

**Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health**

**Senate Committee on Health,
Education Labor, and Pensions
Hearing on the State of Mine Safety and Health
Thursday, March 2nd, 2006
10:00 a.m.**

**Principal Witness:
John Howard, MD
Director, National Institute for Occupational Safety and Health**

Introduction

Good morning Mr. Chairman and other distinguished members of the Committee. My name is John Howard, and I am the Director of the National Institute for Occupational Safety and Health (NIOSH), which is part of the Centers for Disease Control and Prevention (CDC), within the Department of Health and Human Services. I am accompanied by Dr. Jeffrey Kohler who is the NIOSH Associate Director of Mining and Construction. I am pleased to be here today with our sister agency, the Mine Safety and Health Administration (MSHA). Our agencies work together toward the common goal of protecting worker safety and health.

The focus of NIOSH research is to develop new knowledge and to transfer that knowledge into practice. The NIOSH Mining Program seeks to understand and explain through its research the underlying causes of diseases, injuries, and fatalities among miners, and works to develop interventions to eliminate these underlying causes. In many cases engineering controls, best practices and improved training programs are developed or improved. These have little potential for impact, however, until each is practiced at the mine. Towards that end, the NIOSH Mining Program has an aggressive technology transfer program encompassing workshops, stakeholder meetings, mine-level meetings, and the dissemination of information in print, electronic, and visual materials, among others. One of the most effective research-to-practice tools employed by the NIOSH Mining Program is the wide use of partnerships. These partnerships of labor, industry, government, universities, and manufacturers are involved from project

conception to completion, and provide an excellent conduit to move the research products into practice at the mine.

Based on surveillance data and stakeholder input, the mining program, is organized in six areas.

Respiratory Hazards Control. This area is focused on the elimination of coal worker pneumoconiosis, silicosis, and the adverse health outcomes associated with exposure to diesel exhaust. The development of engineering controls and best practices is a major focus of this area, along with empowering miners with real-time dust measurement devices. NIOSH-developed innovations to reduce exposure are found throughout the mining industry, and a few examples include coal and silica dust suppression technologies, and the diesel particulate matter filter selection guide.

Noise-Induced Hearing Loss. This area is focused on the elimination of hearing loss resulting from exposures to noise. The development of engineering controls to reduce noise at the source is the major focus, with a secondary focus on training, along with the development of inexpensive devices to empower miners to determine their exposure in real time. Although this major area has only developed over the past 7 years, several NIOSH innovations can be found in practice, including improved noise controls for mining machinery and improved training tools for mineworkers.

Traumatic Injury. This area is focused on eliminating the injuries and fatalities resulting from machinery and powered haulage, electricity, and falls, among others. The

development of improved design practices, engineering controls, and training tools are focus areas for NIOSH researchers. NIOSH-developed recommendations for safer blasting have been adopted by the mining industry, and NIOSH developed training programs to recognize hazards and prevent injuries are utilized throughout the industry. NIOSH has recently licensed two new technologies that will reduce powered haulage injuries and electrical contact injuries, respectively.

Cumulative Trauma Injuries. This area is focused on elimination of musculoskeletal injuries, e.g. to the lower back, knees, and shoulders, and with an aging workforce, this is becoming an increasingly critical area. The identification and redesign of the workplace and work tasks is proving to be a successful approach in eliminating these problems, as is improved training. Important examples of NIOSH innovations include *The Ergonomic Process* which is being widely embraced in the coal, metal/nonmetal, and stone industries, and the ergonomically designed shuttle car seat which has become a standard on nearly all shuttle cars in underground coal mines.

Disaster Prevention and Response. This area is focused on the prevention – escape – rescue hierarchy of mine disasters, e.g. fires, explosions, and inundations. This research focuses first on the development of design and engineering control interventions to prevent a fire or explosion. NIOSH developments, in the areas of fire prevention and ventilation are in general use throughout the industry. The second area of mine escape focuses on providing effective training and tools to aid mineworkers in making a successful escape from the mine during an emergency. The NIOSH developed training

programs for Self Contained Self Rescuer use, and the *Emergency Communications Triangle*, are prevalent throughout the industry. The third area of mine rescue focuses on the development of training exercises for mine rescue teams and fire brigades, as well as the development and proving of technologies to allow rescuers to work more quickly and safely. Thousands of miners and more than a hundred rescue teams have been trained by NIOSH in partnership with state agencies and mining companies. The Res-Q-Com communications system for mine rescue teams has the potential to significantly enhance communications during rescue. NIOSH's on-going research on the aging workforce is addressing some of the barriers to staffing rescue teams today.

Ground Control. Mines are developed within the earth in the naturally occurring geologic structures. This area is focused on the prevention of unplanned rock failures since the structural integrity of the mine openings is essential to worker safety, the ventilation systems and adequacy of escape routes. The focus areas of research include defining rock mass behavior within specific geological and geotechnical conditions, such as high stress fields or interactions with surrounding mines; and the development of engineering controls and design strategies to prevent unplanned fall of ground, e.g. rock or ore. NIOSH-developed design practices and computer design tools are widely used throughout the industry. NIOSH developed or tested innovative roof supports are found throughout the coal industry, and Mobile Roof Support (MRS) is used on virtually every retreat coal mining section in the United States.

Overall, important advancements have been made in mining safety and health, and many of these advancements can be directly related to NIOSH mining research and prevention activities and those of its partners. Nonetheless, much remains to be done.

Recent mine disasters underscore the importance of NIOSH's disaster prevention research, and especially in light of specific changes. Mining conditions are becoming more difficult, mining methods are evolving, and the mining workforce is undergoing significant changes. Practices that made sense in the past are being reevaluated by NIOSH. There is no single solution – each mine is different and requires a different mix of both technologies and practices to address the problems at hand. NIOSH will continue to work together with our partners and stakeholders in the mining community to put into practice the best technology to ensure a safer and healthier work environment.

At this time, I will be happy to respond to any questions that you might have.