paper version. "Non-targeted" employees received either a letter with a paper core module (Group 2, n = 229) or only a letter with instructions for requesting the paper core (Group 3, n = 224); both of these groups were instructed to request appropriate hazard modules based upon screening questions. All three groups received instructions for alternatively accessing the web-based version. Overall, 53% of sampled employees completed the survey; response rates among common occupations ranged from 47 (pharmacy personnel) to 58% (medical supply technicians). When provided, an employee was more likely to complete the paper version rather than accessing the web-version (76 versus 24%). However, 89% of employees who received only a letter tended to choose the web-based questionnaire. If an employee was instructed to obtain hazard modules after completing screening questions in the paper core module, only 7% did so. This was not a problem in the web-based version, which was seamless with respect to additional modules. These results suggest a self-administered web-based survey is an accepted and efficient method to query workers.

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DUPONT BLADDER CANCER SCREENING FOR POST-EXPOSURE COHORTS. B. Dawson, DuPont Company, Wilmington, DE; T. Mason, University of South Florida, Tampa, FL.

This paper reports results of a bladder cancer screening program for pensioners/post-exposure active employees from three manufacturing groups: dyes, aramids, and elastomers with previous potential exposure to benzidine, beta-naphthylamine, alpha-naphthylamine, 4-ADP, MOCA, 4-nitrophenyl, or o-toluidine. The annual screening includes 14 consecutive days of self-testing for hematuria using a chemically-treated paper strip. Urine, collected on day 1 of screening, is sent to one central laboratory facility for quantitative assessment of hematuria and cytologic classification. Participants are referred for urologic diagnostic evaluation if any of the following results are found: three or more red blood cells per high-powered field, Class 3 or greater cytology, and/or at least one day positive for hematuria during the 14-day self-testing. To date, 1012 persons from four sites have been notified, and 785 have enrolled (77.5%). Seventy-four percent of the enrollees are 60 years of age or older. This presentation will report on two cycles of screening. In year one, 28.7% of the participants tested positive and were referred for diagnostic evaluation. In year two, this percentage was 23.5. For quantitative hematuria, the percents positive were 11.3 (year 1) and 8.7 (year 2). For urinary cytology, the percents positive were 7.5 (year 1) and 5.6 (year 2). Final diagnoses among those referred for year 1 are: three incident transitional cell carcinomas of the bladder, 18.9% were "serious but treatable conditions;" for year 2, one incident and one recurrent transitional cell carcinoma of the bladder, 15.8% were "serious but treatable." Results to date are consistent with previous screens among active employees. We maintain a high participation rate owing to personal follow-up by our team, as well as a 24/7 toll-free number that is available to all participants. Our results, we believe, will encourage reconsideration of recommended screening programs for workers who have been exposed.

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NORTH CAROLINA: TRENDS IN AGRICULTURAL COMPLIANCE, 2000–2004. R. Luginbuhl, North Carolina Department of Labor, Raleigh, NC.

The Agricultural Safety & Health Bureau of the North Carolina Department of Labor has conducted inspections of farm worker migrant housing since 1990. Inspections are conducted prior to housing occupancy. These inspections are regarded as consultative visits. No fines or citations are issued as a result of these inspections; the owner/operator is required to come into compliance in order to be certified. Over 1600 sites in 88 N.C. counties are certified annually under this program.

In addition to preoccupancy inspections, compliance inspections are also conducted by this Bureau. These inspections include agricultural fatalities, accidents, complaints, and referrals. These inspections may carry citations and monetary penalties. General schedule inspections have been added to the compliance list, primarily in response to complaints and referrals regarding lack of field sanitation, OSHA PART 1928.110. Computer generated random samples were selected from the computer database of registered growers for the past three years. Approximately 60 general schedule compliance inspections are conducted annually, in addition to the other agricultural compliance inspections. Inspectors are each given a number of the general schedule inspections to complete during the months of July, August, and September. While on the inspection, questions regarding housing and pesticide application, OSHA PART 1910.1200, are made in addition to the field sanitation. If workers make complaints regarding their farmworker housing, provided as a condition of farm work, or pesticide application, the inspection is expanded to accommodate their workplace safety concerns. This poster will illustrate the Bureau compliance findings during the past five years, 2000–2004. Summary graphs and explanations are shown listing compliance findings and trends for this period. Recommendations are made concerning future compliance efforts based on these results. Comments and concerns of both farm workers and members of the grower community are provided as well, indicating the education/outreach efforts needed.

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TRANSFORMATION OF DI-ETHANOLAMINE (EA) AND TRI-EA INTO EAS WITH LOW MOLECULAR WEIGHT IN SOLUBLE METALWORKING FLUIDS. D. Park, Korea National Open University, Seoul, Republic of Korea; S. Kim, Wonjin Institute of Occupational and Environmental Health, Seoul, Republic of Korea.

Alkanolamines or ethanolamines (EA)-triEA (TEA), di-EA(DEA), and mono-EA(MEA) are used in soluble metalworking fluids (MWFs) to stabilize pH or inhibit corrosion. These EAs have similar chemical structure except for molecular weight. Two kinds of experimental studies were conducted to examine if EAs were vaporized and transformed to other EAs with lower molecular weight. Vaporization test using thermostat bath found that only MEA could be vaporized at a temperature lower than 60°C. The vaporization rate of MEA increased markedly from 0.19 mg/m^2.min at 23.5°C to 8.04 mg/m^2.min at 60°C. This result indicated that MEA might be vaporized even at work operations where MWFs are running around room temperature. Closed chamber test that was used to test the vaporization and degradation of EAs under high temperature found that most of MEA injected was completely recovered. However, only 13.32% of DEA and no TEA was recovered. EAs that never injected were newly detected, which concluded that EAs with high molecular weight could be transformed to new EAs with low molecular weight due to degradation by extreme heat. Further field study is needed to identify physical factors that can cause the formation of new EAs in work conditions or operations generating extreme heat.

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ASSOCIATION OF AIR TOXICS EXPOSURE AND ASTHMA HOSPITALIZATION IN NEW JERSEY. S. Tsai, S. Miller, J. Fagliano, M. Berry, J. Wallace, NJ DHSS, Trenton, NJ; L. Lim, NJ Department of Environmental Protection, Trenton, NJ.

Withdrawn

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CARBON DIOXIDE INFILTRATION INTO A HOME. J. Harrison, C. Rao, L. Benaise, NIOSH, Morgantown, WV.

NIOSH received a technical assistance request in December 2003 to assist with the investigation of a home built above an abandoned coal mine and on a reclaimed surface mine. The residents reported new-onset shortness of breath, lightheadedness, dizziness, poor concentration, and blurry vision while in the basement. Their symptoms resolved within minutes after leaving the basement. Investigators found an oxygen-deficient environment in the basement and crawlspace areas of the home. Carbon monoxide and methane

were not detected, which led investigators to suspect that carbon dioxide (CO_2) could be displacing oxygen in the basement and crawlspace.

A direct-reading CO_2 monitor was used for short-term sampling. Concentrations of CO_2 were as high as 9.5% in the home's crawlspace, 11% in the crawlspace gravel, and 12% inside a floor drain (outside air was 0.035%). CO_2 levels in the living areas of the home were greater than 1% (10,000 ppm). Oxygen concentration in the basement was intermittently deficient, with levels measuring as low as 14% in the crawlspace (normal range = 19.5 and 23.5%). Air and soil gas samples analyzed for carbon isotopic composition indicated that the CO_2 infiltrating into the house was likely from a carbonate source.

Others have reported similar events in homes built above abandoned coal mines in England, Russia, and the U.S. Preventive measures for mining-related indoor air quality problems include sealing cracks, maintaining positive pressure in relation to the ground, and ventilating subsurface areas in a manner similar to that used for radon mitigation. In affected homes, homeowners, public utility workers, and remediation workers could be overexposed to CO_2 and in an oxygen-deficient environment. This dictates efforts to increase public awareness of the potential hazards and to appropriately educate people who may be potentially exposed.

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TOXICOLOGY EVALUATIONS: A STREAMLINED PROCESS. K. Morris-Fine, R. Hollenbeck, The Boeing Company, Seattle, WA.

The Boeing Company has implemented an integrated process for the introduction of new materials that requires a toxicology evaluation on all new materials being qualified to engineering specifications. Several hundred evaluations are conducted each year and an efficient process was needed to meet engineering schedules.

Key to the success of the corporate program was the creation of a "chemical profile" data sheet utilized for toxicology evaluations of materials in order to provide consistency in technical evaluations among toxicologists and to decrease turnaround time for the customer. Additionally, processes were developed utilizing these profiles to provide consistency in hazard statements among toxicology evaluations, labeling language, and process-specific hazard communication data sheets. Site safety and health professionals rely on the profiles for quick and accurate information.

Technical criteria were developed for each toxicological property on the chemical profile. These streamlined profiles allow toxicologists to capture and save search data thereby eliminating the need for multiple and redundant searches. The profile is authored by toxicologists in an access database for easy creation and update. The completed profiles can be easily accessed by industrial hygienists and other occupational health professionals through the Boeing intranet.

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REDUCING WORKPLACE INJURIES IN THE U.S. ARMY VIA THE ARMY SAFETY PERFORMANCE IMPROVEMENT AND REPORTING SYSTEM. J. Pentikis, U.S. Army CHPPM, Aberdeen Proving Ground, MD.

In recent years, the Department of the Army (DA) has strived to improve its safety record. This effort is in response to the President's Safety, Health, and Return-to-Employment Initiative, which was instituted to reduce the number of injuries to the federal work force and reduce the associated costs of federal workplace injuries, and the Secretary of Defense's challenge to the Department of Defense to reduce injuries by 50% by fiscal year 2005. In order for the DA to meet the goals of these directives, the DA developed the Army Safety Performance Improvement and Reporting System (ASPIRE). ASPIRE empowers employees to be responsible for their safety, increases commander injury awareness, and develops a real-time injury reporting and analysis tool. In short, employees can report an unsafe incident, with or without injury, via a web-based interface in less than two minutes; the safety office is instantly notified of the incident and can investigate or remediate a safety hazard within one working day; and the commander is aware of all installation incidents immediately. The two demonstration sites where ASPIRE is being used have reported that injury notification times have been reduced from approximately 60 days to less than a day; the role of the safety office has been transformed from that of a "hand-slapping" organization to an empowering organization where the administration works with employees to improve workplace conditions; and commanders who are deployed or traveling can keep track of incidents at their installation from anywhere in the world where an internet connection exists. Future improvement initiatives include use of hand-held or tablet computer loaded with Occupational Safety and Health Administration, DA, and other data which will increase the ability to close out accident investigations sooner and perform hazard abatement on the spot.

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ARMY WEB-BASED COMPUTER WORKSTATION SELF-ASSESSMENT PROGRAM. S. Chervak, U.S. Army CHPPM, Aberdeen Proving Ground, MD.

The Department of the Army (DA) employs over 200,000 civilian and 400,000 military personnel. The majority of these employees use computers and computer workstations in their primary work tasks. The high usage rate of computers and the fact that musculoskeletal disorders have been shown to be commonly occurring among computer users has been a source of concern for the DA.

In response to a challenge by the Secretary of Defense to reduce injuries by 50% by fiscal year 2005 within the Department of Defense, the U.S. Army Center for Health Promotion and Preventive Medicine's Ergonomics Program developed a web-based computer workstation self-assessment program (ErgoFix) designed to empower the worker to identify problem areas at their own workstations.

ErgoFix uses job factor statements to identify general problem areas in the user's workstation. Once ErgoFix has identified general problem areas it generates more specific questions that allow the program to pinpoint areas of concern. Based on the pinpointed areas of concern, ErgoFix then offers a comprehensive set of possible solutions in a report format. The employee can then make the recommended changes to their workstation.

Ergofix allows workers to take an active roll in the promotion of their own health and safety while at the same time takes a step in the reduction of the DA's injury rates.

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EASY ERGONOMICS: A GUIDE TO SELECTING NONPOWERED HAND TOOLS. K. Schultz, Cal/OSHA Consultation, Sacramento, CA.

Of all nonfatal hand tool injuries, 22% are related to the risk factors associated with the development of musculoskeletal disorders (BLS, 2002). Generally speaking, when workers purchase or select nonpowered hand tools for their work, the primary criteria they use is cost, warranty, and availability. In either case, workers may not be selecting the best tool, one that is appropriate for the task and one that fits their hands. For the most part, workers who use nonpowered hand tools do not understand how they can become injured and what the best approach is for selecting the correct hand tool and work postures for the task. This involves understanding ergonomic principles when selecting a nonpowered hand tool.

This poster session will display information from a booklet. The information and a hand tool checklist in the booklet are based on peer-reviewed articles and expert input. The checklist has been evaluated for reliability in identifying the presence or absence of basic ergonomic design features. At the poster session, participants will be able to use the information and the checklist to compare up to two different styles of nonpowered hand tools (e.g., two wrenches or two pliers). In addition, each participant will receive a copy of the booklet.

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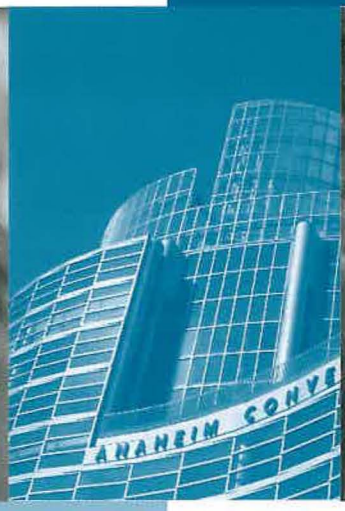


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