

POSTER ABSTRACTS

1. Characterization of Agricultural Noise Exposure at a Swine Confinement Facility in Iowa

Chandran Achutan and Randy L. Tubbs, National Institute for Occupational Safety and Health, Cincinnati, Ohio

This poster presents noise exposures encountered at a swine confinement facility in Iowa. Three of the seven full-shift personal dosimetry samples exceeded the NIOSH REL. Data were also analyzed as a function of specific tasks. Task-based analysis of the data showed that the highest exposures were during power washing of pens, snout snaring, and heat checking. This poster discusses controls currently in place and recommendations on further reduction of noise at this facility.

2. Noise Exposure Levels for Workers in the Fishing Industry

Elizabeth E. Beal, Central Michigan University, Mt. Pleasant, Michigan

Individual dosimetry was used to determine noise exposure levels for workers onboard 16 different lobster fishing vessels. Results revealed over 46% of the lobster fishing industry jobs exhibited 8-hour TWAs over 90 dBA, 46% of the jobs had TWAs between 85-89 dBA, while less than 7.7% of the jobs had 8-hour TWAs below 85 dBA. Eight-hour TWAs for the loudest job was over 95 dBA. Eight-hour time-weighted averages (TWAs) and daily noise doses obtained using the currently mandated Occupational Health and Safety Administration (OSHA) measurement criteria were also compared to those obtained using the American Conference of Government Industrial Hygienists (ACGIH) recommended criteria. The ACGIH method yielded significantly higher 8-hour TWAs and daily doses than the OSHA method. The effect of variables such as type of diesel engine, type of exhaust, location of engine, muffler use, and type of boat material were also examined. Implications of this study will be discussed.

3. Industrial Model of Audiometric Testing for High School Students

Deanna K. Meinke, M.A., FAAA, University of Northern Colorado, Greeley, Colorado; Sarah Meade, M.A., CCC-A, Weld County School District 6, Greeley, Colorado; Cheryl DeConde Johnson, Ed.D., consultant, Colorado Department of Education; Jerry Jensema, BSE, Health Conservation, Inc., Rockford, Illinois

This poster will describe the outcomes from a cooperative effort between the Colorado Department of Education, Greeley School District #6, Health Conservation, Inc., University of Northern Colorado, and Associates in Acoustics, Inc., with regard to the use of an industrial audiometric testing program implemented at a high school. Approximately 640 students in the 9th and 12th grades received computerized audiometric threshold testing on a mobile van within a one-week school day schedule. Threshold testing proved time efficient, averaging 2.6 minutes per student. Audiometric outcomes are contrasted with school screening criteria and also describe the detection of newly identified hearing loss in the student population consistent with hazardous noise exposure.

4. A System for Assessing the Fit of Hearing Protectors in the Field

Sig Soli¹, Andy Vermiglio¹, and Vern Larsor²

We developed an automated, self-administered system for assessing attenuation achieved in the field with earplugs. The system employs a loudness balance test protocol that requires little or no intervention from a professional. Our objective is to significantly reduce the variability of attenuation associated with fitting in order to minimize the risk of over- and under-protection. This presentation describes the results of a comparison of REAT attenuation data with attenuation derived from the loudness balance procedure.

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5. Noise Exposures in Aircraft Passenger Cabins during Flight Operations

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NIOSH received a request for a noise evaluation from flight attendants working for a commuter airline. The aircraft tested included four turboprop planes and two regional jets. A series of 15-second samples were collected and stored with a real-time analyzer during takeoff, landing, and at cruise altitude. Noise data showed the individual commuter flights were not loud enough to increase the risk of noise-induced hearing loss for flight attendants. However, if the aircraft's noise-vibration suppression system was not operating during flight, then there could possibly be noise overexposures. The spectral data revealed the possibility of interference in communications between passengers and the flight crew. The NIOSH investigator proposed the use of "musician-type" ear plugs by flight attendants if FAA approval can be obtained.

6. Audiometer Calibration: Measurement Instrumentation Issues Relating to Bandwidth

John Lloyd, Student; Jeff A. Lancaster, Ph.D., Research Assistant Professor; John G. Casali, Ph.D., CPE, CIE, Grado Professor, Auditory Systems Laboratory, Dept. of Industrial & Systems Engineering, Virginia Tech, Blacksburg, Virginia

OSHA-required calibration of audiometers is often accomplished through field or user calibration, and includes measurement of the dB(linear) level of a pure tone at 500, 1000, 2000, 3000, 4000, and 6000 Hz. Measurement instrumentation vendors sell many different kinds of equipment for this purpose, e.g., 9A couplers, sound level meters (SLM), and octave-band (OB) or 1/3-octave band analyzers. However, some of the 'calibration kits' offered by vendors include SLMs that are limited to octave bands. To investigate the capabilities and/or limitations of various filter bandwidths toward audiometer "field" calibration, a Beltone (model 114) audiometer was set to the manufacturer's specified dBHL of 70 for calibration purposes, and its output was measured using several filter bandwidths: 1 OB, 1/3 OB, 1/12 OB,

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