risk of employee litigation based on publication of unfavorable findings related to the workplace. ORISE has responded to these social issues by developing specific, proactive procedures including strict adherence to procedures established by an Institutional Review Board, Human Subjects Committee; formally recognizing and addressing concerns raised by study subjects; establishment of convenient communication pathways between subjects and researchers (including principle investigators); and maintenance of privacy, confidentiality, and professionalism in all interactions with subjects.

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WORKER SAFETY AND HEALTH PRACTICES AT GASEOUS DIFFUSION PLANTS IN THE DOE COMPLEX — RESULTS OF THE HISTORICAL INVESTIGATION (1999–2000). J. Lockridge, Paragon Technical Services, Inc., Montmorenci, SC; L. McCabe, M. Mielke, R. Stolberg, Department of Energy, Germantown, MD.

During the period of August 1999 through October 2000, the United States Department of Energy's (DOE) Office of Oversight conducted an intensive review of current and past practices at three Gaseous Diffusion Plants operated by DOE from the 1940's through the early 1990's. The three gaseous diffusion plants located near Paducah, Kentucky; Portsmouth, Ohio and Oak Ridge, Tennessee provided the research and production facilities for enrichment of uranium for nuclear weapons and nuclear reactor fuel during this period. In 1999, the Secretary of Energy commissioned a task force from the DOE Office of Oversight, Environment, Safety and Health (ES&H) Evaluations to investigate past operations and work practices at these sites. The purposes of this investigation were to (1) determine whether past ES&H activities and controls associated with uranium enrichment operations were in accordance with the knowledge, standards and local requirements at the time; (2) identify any additional ES&H concerns that had not been documented and (3) assess whether current work practices for DOE-controlled areas of the sites adequately protected the workers, the public and the environment. Specific areas examined by the investigation team included both current and historical operations of the plants, maintenance and modification programs, and worker safety and health programs and practices. This paper addresses only the historical safety and health programs and practices of the gaseous diffusion plants as identified during the investigation. The investigation team interviewed hundreds of former and current employees at these plants, performed walkdowns of facilities and site grounds, conducted environmental sampling and analysis, and reviewed thousands of historical documents. At each of these sites, ES&H programs were in existence from the beginning of plant operations. Workers were exposed to a wide variety of hazards, some of which were not widely recognized in the industrial practices of that era.

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WORKPLACE VIOLENCE PREVENTION: PROGRAM ELEMENTS. G. Chambers, Division of Safety & Hygiene, State of Ohio, Columbus, OH.

A great deal of misinformation surrounds workplace violence (WPV). Inevitably, this results in ineffective interventions-for example, organizations' attempts to prevent WPV using only policy statements notifying employees that violence will not be tolerated, or relying only on security personnel to counter threats from the outside. Meanwhile, employees typically are not told about the major WPV categories-information which can make this problem more understandable. Even worse, they are not provided with information that gives them reason to believe that anything practical could be done to prevent or limit the occurrence of WPV. Thus, they, and their organizations, often end up relying on the solace of just hoping "it" doesn't happen on their watch. Of course, no guarantees exist that adopting certain behaviors or programs will always prevent WPV. But, taking preventive steps beforehand will allow an organization to respond more rationally and effectively to such a threat-and may enable its members to feel more in control of their lives. This presentation will explain the difference between a WPV policy and a WPV program, and demonstrate why a policy by itself is ineffective. The elements of a comprehensive WPV program adaptable to any industry type or facility size are described. Within those elements, particular attention is given to the difficulties of developing useful hazard assessments and understanding the "zero tolerance" concept. A few key resources will be provided for those interested in further investigation of this important subject.

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MISUSE OF EXPOSURE REPORTING IN ACUTE RISK ASSESSMENT. J. Morawetz, ICWUC Center for Worker H&S Education, Cincinnati, OH.

Quantitative risk assessment utilizes a variety of human and animal studies. For the vast majority of chemicals, this invariably is animal data supplemented with limited human studies (when available). The summarizing and use of human studies, however, can be problematic in committees heavily weighted to expertise in animal studies. This presentation covers specific examples of the misreporting and misuse of exposure assessment from original papers in the EPA's Acute Exposure Guideline Level Committee. This Committee recommends once in a lifetime exposures to acutely toxic chemicals for five time periods; 10 and 30 minutes, 1, 4 and 8 hours. The three health endpoints they are set for are mild symptoms, serious injury and death.

One basic problem has been the reporting in technical support documents of exposure levels without any associated time periods (phosphine and trichloroethane). Some summaries confuse the type of sample; personal vs area (propylene glycol dinitrate), time weighted average vs instantaneous (hydrogen cyanide). Case studies have been characterized as anecdotal even though complete exposure and medical documentation was provided (phosphorous trichloride and trichlorethylene). The committee has rejected studies (chlorinated solvents and phosphine) that reconstruct a work task and report exposure levels as being unreliable by definition. Lastly, the association between a range of exposures and either symptoms or lack of symptoms is often attributed erroneously to the single highest measurement in the range (uranium hexaflouride and propylene glycol dinitrate).

The primary solution to these problems is the inclusion in risk assessment committees of all necessary disciplines including occupational epidemiology and industrial hygiene. This should be from the Committee's initial planning, the drafting of standard operating procedures and each chemical-specific technical support document, and the composition of the committee that reviews summaries, recommends levels and all final review committees.

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LESSONS LEARNED FROM THE EPA/OSHA CHEMICAL ADVISORY: "SKIN EXPOSURE TO MOLTEN 2,4-DICHLOROPHENOL (2,4-DCP) CAN CAUSE RAPID DEATH". M. Gillen, NIOSH, Washington, DC.

EPA and OSHA, with assistance from NIOSH, issued a Chemical Advisory on February 15, 2000, to raise awareness that the molten form of 2,4-Dichlorophenol (2,4-DCP) could cause worker fatalities after minimal skin exposure. The need for the advisory was initially triggered by notification of a worker fatality under Section 8(e) of the Toxic Substances Control Act. The substance had limited toxicological information and no occupational exposure limits. A total of five fatalities over an 18-year period were eventually identified and linked to skin exposure accidents with 2,4-DCP. The purpose of this presentation is to describe: 1) how the fatalities were identified; 2) the process that led to agency collaboration on the chemical advisory; 3) obstacles to sharing of information about the hazard and precautions and their impact on the process; 4) the utility of facility-specific targeting based on the Toxics Release Inventory (TRI); and 5) substances deserving additional scrutiny based on similarity to 2,4-DCP. The experience with 2,4-DCP points out a number of important issues relevant to the practice of industrial hygiene, especially in regard to substances without occupational exposure limits. Available toxicity data did not allow easy identification of the potential hazard, and existing reporting systems did not elevate early fatalities. There is a critical need to create safety and health infrastructure for protection against dermal exposures and for effective response once skin is contaminated. Creation of a list of substances that can cause death via dermal absorption is also suggested to guard against future tragedies similar to the 2,4-DCP case.

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A SIMPLE TECHNIQUE TO PREPARE ASBESTOS SLIDES WITH RELOCATABLE FIELDS OF VIEW. T. Pang, Ryerson Polytechnic University, Toronto, ON, Canada.

A simple technique was developed to prepare asbestos slides with relocatable fields of view. It involves using special cover glasses which superimpose these fields on cleared wedges of filters containing asbestos. Thirteen slides were prepared from field samples collected for asbestos clearance testing. Thirty-five analysts examined the same fields of view of the slides by phase contrast microscopy at 400X. The present study found that an average of 60.2 fiber counting errors were made for every 100 fibers reported. The fibers were also underestimated by 27.0%. The major source of errors is the subjective ability of the analyst to observe fibers, to recognize fibers according to the fiber criteria and to size fibers. To control these errors, the phase contrast microscopy method should incorporate this technique of producing relocatable fields and require the analyst to record fiber counts accordingly.

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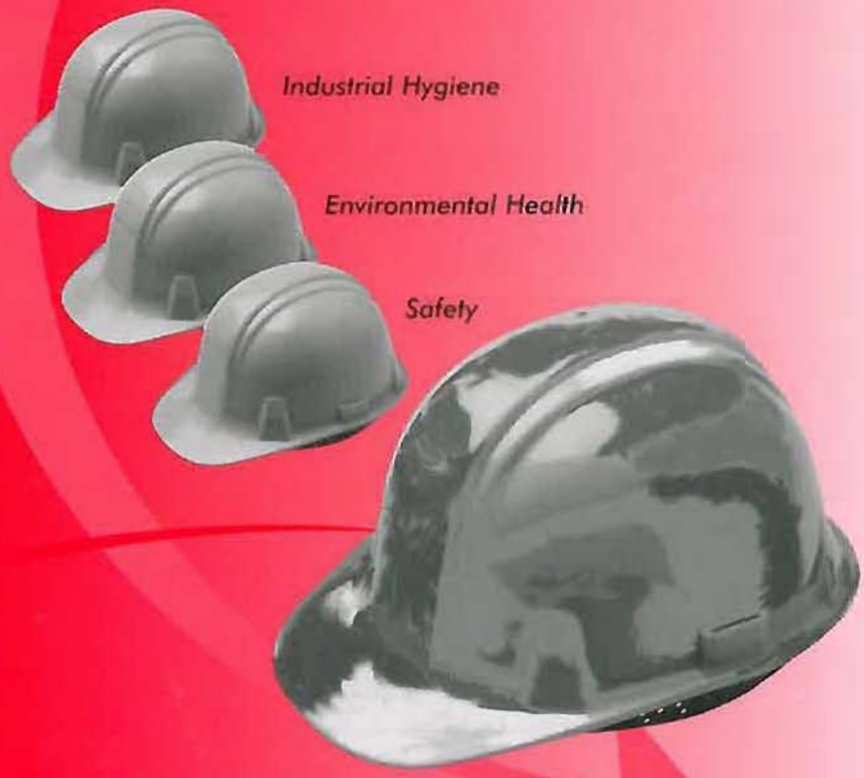

ABSTRACTS