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TESTIMONY OF

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Distinguished Hearing Panel Members, ladies and gentlemen. It is a pleasure for me to be here today to present the views of the National Institute for Occupational Safety and Health (NIOSH) on the important issue of environmental protection and energy conservation. NIOSH, located within the Center for Disease Control of the Department of Health, Education, and Welfare is the principal Federal agency involved in research and standards recommendations to protect the health and well-being of American workers. In this regard, NIOSH works closely with the Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration (MSHA) in the Department of Labor which are responsible for the setting and enforcement of standards within general industries and mining industries, respectively.

During the past 5 years, NIOSH has been cooperating with the Environmental Protection Agency (EPA), the Department of Energy (DOE), and the National Institute of Environmental Health Sciences (NIEHS) within HEW in a coordinated Federal research program to identify and to prevent potential health problems in energy industries. One of our major concerns in all energy technologies, both nuclear and non-nuclear, is the health and safety of those workers who must construct, operate, and maintain these facilities including workers in pilot and demonstration, as well as commercial facilities. Unfortunately, it has been our experience that the issue of occupational safety and health has generally been given relatively low priority and visibility in the development of new energy technologies.

It is clear to us that failure to consider occupational safety and health adequately during technology development will result in needless injury and/or disease, as well as jeopardize the basic success of that technology in the long term by requiring costly retrofit controls later that could more easily have been incorporated during initial construction. Occupational safety and health considerations must be one of the earliest issues to be discussed, studied, and resolved before large scale commitment to any energy technology is made. Because occupational safety and health issues are largely independent of siting, occupational safety and health assessments should really precede overall environmental assessments.

Consideration and solution of occupational safety and health problems early in the technology development phase may actually contribute in a major way to resolution of potential general environmental problems. This is because workers are best protected by control of harmful emission at the source before they ever can enter the general environment, thus, also protecting the general population and the ecology. Potential occupational and environmental health problems must be identified early in technology development to give adequate opportunities to solve such problems. Considering occupational safety and health at the design stage before technologies leave the drawing board can do much to prevent future problems. Relying upon Environmental Impact Statements as the primary means to resolve these issues may already be too late in the technology development process to do much good.

Specifically, NIOSH recommends that: (1) occupational safety and health should become a major component of DOE Environmental Readiness Documents

and DOE Environmental Assessments to assure that these issues will be considered as early in the technology development phase as possible. In making this recommendation, NIOSH recognizes that there may be engineering scale-up problems in extrapolating from pilot and demonstration to commercial scale operations. In this regard, control technology research to prevent harmful exposures in the workplace and the general environment must be coordinated to help assure that efforts to protect the environment do not inadvertently harm workers, nor efforts to protect workers harm the general environment. Workers must be adequately protected from the onset of technology development; we cannot afford to wait 20 to 30 years or more, the latent period for many chronic diseases, before identifying potential problems.

To better accomplish the goal of protecting workers, NIOSH's recommends that: (2) a separate Occupational Safety and Health Impact Statement should be required for all developing energy (and other) technologies. This impact statement should be prepared before the development of Environmental Impact Statements and should consider not only information on health effects but also whether adequate control technology is available. NIOSH's experience in the review of Environmental Impact Statements is that occupational safety and health considerations are rarely, if ever, mentioned, let alone adequately dealt with.

In reviewing the type of health and related research that is necessary to assess developing energy technologies, it is extremely important that multidisciplinary teams of biological and engineering scientists work closely together in the identification and solution of potential problems.

NIOSH recommends that: (3) research be organized more along technologies than along biomedical science disciplines. Health researchers must understand the technologies before being able to focus research questions upon the most important potential problems. Health research questions should also be asked in a way to assist the engineers in the design and development of adequate control technology. At this point, it would be unrealistic to expect biomedical researchers to define exact dose-response relationships early in the technology development process. However, if researchers could, at least, identify the most likely toxic components in process and product streams, the engineers could further focus their efforts at process modification and control technology development. In this regard, engineers require better training to more fully appreciate the need to consider health and safety in process design. A case in point is in coal liquefaction and gasification where the severe operating conditions (temperature and pressure) and the erosive/corrosive nature of many process streams require extensive efforts to develop improved containment systems.

A fourth NIOSH recommendation is that: (4) occupational safety and health considerations should not be ignored in our overall efforts to conserve energy. Manufacture of insulation materials, especially with pressures to push production to meet increasing demand,may result in harm to workers. Efforts to conserve energy by exhaust gas recirculation may also result in buildup of contaminants, possibly to hazardous concentrations. Recycling and resource recovery may also expose workers to hazardous substances. Even solar energy may have associated occupational safety and health risks.

al NIOSH recommendation is that: (5) worker representatives, given an adequate opportunity to participate in the public relating to developing energy technologies. One reason why have not been more vocal in that debate is that there is a misconception that environmental goals can only be achieved at ense of job opportunities. This, of course, is not the case. the advantages of a separate occupational safety and health statement is that this will encourage workers to express opinions nergy technologies, particularly on matters affecting their ety and health. The current environmental impact process does not ge participation from workers in this national policy debate. In gard, I was most pleased that representatives from organized labor esent at the regional workshops preceding this hearing, and that ional health and safety was identified as an explicit criteria quires further discussion.

ncludes my formal remarks. I shall now be pleased to answer stions.

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16. Abstract (Limit: 200 words): This testimony concerned the activity of (NIOSH) on the issues of environmental protection and energy conservation. During the previous 5 years, NIOSH had worked with the Environmental Protection Agency, the Department of Energy and the National Institute of Environmental Health Sciences to identify and prevent potential health problems in energy industries. Based on its work thus far, NIOSH recommends that occupational safety and health should be a major component of the Department of Energy Readiness Documents and Department of Energy Environmental Assessments in an effort to assure that these issues will be considered as early in the technology development phase as possible. NIOSH also recommends that a separate Occupational Safety and Health Impact Statement be required for all developing energy technologies and other technologies as well. Such a statement should consider not only information on health effects but also whether adequate control technology is available. Thirdly, NIOSH recommends that research be organized more along technologies than along biomedical science disciplines and that occupational safety and health considerations not be ignored in the overall efforts to conserve energy. Finally, NIOSH recommends that worker representatives must be given an adequate opportunity to participate in the public debate relating to developing energy technologies.

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