neighboring homes, and expected equipment noise levels. **Lessons learned:** will show how neighboring communities are affected by construction work, and what levels people may feel are acceptable.

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Design of a Noise Delivery System for JP-8 Ototoxicity Studies

J. Stubbs, J. Slagley, Air Force Institute of Technology, WPAFB, OH.

Situation/problem: JP-8 ototoxicity studies are being conducted at Wright-Patterson AFB, Ohio, with rats being exposed to varying concentrations of JP-8 vapor and sound levels simultaneously in sealed exposure chambers. The study protocol requires a white noise source that is 1 octave band wide, centered at 8 kHz, within 2 dB tolerance at any point within each chamber. Placing speakers inside the chambers is not desirable due to both the aggressive and explosive characteristics of JP-8. Phase one of the study consists of exposure to noise alone with three exposure groups at 75, 85, and 95 dB. The noise generation system must be capable of delivering the required specifications for 6 hours per day over a 5-week period. **Resolution:** Attempts were made to transmit filtered white noise through the chamber walls using speakers. The materials of construction of the chamber proved to be far too attenuating, and the highest exposure condition of 95 dB could not be achieved. An electrodynamic exciter (shaker) was then affixed via a stinger attachment to a lower plenum wall of the exposure chamber. The filtered white noise was transmitted to the shaker, turning the plenum wall into a vibrating speaker surface. The shaker easily produced the required 95 dB sound level. **Results:** The shaker solution was successful at meeting all protocol requirements. Endurance runs proved that shakers were capable of delivering the required filtered white noise to the chambers consistently over repeated 6-hour runs with minimal drift. The design and construction of the exposure chambers created a reverberant environment in which sound levels throughout the chambers were within the required 2 dB tolerance range. **Lessons learned:** Typical noise generation systems consisting of speakers may not be ideal or adequate in all applications. Using an electrodynamic exciter for an atypical purpose produced better than expected results.

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3-dBA Exchange Rate,Valid Assessments?

S. Henry, US Army, Bynum, AL.

At a heavily industrialized military installation, results from 3-dB exchange rate audio-dosimeters produced unexpected elevated results beyond and increased Hearing Conservation Program enrollment significantly with personnel considered at negligible risk. Research of the literature revealed that Robert and Joseph Sataloff state in the 1993 edition of Occupational Hearing Loss that "a 3- dBA exchange rate (ER) is only valid for zero intermittency," which they noted is not the norm in North American industry. Furthermore, the book cited studies by Ward and Bies as validating the 5-dBA exchange rate for intermittent noise exposures. Subsequently, the installation began testing employees for both the 3- and 5-dB exchange rates using audio-dosimeters capable of measuring both simultaneously. After 10 years of data accumulation, the 3-dBA exchange rate appears to overstate the hazard when there is intermittency of the noise, thus corroborating the aforementioned publication. The 5-dB exchange rate provided better, more realistic assessments for employee noise exposures in intermittent noise environments than the 3-dB exchange rate.

Podium Session 116
Health Care Industries, Part II: Antineoplastic Drugs, Chemical Exposures, and Work Shift/Stress Issues.

Tuesday, May 25, 2010, 10:30 a.m.–12:30 p.m.
Papers 105-110

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WITHDRAWN

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Surface Contamination with, and Management of, Antineoplastic Drugs in a Hospital

F. Akbar-Khanzadeh, R. Rillo, S. Milz, B. Fink, University of Toledo, Toledo, OH.

Situation/problem: Antineoplastic drugs are chemical agents used in the treatment of malignant neoplasms (cancers) and occasionally non-neoplastic forms of disease. Occupational exposures to these drugs can cause undesired health outcomes, such as malignancies, as well as mutagenic and teratogenic effects. **Resolution:** This study, performed in a hospital, was initiated to evaluate the potential occupational exposure to these drugs by: (1) collecting wipe samples and determining surface contamination with antineoplastic drugs (cyclosphophamide, Taxol and 5-fluorouracil) on: an oncology pharmacy counter, a pharmacy floor and hood, the top of a medical cart used to carry drugs, a nursing station counter, bathroom floors, toilets, a patient infusion chair, bed rail, bed table, call button, and room floor; and, (2) surveying policy/practices and the compliance with recommended guidelines in all stages of the antineoplastic drug life cycle. The locations surveyed included shipping and receiving (package handling), drug preparation, drug administration, environmental services (housekeeping) and waste disposal. **Results:** Wipe sampling outcomes indicated surface contamination with drugs (cyclophosphamide, taxol) on pharmacy floors, infusion chairs, bathroom floors, and the exterior surfaces of antineoplastic drugs waste containers. The compliance assessment indicated lack of sound practices during drug preparation and administration. **Lessons learned:** The results of this study suggest that this institution has to improve its antineoplastic drug handling practices in order to have a functional exposure prevention program.

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Determination of Low-level Volatile Organic Compound Profiles in Health Care Settings

R. LeBouf, A. Stefaniak, M. Virji, NIOSH, Morgantown, WV.

Objective: Health care settings present a challenging environment for assessing low-level concentrations of volatile organic compounds (VOCs) due to high alcohol background from the use of alcohol-based hand and surface cleaners. The purposes of this project were to develop a sampling and analysis methodology for determination of low-level VOC concentrations in health care settings and to compare multiple sampling strategies. **Methods:** A pilot study was conducted at a hospital usin low-flow pumps with thermal desorption (TD) tubes and evacuated 6-L stainless steel canisters. Thirteen side-

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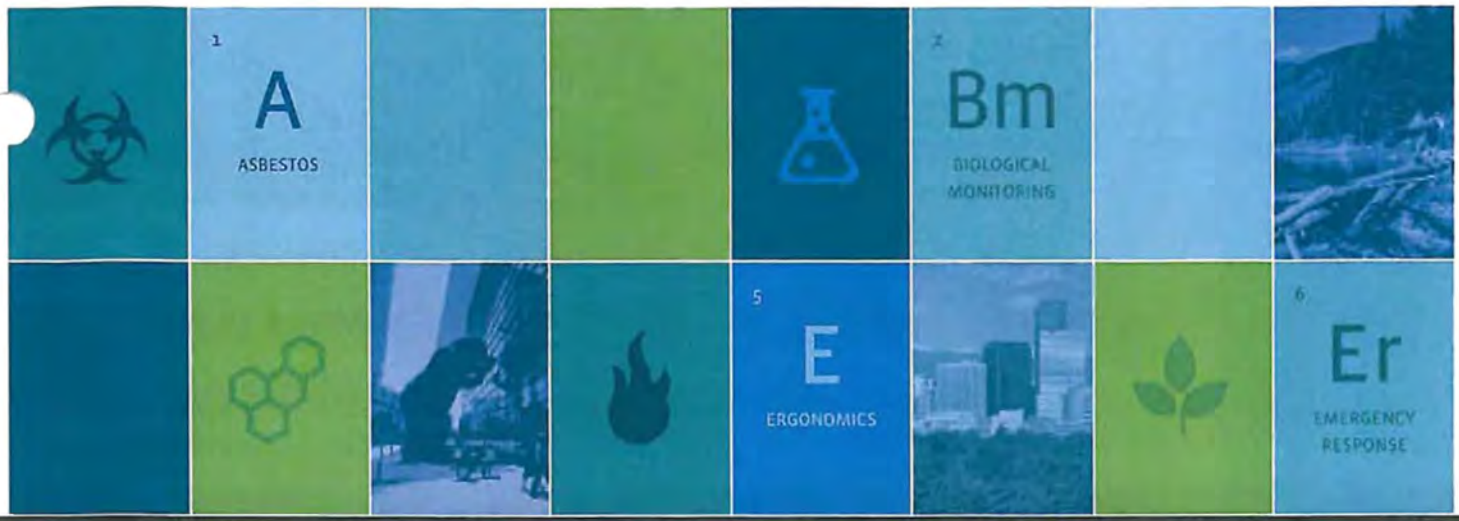

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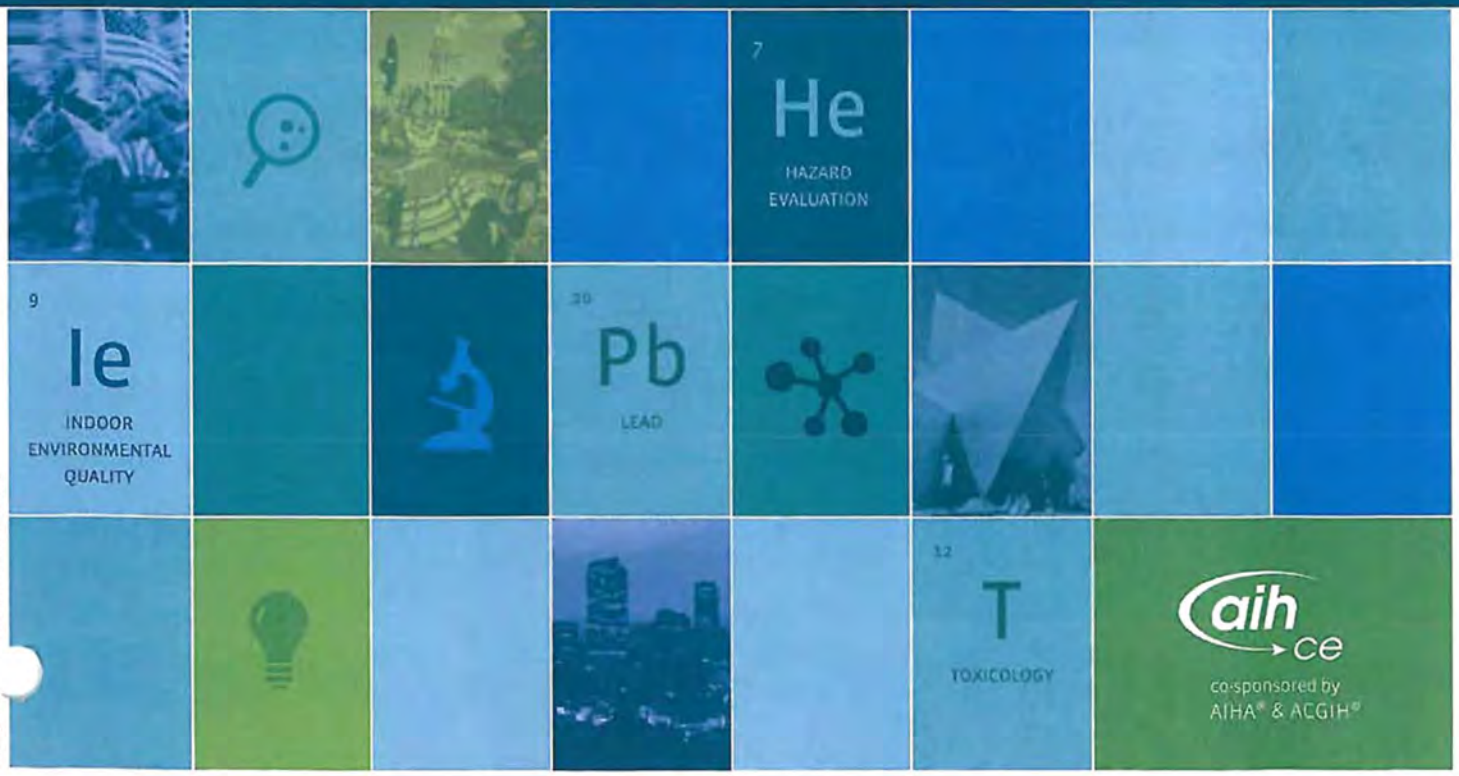

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