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STATEMENT

BY

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BEFORE THE

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

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Mr. Chairman and Members of the Committee:

I am Dr. J. Donald Millar, Director of the National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control, Public Health Service, of the Department of Health and Human Services. Thank you for inviting me to testify on studies conducted by NIOSH which relate to long term health consequences among workers exposed to dioxin-contaminated products. With me today from the Institute is Dr. Marilyn Fingerhut, an epidemiologist in our Division of Surveillance, Hazard Evaluations and Field Studies.

As you know, NIOSH was established by the Occupational Safety and Health Act of 1970, and is charged with studying the human health effects of occupational exposures to hazardous substances. From the results of these studies and other available data, we make recommendations to prevent disease and injury among workers from such exposures. NIOSH, however, neither establishes nor recommends policy related to the compensation of persons exposed and injured. As you know, a Cabinet-level work group has been formed to address a broad range of issues related to the compensation of the victims for exposure to toxic substances and the results of work by that group, when they become available, should prove useful to you in your deliberations on this issue. Because I have no responsibilities related to compensation policy, my testimony will be limited to those questions contained in your letter which address my duties in managing specific studies of human health effects of exposure to hazardous substances.

It is in the performance of the Institute's research mission that several studies on dioxin are being conducted by NIOSH. I will first describe the Dioxin Registry and Mortality Study and then summarize other research exploring the relationship between soft tissue sarcoma and exposure to dioxin.

The NIOSH Dioxin Registry has identified a cohort of workers who are known, by records of employment, to have worked in chemical processes which generated dioxin as a contaminant. Hence, these are workers who are known to have been potentially exposed to dioxin. Upon completion, the Registry will contain a listing of the names, vital status, demographic information, and work histories for all U.S. workers potentially exposed to dioxin during the production of products such as trichlorophenol, 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), or pentachlorophenol. Enrollment of workers into the Registry will be completed by the end of December 1983; 5,000 such workers at ten U.S. facilities have already been identified. We are currently evaluating data systems at four additional sites, and, if the records are adequate, approximately 1000 more workers will be added to the Registry.

This group constitutes a unique population of persons with documentation of potential exposure to dioxin among whom meaningful epidemiological observations can be made. Many of the workers already identified have been exposed to dioxin-contaminated materials for twenty years or more. The Registry will provide the data base necessary to conduct epidemiological research, the results of which will be a valuable source of information regarding potential human health effects from exposure to dioxin. In addition, the International Agency for Research on Cancer of the World Health Organization, with funding provided by the National Institute of Environmental Health Sciences, National Institutes of Health, is developing an international dioxin registry for countries other than the United States.

The mortality study, which is already under way, tests the hypothesis that soft tissue sarcoma and other cancers may be associated with exposure to dioxin. Additionally, because information that can be obtained from a

mortality study is limited to those causes of death which are coded on death certificates, we will seek more detailed health information through a questionnaire survey and a medical examination of several hundred living members of the cohort of exposed workers. In the first or pilot stage of this effort, a questionnaire and medical study will be administered to about 500 exposed workers and a comparable number of persons who have not been exposed. This study is designed to evaluate the presence of effects on the skin, liver, neurological and immunological systems that have occurred among workers after exposure.

We also have extensively reviewed medical literature concerning the link between exposure to dioxin and soft tissue sarcoma. In 1977, several clinical cases of soft tissue sarcoma were observed among Swedish lumberjacks who had previously been exposed to dioxin-contaminated products. This observation led researchers in Sweden to conduct two separate epidemiologic studies of the relationship of dioxin to soft tissue sarcoma. Both studies found that workers with exposure to dioxin had a five to six-fold greater risk of developing a soft tissue sarcoma than those not exposed to dioxin.

Subsequently, three studies were conducted in the U.S. of workers exposed to the herbicide 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) or its chemical precursor, trichlorophenol, products whose manufacture produces dioxin as a contaminant. No excess in total mortality or in deaths from malignant neoplasms was found in these studies. However, the number of workers in each study was small and the expectation of rare causes of death in such small groups was very low. Consequently, the failure to find excesses was of little statistical significance. In order to have a meaningful sample to evaluate,

we combined the data from the three studies and added results from a fourth unpublished study. In the merged cohorts there were three deaths (2.9% of the total 105 deaths in the merged cohorts) reported by the researchers to be due to soft tissue sarcoma; only 0.07% of total deaths, or less than one death, due to soft tissue sarcoma was expected. A fourth individual in one of the cohorts died recently; the death also was reported as due to soft tissue sarcoma. Three additional persons who worked at 2,4,5-T production facilities were reported by their physicians to have had soft tissue sarcomas. Thus a total of seven cases were initially reported as due to soft tissue sarcoma among workers exposed to dioxin. In July of this year, we reported these preliminary observations to the House Committee on Science and Technology.

In continuing these investigations, we have sought to confirm both the diagnosis and the history of exposure in each of these seven cases. We have obtained detailed work histories for each person and sent available pathological tissue specimens from each case for review by the Armed Forces Institute of Pathology and by an independent expert on the pathology of soft tissue sarcomas. Based on the expert review of specimens, we have recently stated that of the four cases reported to be soft tissue sarcoma by the authors of the four U.S. studies, two of these cases are confirmed by expert pathologists as such. Both had documented exposure to dioxin-contaminated products. Of the three cases reported by physicians all were found to have soft tissue sarcoma based on the review of their specimens by the experts; however, exposure of these employees to dioxin-contaminated products could not be verified in a review of their work histories. We cannot determine whether these three workers had exposure to dioxin.

In July, before the House Committee on Science and Technology, we discussed this issue. At that time, we knew of seven cases reported as soft tissue sarcoma in U.S. workers. We indicated then that we were actively pursuing clarification of these reported cases. As a result of a rigorous scientific process, we have now determined the following:

Four individuals had work histories documenting their employment in the manufacturing process of dioxin-contaminated products. Two of these have histologically verified soft tissue sarcoma and two do not.

The three additional individuals who have histologically verified soft tissue sarcoma have work records that do not provide documentation of their employment in the manufacturing process of the contaminant in question.

In sum, of the seven cases which were initially reported only two have histologically verified soft tissue sarcoma for which we have documentation of their employment and the manufacturing process of the contaminant in question.

The two verified cases, while a small number, still represent an excess over the less than one that would be expected statistically. While our observations to date do not confirm a causal link between dioxin and soft tissue sarcoma, they give us reason for continuing our investigations.

Mr. Chairman, this concludes my summary of the NIOSH dioxin studies. We would be happy to answer any questions you or other members of the subcommittee may have.



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