electrical injury and fatality as well as to assist with safety standards for electrical work practices around energized equipment. For example, the hazard management of electrical arcs' acoustic component has not routinely been incorporated into electrical safety training. Progress with pilot 2-dimensional techniques, results of 3-dimensional simulations compared to high voltage test lab experiments, and training applications are presented.

C6.3 Development of a Computerized Audit Tool for Control of Construction Falls—Becker PE, Fullen MD, Akladios M, Carr M

West Virginia University has developed and deployed a computerized field audit to assist in the conduct of a safety intervention research project. The audit tool is used in the field on a touch screen hand held computer to monitor construction contractor compliance with a fall hazard management program provided by WVU. The field audit provides feed back to contractors, determines whether contractors can retain a Fall-Safe designation from WVU, and provides data to WVU on the impact of its intervention efforts.

The software is custom designed and incorporates questions that determine compliance with OSHA standards relating to falls. The audit tool generates percentage scores that indicate contractor successes in managing fall hazards. The algorithm that computes contractor scores rewards contractors for using engineering controls rather than personal protective equipment. The tool is intended to be field and user friendly. The tool has been field tested through 62 audits as plans are underway for its expansion and future development.

C6.4 Collision Warning Systems for Surface Mining Equipment—Ruff TM

In the past 5 years, powered haulage accounted for 43% of fatalities and was one of the top 5 sources of injuries in surface mines. Twenty-three of these fatalities occurred when a large capacity haulage truck ran into or over another vehicle in the truck driver's blind spot. One method of detecting an obstacle in the blind spot of large equipment and preventing a collision is to use some type of sensor technology such as radar or video cameras. Researchers at the Spokane Research Laboratory of NIOSH are testing off-the-shelf collision warning systems and developing new systems to meet the needs of the surface mining industry. This report summarizes the technologies available for this application, the advantages and disadvantages of each as determined by tests, and alternative sensor systems that are currently under development.

DAY TWO—WEDNESDAY, OCTOBER 18, 2000

Session: D1.0
Title: Tribology of Slip and Falls I
Category: Special Session
Organized by Mark Redfern, University of Pittsburgh
Moderator(s): Mark Redfern

D1.1 Field Evaluation of Two Commonly Used Slipmeters—Chang WR, Cotnam JP

A variety of slipmeters have been used to assess the slipperiness between shoe and floor surfaces. The operations of these slipmeters were outlined in their respective international standards for single measurements. However, these standards usually do not cover some critical elements in floor assessment such as how to select measurement locations and how many repeated measurements are necessary at each location. Furthermore, most slipmeters were evaluated in the laboratory setting with new floor surfaces and artificial contaminants. In this experiment, two commonly used slipmeters, the Brungraber Mark II and English XL, were evaluated in the kitchens of eighteen fast food restaurants. At each restaurant, four floor tiles in each of four different work areas were selected for repeated measurements with these two slipmeters. The work areas included the fryer, grill, sink and back door, where the potential for accidents in slips and falls was high. Measurements were taken during business hours. The floor conditions were not altered except that water was applied to the floor surface around the sink to simulate conditions when washing tasks were being performed. The typical contaminants on the tiles were grease near the fryer and grill, and water, dirt and food debris near the back door. At each location, 12 measurements were taken with each slipmeter. The Neolite shoe pads were sanded with 400 grit silicon carbide abrasive paper right before the first and seventh measurements.

The results of an ANOVA analysis showed statistically significant differences in friction among different tiles in some areas. Since the appearance of these tiles was very similar, a significant difference in friction coefficient could increase the potential of a slip and fall accident when employees fail to anticipate the floor conditions and respond accordingly.

D1.2 The Impact of Neoliter Test-Foot Variability and Tribometer Type on Slip Resistance Measurements—Sapienza MA

To determine if either the Neolite test foot material used for friction measurement, or the tribometers themselves were in any way contributing to the measured results, we utilized a series of single factor designed experiments. The protocol involved three different types of pedestrian surfaces, official solid vinyl tile and official vinyl composition tile, obtained from the Chemical Specialties Manufacturers Association

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ABSTRACTS

National Occupational Injury Research Symposium

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