coordination skills without risk to personnel or property. Individuals representing mine emergency response personnel, various State safety officials, and private mine management from three States have participated in MERITS training.

What Is MERITS?

MERITS is an extension of previous work that compiled a knowledge base relevant to mine disaster management via interviews, analysis of literature, reviews of past events, and observations of mock mine disasters. Findings from prior research found a need for an alternative method of command center training. This new computer simulation is being used to train emergency command center personnel to effectively manage an underground mine fire. Modeled after training simulations developed for other industries (e.g., to address nuclear accidents, chemical spills, evacuations, etc.), MERITS simulates underground and surface events related to the disaster. It exposes the user to events that typically occur during a mine emergency, such as lack of information and miscommunication. It also presents trainees with issues that must be addressed, such as making provisions for briefing news media and victims' families, ordering needed supplies, interfacing with Government enforcement agencies, and housing mine rescue teams. The outcome of the

scenario is determined by the users' decisions and their emergency response plans.

Field Results

Field testing of MERITS was conducted with eight full-day training sessions at four different locations in Colorado, Pennsylvania, and West Virginia. These field tests benefited from the knowledge and experience of State of Pennsylvania inspection officials, representatives of the United Mine Workers of America (UMWA), and private mine management who served as trainees for the MERITS training sessions. Trainees self-reported an average of 20 years of work experience in the mining industry. All trainees had participated in Mine Emergency Response Development (MERD) training exercises, and many had been involved in real mine emergencies. Trainee evaluation of the MERITS program is summarized below:

- Twenty-six of the 27 trainees believed that the MERITS simulation helped them know how to prepare for a real emergency.
- Twenty-five of the 27 trainees believed that the storyline for the MERITS simulation was either "very realistic" or "realistic."
- All 27 trainees believed that the MERITS simulation helped them learn how to better handle a real emergency.
- None of the 27 trainees stated that they were bored during the simulation.

After the initial field tests, MERITS was refined and retested during training sessions for individuals from State agencies, the UMWA, and private industry. Mining personnel from underground coal and underground stone mines participated and responded positively to the learning experience.

Technology Transfer

Industry introduction to the MERITS program will occur throughout 2002. MERITS presentations at the Joseph A. Holmes Safety Association National Meeting in Virginia Beach, VA, in June.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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2002 and the 33rd Annual Institute on Mining Health, Safety and Research in Roanoke, VA, in August 2002 will provide an overview of the program. Of particular interest to organizations and individuals who conduct mine emergency response will be two "Train the Trainer" seminars. These seminars will be organized as a "how-to" guide for running a successful MERITS training session. These hands-on seminars will cover all aspects of a training session, from installing the software to setting up a classroom and successfully running a session. A seminar to target training professionals in the Western United States will be held on June 21, 2002, in Grand Junction, CO, and will be cosponsored by the State of Colorado's Department of Natural Resources. Training professionals in the Eastern United States will have the opportunity to attend the second "Train the Trainer" session during the TRAM/NMIC conference in October 2002 in Beckley, WV.

For More Information

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To receive additional information about occupational safety and health problems, call **1-800-35-NIOSH (1-800-356-4674)**, or visit the NIOSH Web site at www.cdc.gov/niosh

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Figure 1.—Trainers working with trainees during MERITS session.

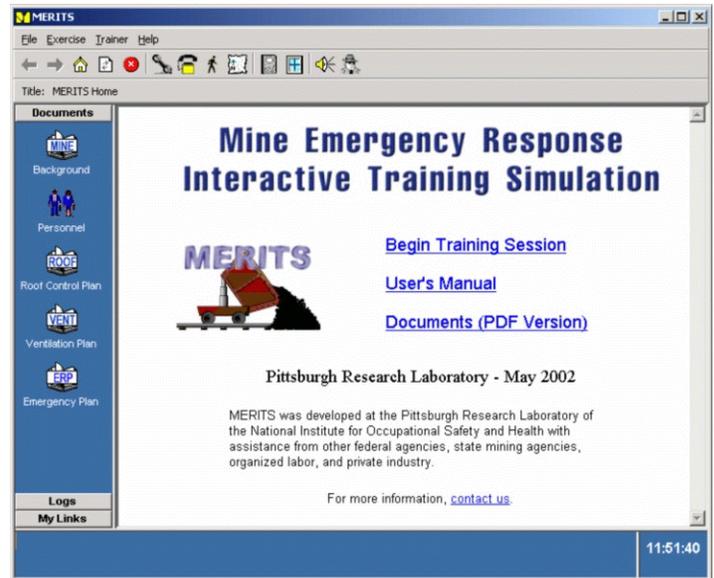


Figure 2.—MERITS main screen.