

### **H2.4 Future TIER Studies**—Merry C

Presently, four other TIER studies are underway: (1) comparing effectiveness of classroom- and Internet-based instruction in the correct use of the NIOSH lifting equation - TIER Stage 3; (2) comparing effectiveness of text- and video-based instruction among different health care workers in proper respirator use to reduce TB exposure - TIER Stage 3; (3) development of instructional computer kiosks for individualized instruction with low-literacy publics - TIER Stage 4, (4) use of graphics to communicate OSH to non-English speaking and illiterate workers - TIER Stage 1, and (5) use of short course delivery mechanisms for OSH training in small businesses - TIER Stage 1. These efforts will be described briefly.

#### **Session: H3.0**

#### **Title: Cross-cutting Mining Research for Injury Prevention in Other Industries**

Category: Special Session

Organized by Jeffrey Welsh, National Institute for Occupational Safety and Health

Moderator(s): Jeffrey Welsh

### **H3.2 Safety Issues in Blasting**—Rehak TR, Bajpayee TS

Annually, billions of pounds of explosives are used in the United States by the mining and construction industry. Blasting, although hazardous, is considered a very essential component of these operations. Each blast is associated with fragmentation. In many instances, rocks thrown (flyrock) beyond expected bounds result in fatalities or serious injuries. Several of the reported incidents involved innocent bystanders.

Accident reports/information collected from the Mine Safety and Health Administration, other Government agencies, and through Internet searches have been gathered. A detailed trend analysis of blasting injuries in both the mining and construction industry was tabulated. The data demonstrates the severe nature of all blasting incidents.

In addition, factors/parameters such as: insufficient stemming; poor shot design; burden mismatch; improper firing sequence; improper drilling have been studied. This information, along with why there is a lack of blast area security will be presented and discussed in the context of defining likely blasting scenarios.

### **H3.3 Identifying Fatal and Non-fatal Injuries Attributed to Water Well Drilling Operations**—Matetic RJ, Ingram DK

This presentation will demonstrate that OSHA citations/violations and health and safety issues are directly related and effect the water well drilling industry. Suggestions and options will be presented to minimize the hazards that result

in OSHA citations/violations. Ultimately, the information portrayed will save lives and reduce injuries to personnel working in the water well drilling industry.

A comprehension review of the Bureau of Labor Statistics (BLS), indicate that water well drillers are achieving higher incidence rates, of some non-fatality injuries, than any other industry. The BLS data also displays the water well drilling industry has averaged 10 fatalities per year from 1990 - 1997. These injuries and fatalities could be considered alarming when you realize the construction industry, in which water well drilling is classified under, represents only 5% of the total labor force in America. Discussions on the source and events that lead to the fatalities and non-fatal injuries of the water well drilling industry for a four year period will be covered. The discussion will further display on-site examples of potential hazards that result in fatalities and non-fatal injuries that drillers/operators face everyday. Overall, many operators/drillers are experiencing similar situations and there are inexpensive steps that can be taken to reduce these costly accidents.

Information on OSHA citations/violations for a three year period will demonstrate that drillers/operators can avoid, eliminate, or minimize citations/violations. The top five violations and cost of those violations will illustrate the impact OSHA has on the water well drilling industry. Explanations as to why these citations/violations are major issues and options to improve worker safety and avoid, eliminate, or minimize these citations/violations will be addressed.

### **H3.4 Protecting Workers From Electrocutation Caused by Contact of Cranes, Haul Trucks and Drill Rigs With Overhead Power Lines: A New Approach**—Cawley JC, Homce GT, Sacks HK, Yenchek MR

Overhead electric power lines present a serious electrocution hazard to crane, truck, and drill rig operators in the mining industry. Typically constructed using uninsulated conductors supported on towers or poles, overhead power lines are the most common means of overland electric power transmission and distribution. Frames of equipment in contact with energized overhead lines become elevated to a high voltage. Contact by workers from the "hot" frame to ground can cause serious injury in the form of electrical shock, burns or death.

Between 1980 and 1997 at least 94 mobile equipment overhead line contact incidents were reported in the U.S. mining industry, with 114 injuries, 33% of them fatal. Most incidents involved cranes (47%), dump-bed trucks (24%), and drills (14%). In addition, an estimated 2300 overhead line contact accidents (total in all industries) occur each year in the U.S. An examination of accidents in the mining industry indicated that more than one-half of recent fatalities occurred when operators attempted to dismount vehicles in contact with overhead power lines or when nearby workers contacted the



# NOIRS 2000

*Pittsburgh, Pennsylvania  
October 17-19, 2000*

## ABSTRACTS

**National Occupational  
Injury Research Symposium**

**CDC**  
CENTERS FOR DISEASE CONTROL  
AND PREVENTION

*National Institute for  
Occupational Safety and Health*  
**NIOSH**