odium 121. Risk ssessment

ipers 145–154

45.

S. ARMY INITIATIVE—ASBESTOS SK ASSESSMENT SURVEY ROTOCOL (RASP). R. Eberle, Dewberry & ivis LLC, Fairfax, VA; B. Nix, U.S. Army, exandria, VA.

The purpose of the U.S. Army asbestos Risk sessment Survey Protocol (RASP) is to pro- le a cost-effective alternative to full Asbestos zard Emergency Response Act (AHERA) veys in non-school facilities while continu- ; to provide occupational and environmental tection levels consistent with the Army's ic asbestos management program. Currently, 3. Army asbestos survey protocols follow se developed under AHERA for schools. ile AHERA has become the standard of e in the industry, significant differences st between managing asbestos in schools l non-school facilities. The cost of treating facilities to the close scrutiny required for ools imposes additional costs on the Army t could be lowered by identifying and man- ng friable and accessible asbestos in place il it needs to be removed as part of an action h as building renovation or demolition. The RASP identifies the existence, extent, condition of asbestos-containing materials present a clear occupational hazard to the lth and welfare of Department of Army sonnel. The RASP recognizes that certain erials should be tested to confirm the ence or presence of asbestos. This testing is ited to building materials that are accessible friable, are damaged at the time of the sur- , and those building materials that if dam- d could contaminate an occupied building. rder for the RASP to be effective, facility iagers will make the assumption that all ding materials that are not tested for stos will be considered Presumed estos Containing Material in accordance OSHA 29 CFR Part 1926.1101. erformance of the RASP will save large s of money for the Army by avoiding sur- s of materials that do not pose health risks e increasing the protection of occupant worker health while providing "Excellent lities for Excellent Soldiers!"

5.

THER DEVELOPMENT OF A CICOKINETIC SIMULATION DEL FOR BENZENE AND OTHER MPONENTS OF GASOLINE IN CUPATIONAL RISK ASSESSMENT. J. ison, Colorado State University, Fort ns, CO.

soline contains benzene, toluene, ethyl ene, xylenes (BTEX), and other chemicals re carcinogenic, neurotoxic, or systemical- xic. During and after exposure, the amount of the chemical or its toxic metabolites in the body can be affected by other components of the mixture through delayed metabolism and excretion. Consequently, toxicity deviates from additivity. Therefore, it would be useful to quantify the toxicokinetics (TKs) of the various components under mixture conditions.

We have developed an approach for quantifying the TKs of specific chemicals in complex mixtures and using this data-validated simulation approach to perform risk assessment. We conducted TK experiments with rats to determine the TKs of BTEX and *n*-hexane as single chemicals and simple mixtures. Additional experiments were performed to assess the TKs of these chemicals during gasoline exposures, where all of the other components were considered to act as a sixth chemical (a lumped pseudo-chemical). These data were used in a physiologically-based TK model to determine the absorption and metabolism characteristics of the chemicals, and the inhibition of metabolism caused by each chemical (including the pseudo-chemical). In the rat, total metabolism of components was reduced by 4%–27% during a six-hour exposure to 300 ppm gasoline. The simulation was then translated into human terms by adjusting absorption, metabolism, and physiological terms accordingly, to support human health based risk assessment for gasoline. The approach can be used to assess the impact of the mixture on the ultimate toxicity of individual components in comparison to the toxicity of exposure to the single chemical alone. [Supported in part by a Cooperative Agreement from ATSDR (U61/ATU 881475) and the NIEHS Quantitative Toxicology Training Grant T32 ES07321.]

147.

VIDEO EXPOSURE ASSESSMENTS DETECT PEAK LABORATORY FORMALDEHYDE EXPOSURES. T. Ryan, K. Taylor, Ohio University, Athens, OH; G. Burroughs, R. Kovein, NIOSH, Cincinnati, OH.

Video exposure assessments were conducted in a laboratory teaching comparative anatomy with formaldehyde preserved sharks and cats. Earlier work in the facility using time-integrated passive samplers indicated personal and area concentrations generally below the current OSHA permissible exposure limit of 0.75 ppm. However, complaints about the noxious nature of the room air were frequent and routine. Using a photoionization detector with an integral data logger, total ionizables present were sampled as a surrogate for formaldehyde. Using synchronized time tracks from the datalogger and video tapes created of laboratory actions performed, exposure concentration overlays were generated. Passive dosimeters and active samplers employing DNPH coated substrates reactive to formaldehyde were also collected on all sampling days. Video exposure assessment revealed significant, very short-lived peak exposure events, while conventional time-weighted average assessments indicated most exposures were below OSHA (and most other) limits. These "acceptable" exposure levels were associated with self-reported symptoms of burning nose and eyes, and eye irritation. Teaching Assistants' exposures were the highest, exceeding various OSHA limits on several occasions. Instructors' exposures were lower than students', despite longer exposure periods for instructors. Video exposure monitoring demonstrated that close dissection work, opening peritoneal cavities and specimen selection activities were most likely the causes of elevated student exposures. The utility of video monitoring to very accurately conduct laboratory exposure assessments is established.

148.

LIMITED RESOURCES IN UNCERTAIN TIMES—EMERGENCY PREPAREDNESS SOLUTIONS FOR THE EHS PRACTITIONER. M. Long, Woodard & Curran, Portland, ME.

Situation/Problem. Environmental, Health, and Safety (EHS) practitioners of companies that handle hazardous materials have historically faced the challenge of meeting regulatory requirements and addressing the expectations presented by relevant industry standards. In recent years, a rigorous economic climate is driving many companies to restructure and downsize across the board, including EHS functions. Like the rest of business, EHS practitioners are being asked to solve the age-old dilemma of doing more with less. These pre-9/11 challenges escalated profoundly with the active threat of terrorism and the associated need to manage the risk. **Resolution/Benefit to Others.** Using case studies as a platform for learning, this presentation will provide guidance to EHS practitioners on how to develop, improve, and maintain their emergency response programs, with an emphasis on sharpening technical focus and improving cost-effectiveness. In today's demanding world, this presentation is a "must see" for all EHS practitioners who feel the responsibility of emergency preparedness without having the time and resources to make it their principal focus.

149.

LEVERAGING EXISTING DATA AND KNOWLEDGE TO NAVIGATE THE ACA HPV EXPOSURE ASSESSMENT FRAMEWORK. S. Arnold, EH&S LLC, Midland, MI.

This case study presents project work conducted for a Fortune 100 chemical company regarding potential occupational and community exposures to the High Production Volume (HPV) chemicals it manufactures. The U.S. EPA's guidelines for the HPV Challenge require the production of a complete set of basic hazards data for the approximately 2800 chemicals produced or imported at or in excess of one million pounds per year. As industrial hygienists we are aware of the need for transparent, credible exposure assessments to complement the hazard data and facilitate quality risk assessments.

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