

ORION, WASHINGTON, D.C.

“Working in a Coal Mine”

By Paul Hamilton

There is frost on the cars at 6:55 AM, fifteen miles south of Pittsburgh on April 15, 2008. Deep in a 100-year-old coal mine, Ed Morgan, Mine Examiner, striding quickly with his body bent low, avoiding the uneven roof, looks for two miners to tell them of a popped circuit breaker. He travels through a cold, black labyrinth framed by rough, equally black rock. Mud muffles his footsteps, so the only sound is dripping water. It comes as a shock when the alarm on his detector breaks the silence. Carbon monoxide! Smelling smoke, he turns a corner and discovers a fire. As the toxic smoke and fumes billow toward him, he feels a wave of sickness and quickly dons his emergency breathing apparatus. Visibility drops to a few feet as he hurries by feel and memory along a marked rope to the nearest mine phone. All he can see is a shaft of light from his helmet, vanishing into a grey void. The dusty phone coalesces

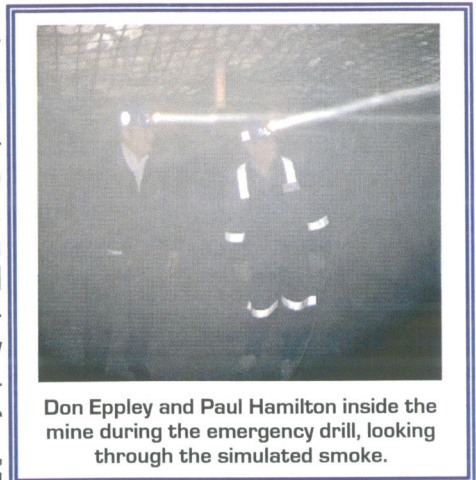


Paul Hamilton in full safety gear at the mine emergency drill in Pittsburgh, PA, April 15, 2008.

out of the smoke. Taking out his mouthpiece, he pages outside: “Fire! Fire on the East Main cutting machine located in the main return beyond the last working place. No sign of the two guys. I have one fire extinguisher and I am going to try and put the

fire out. The roof is starting to go. Send help!” Then, only silence. By 8 AM, there is a command center in place at the mine office. Men cluster around a grey table, amid Styrofoam coffee cups, faded blueprints, and anxiety. Comments are spare, measured, like pebbles dropped into water; the listeners contemplate every ripple. It’s a grittier version of *Apollo 13*. Outside, three mine rescue teams suit up by the smoking mine entrance.

They will search until mid afternoon before putting out the fires and bringing out the two lost miners. However, within a few hours, Ed Morgan, accompanied by ORION Program Manager Paul Hamilton, is able to find his own way to the outside.



Don Eppley and Paul Hamilton inside the mine during the emergency drill, looking through the simulated smoke.

The going is easy because “Ed Morgan” is a role played by ORION’s Subject Matter Expert Don Eppley, the thick smoke is a nontoxic mist of vegetable oil, stacks of flashing red lights mark the fires, and the whole situation is a mine emergency response drill (MERD) under the auspices of the National Institute for Occupational Health and Safety (NIOSH) and the Mine Safety and Health Administration (MSHA). Managers and rescuers get to practice working together as a team, and ORION’s role is to observe the exercise both underground and at the command center to gain insight into how to train mine personnel to respond effectively to an emergency.

These ideas are being incorporated into an Umbra-based Mine Emergency Training System (MERITS) being developed by ORION under a contract with NIOSH. “I really believe in this project,” says Hamilton. “It fits in with the ORION theme of using advanced methodologies to address problems that matter to society. I’m trying to move Umbra out of the government world of science and robotics and into the commercial world of activities such as industrial process control and automation, monitoring, and training.”

“Coming together is a beginning, staying together is progress, and working together is success.”
—Henry Ford