

**NIOSH/HERB SPECIAL SESSION:
OCCUPATIONAL RADIOEPIDEMIOLOGY
PART 1**

Wednesday, 13 July 2005

Conference Theater

11:00 am – noon

WAM-E.1

AN OVERVIEW OF THE NIOSH HEALTH-RELATED ENERGY RESEARCH BRANCH OCCUPATIONAL RADIOEPIDEMIOLOGY PROGRAM. S.H. Ahrenholz (National Institute for Occupational Safety and Health, 4676 Columbia Parkway, MS R-44, Cincinnati, OH 45226)

The Department of Energy (DOE) and the Department of Health and Human Services (DHHS) entered into a Memorandum of Understanding (MOU) in 1990 that transferred management of epidemiologic studies of the DOE weapons complex workforce to the National Institute for Occupational Safety and Health (NIOSH), within DHHS. The primary objective of this action was to significantly enhance the credibility and autonomy of this epidemiologic research. Types of studies conducted include hypothesis based (analytical) epidemiology studies, exposure assessment for past and current workers, and study feasibility analyses. These studies include workers with potential occupational exposures encountered in the DOE nuclear complex and the associations with adverse health outcomes of interest. Particular emphasis is given to those risk factors that are unique; primarily limited; or especially suited to being studied among these workers. The NIOSH research agenda strives to include a number of approaches and research principles that enhance the value of study findings and build upon lessons learned from previous studies of the DOE workforce.

WAM-E.2

RADIATION EXPOSURE ASSESSMENT FOR EPIDEMIOLOGIC STUDIES. R.D. Daniels (National Institute for Occupational Safety and Health, 4676 Columbia Parkway, MS R-44, Cincinnati, OH 45226)

Retrospective dose assessment is required for radioepidemiologic studies conducted at the National Institute for Occupational Safety and Health (NIOSH). Specific examples of dose reconstruction methods are presented from recent epidemiologic studies of nuclear workers employed at the Idaho National Engineering and Environmental Laboratory (INEEL), and Portsmouth Naval Shipyard (PNS). Examples of adjusting for bias and uncertainties resulting from administrative overestimates, exposures from former employment, and

measurement error are examined. Estimates of annual, cumulative, and collective doses are used to examine typical dose distributions and to facilitate dose-response analyses. Work-related medical exposures were also investigated as a potential source of bias. Work-related chest x rays (WRX) can result in a significant fraction of total dose, especially for radiation workers who were more likely to be subjected to routine medical monitoring. Omission of WRX from the total dose is a likely source of bias that can lead to dose category misclassification and may skew the epidemiologic dose-response assessment for cancers induced by the workplace.

HOMELAND SECURITY

Wednesday, 13 July 2005

Bay 1

2:30 – 5:30 pm

WPM-A.1

RADIOLOGICAL THEFT AND DIVERSION INCIDENTS: ANALYSIS OF WORLD-WIDE EVENTS OCCURRING IN CALENDAR YEAR 2003.* R. Sullivan, F. Monette, R. Johnson, R. Lindley, J. Adduci, and D. LePoire (Argonne National Laboratory, Boulevard 900, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL)

Hundreds of radionuclide theft and diversion incidents have been reported over the past decade. Although few of these incidents have been linked with terrorism at this time, the potential for terrorists to obtain radionuclides for use in terrorist attacks is real. This presentation summarizes and evaluates 256 radionuclide theft and diversion cases worldwide that were reported by available open sources and other unclassified sources to have occurred during Calendar Year (CY) 2003. The work was conducted for the International Radiological Threat Reduction (IRTR) Program within the National Nuclear Security Administration. The information was derived using Argonne National Laboratory's (Argonne's) Radionuclide Theft and Diversion Incident Analysis System (THADIAS), a relational database and geographic information system (GIS) that records and maps a variety of technical attributes of lost/stolen/recovered materials and circumstances surrounding thefts and recoveries. THADIAS links the individual events that make up a case, (e.g., material theft, transport, attempted sale and arrest) and allows common factors to be identified between cases. The

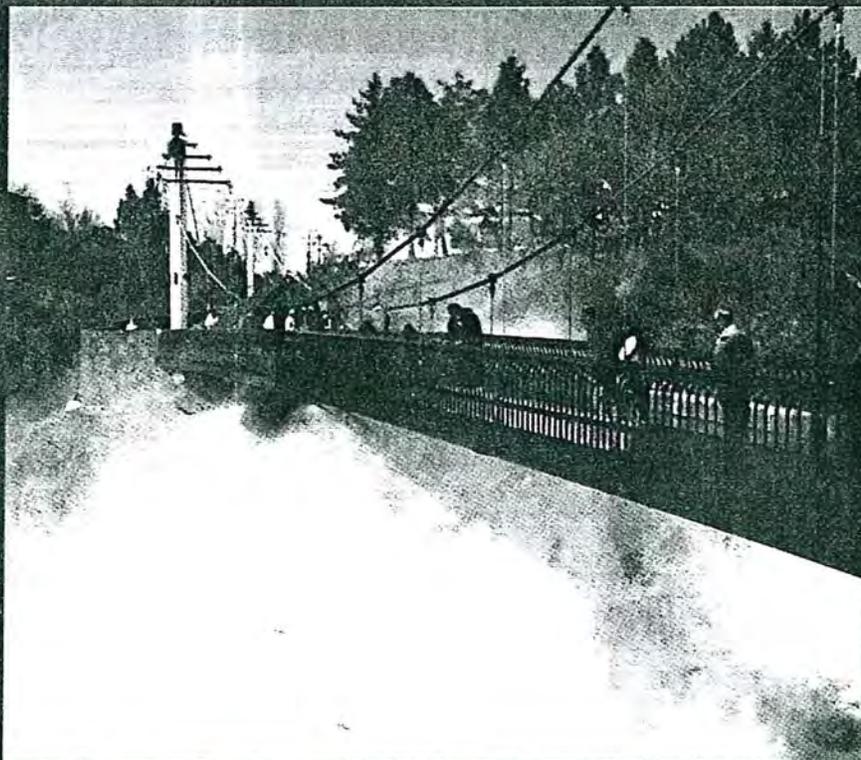
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