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# LABORATORY SAFETY AND WASTE MANAGEMENT

## Panel Discussion

Wednesday, 28 October 1981

### ISSUES

#### 1. Health Surveillance Program

A health surveillance program should consist of a standardized but comprehensive physical examination that incorporates extensive biochemical analyses. Preemployment examinations must be conducted. A careful medical/occupational health history should be obtained at each examination. Rosters of laboratory personnel, past and present, should be maintained for future tracking purposes. Frequency of examinations should be based on degree of exposure risks. A major need in this area is the development of methodologies to interpret fluctuations in biochemical tests as a function of exposure. The current recommendation for an individual having an abnormal test result is to repeat the examination. If the result is still abnormal, attempt to exclude other potential causes (e.g., alcohol), assess other clinical indicators and subclinical signs (e.g., nerve conduction) and evaluate the individual's risk status in the laboratory.

Determinations need to be made as to whether informed consent documents are adequate to protect management and female employees from problems arising from teratogenic and fetotoxic events.

## 2. Decontamination Methods

In the case of laboratory spills/contamination, no standard methods of decontamination are available. Evaluation of different decontamination methods is indicated.

## 3. Monitoring Residues in the Laboratory

Although wipe techniques are routinely used for monitoring residues in the laboratory, there is a critical need for determining "safe limits" for detectable quantities. Thus, a contamination standard is needed for surfaces and it should encompass dioxins, furans, and PCB's. For example, in the case of Seveso, the Italian government accepted a safety standard for TCDD of 0.01 micrograms/m<sup>2</sup> inside and 0.75 micrograms/m<sup>2</sup> outside family dwellings.

Non-sophisticated monitoring programs (i.e., one that incorporates a simplistic automated procedures) are more likely to be used in a laboratory. Compliance with complex, labor intensive programs requiring hands-on cleanup and injection is generally sub-optimal.

## 4. Use of Protective Clothing

Data are needed on the effectiveness of various types of gloves and coveralls to provide personal protection. Moreover, a method is needed to "clean" contaminated personnel as a consequence of spills or failure of the barriers provided by protective clothing. The present recommendation is to thoroughly wash with soap and water.

## 5. Laboratory Design and Equipment

Equipment should be properly installed and maintained. The floor surfaces should be made of non-porous material. Data are needed on the fate of chlorinated dioxins, Furans, and related compounds in the internals of sophisticated laboratory equipment (e.g., the GC-MS). Areas of the laboratory should be designated "high" or "low" risk areas and the integrity of these areas maintained.

## 6. Labeling of Environmental Samples

Frequently, personnel handle the same sample differently when analyzing for dioxins versus inorganic contaminants. There must be a consistency in handling samples.

## 7. Methods for Disposal of Laboratory Wastes

Data are needed on "practical" but safe means of disposing of laboratory wastes (both liquid and solid). An interpretation of the present government regulations and guidelines are indicated. In laboratories handling animal wastes or biological tissue, different procedures may be needed for the storage and disposal of biological wastes.

## 8. Public Relations

Audiovisual material may be an effective means of educating laboratory, support and non-laboratory personnel to the analytical or toxicological projects being conducted in the facility. Information exchange is needed between laboratories.