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NIOSH Testimony to DOL

TESTIMONY OF THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH ON THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION NOTICE OF PROPOSED RULEMAKING ON HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE

29 CFR Part 1910
Docket No. S-760A

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

October 14, 1987

Good morning. My name is Richard Lemen. I am the Director of the NIOSH Division of Standards Development and Technology Transfer. I am joined here today by staff from each of the other NIOSH Divisions, each of whom is an expert in a different area of occupational safety and health.

The National Institute for Occupational Safety and Health (NIOSH) was established under the Occupational Safety and Health Act of 1970, to provide the Occupational Safety and Health Administration (OSHA) with recommendations for workplace health and safety standards. It is for that purpose that I and my colleagues are here today.

The proposal that we are here to discuss today is much needed and the OSHA staff is to be commended for their efforts. We are particularly pleased that this proposal recognizes the NIOSH recommendations that exist for more than 120 substances and physical agents that will be encountered at the Nation's hazardous waste sites.

NIOSH has had a strong interest in protecting the health and safety of hazardous waste workers and emergency response personnel. This interest is reflected in the NIOSH/OSHA/USCG/EPA publication, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (NIOSH/OSHA/USCG/EPA 1985). It was the information and the recommendations contained in that report that served as the basis for NIOSH's Recommendations for Control of Occupational Safety and Health Hazards at Hazardous Waste Sites, which were submitted to OSHA in November 1986.

NIOSH continues to recommend that workers employed at hazardous waste sites or in hazardous waste operations be protected by complying with all provisions presented in the NIOSH recommended standard. Adherence to these recommendations should prevent or greatly reduce the risk of developing adverse health effects among hazardous waste workers. These recommendations which have previously been submitted to OSHA will be summarized here.

RECOMMENDED EXPOSURE LIMITS

Chemical and physical agents at hazardous waste operations should be controlled so that workers are not exposed at concentrations that exceed the NIOSH recommended exposure limits (REL's). All skin contact with those substances that may harm the skin or may be absorbed through it should be avoided. Exposure to biological agents should also be controlled so that no worker suffers from any disease associated with such exposures. For those chemical and physical (including radiologic) agents for which NIOSH does not have the lowest exposure limit, the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL), the permissible exposure limits set by States with their own OSHA-approved occupational safety and health plan, or if necessary limits based on information obtained from peer-reviewed sources should be used. Some of these sources include:

- Criteria documents produced by the World Health Organization.

- Criteria documents and recommendations produced by other countries such as those of the Swedish National Board for Occupational Safety

and Health, the Canadian Center for Occupational Health and Safety and the United Kingdom's Health and Safety Executive.

- Recommendations and information that can serve as the basis for recommendations published in peer-reviewed journals.

As a prudent public health measure, the employer should reduce worker exposure to all chemical, physical, and biological agents associated with hazardous waste operations to the lowest extent technically feasible, using current state-of-the-art engineering controls, good work practices, and appropriate personal protective clothing and equipment as needed. Regardless of particular limits used by the employer, they should be considered to be upper boundaries of exposure.

MONITORING

NIOSH believes that industrial hygiene monitoring data must be used as the basis for decision making at all hazardous waste sites. This includes decision on medical surveillance and selection of personal protective equipment and clothing. Not only should there be intensive monitoring initially, but periodic monitoring should also take place. This periodic monitoring should be conducted after planned work at a site has begun. The purpose of periodic monitoring is to verify that conditions have not changed in a manner that lessens the protection afforded by the protective ensemble that was selected based on initial monitoring results.

MEDICAL SURVEILLANCE

In general, NIOSH recommends that employers institute a medical surveillance program for all workers who are, or may be, exposed to chemical, physical, or biological agents during their work at hazardous waste operations.

We further recommend that the medical surveillance program be under the direction of a physician who is board-certified in occupational medicine or who has a minimum of 2 years experience in providing or evaluating occupational health programs.*

As is the case with medical surveillance programs in general industry, NIOSH believes that the medical surveillance program for hazardous waste workers should include a preplacement examination and a periodic examination. We also recommend that an emerging medical program be established. The preplacement medical examination should be provided for each worker who will be potentially exposed to any chemical, physical, or biological agent at a hazardous waste operation. The purpose of this examination is to determine a worker's physical ability to perform the work and to establish a baseline for future comparisons. Information concerning methods for the evaluation of a worker's ability to function while wearing PPE is contained in the NIOSH publication, NIOSH Respirator Decision Logic (1987).

In addition to a comprehensive work and medical history the preplacement examination should include:

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*Note: This is not a requirement that the examination be performed by a board-certified doctor.

- An examination of the respiratory system.

- An examination of the eyes and skin.

- An examination of the cardiovascular system.

- An evaluation of the liver, kidney, and the nervous system.

- Any other tests that the examining physician or the medical surveillance program director believes are needed, based on the contaminants to which the worker may be exposed.

- Any workers who may be required to wear respiratory protection, protective clothing or whose work involves extremes of physical exertion or stamina.

- An evaluation of musculoskeletal fitness.

The medical surveillance program must also include periodic examinations for each worker. These examinations should be conducted at appropriate intervals, based on the worker's age and the nature of the work and exposures. The worker's health status at the time of the last examination should also be a factor in determining the periodicity of their examinations. Periodic examinations should be conducted at least annually and upon termination of employment.

The periodic examination should be used to examine the skin, eyes, and other organs to note changes that may have occurred since the previous examination. X-ray examinations, EKGs, pulmonary function tests, and blood tests may be conducted at the discretion of the physician.

Because of the uniqueness of the hazardous waste site as a workplace, the medical surveillance program should also contain provisions for emergency treatment and acute non-emergency treatment at each site; an emergency medical treatment plan should be described in the site safety plan. At a minimum, a team of workers should be trained in emergency first aid and emergency decontamination procedures.

The emergency treatment plan should also:

- Establish the roles and responsibilities for each worker on the on-site emergency response team.

- Establish an emergency/first-aid station located in a clean area adjacent to the designated decontamination area.

- Include the name and phone number of a physician who is on-call 24-hours a day.

- Include the names and phone numbers of other medical specialists who are on-call for emergency consultations.

- Plans for emergency transportation to a nearby medical facility.

Because hazardous waste site workers may work at a large number of geographically separate sites during their careers, and adverse effects of long-term exposure may not become apparent for many years, all medical records should be maintained in a central location and preserved for 30 years after they leave employment (29 CFR Part 1910.20).

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

As is the case in other industries, engineering controls are the first line of defense for minimizing the potential for work exposure, accidents, fires, explosions, and accidental releases. Safe work practices are also implicit in preventing injury and disease. However, even when state-of-the-art engineering controls are in place and sound work practices have been adopted. Personal protective equipment (PPE) must be provided whenever there is a potential for a hazardous exposure that cannot be controlled by engineering methods or work practices.

Personal protective equipment that may be required includes:

- Respiratory protection.

- Skin and body protection and other personal protective equipment such as a cooling unit, a two-way radio, safety belts, harnesses and a lifeline, and ear plugs or earmuffs.

The detailed NIOSH recommended standard provides guidelines in selecting protective equipment for each situation. These guidelines will not be

presented at this time but the NIOSH philosophy supporting those guidelines is that the level of protection should only be decreased after monitoring indicates that such a change is warranted. Therefore, until exposure monitoring is completed, all workers at remedial or emergency hazardous waste sites shall wear positive-pressure SCBA and a fully-encapsulating chemically-resistant suit where the potential for skin contact exists. Monitoring is required to determine if a lower level of protection will provide adequate worker protection.

While NIOSH firmly believes that even when airborne contaminant concentrations are below established exposure limits, PPE must be worn. We also recognize the added burden that this places on the worker. Therefore, the medical surveillance program and the work plan must recognize the potential for physiologic stress attendant to wearing PPE. Heat stress, for example, must always be a consideration for workers wearing any PPE ensembles even at relatively low environmental temperatures. This is a particular concern for workers wearing self-contained breathing apparatus (SCBA) or fully-encapsulating ensembles. Information concerning the recognition and avoidance of that stress is contained in the NIOSH criteria document Occupational Exposure to Hot Environments (1986).

The work practices described in the NIOSH recommended standard include use of the buddy system, guards to patrol the site during work and nonwork periods, recognition of the increased safety hazard attendant to working with volatile substances at elevated temperatures; the use of nonsparking communication devices; and the prohibition of smoking, eating, drinking, or application of cosmetics.

Equipment used during hazardous waste site operations should include, as appropriate, the following:

- Enclosed environmental cabs with positive pressure.
- Rollover protective structures.
- Seat belts.
- Emergency shutoff provisions in case of rollover.
- Backup warning lights and signals.
- Signs on cranes, derricks, and power shovels that read "Unlawful to operate this equipment within 10 feet of power lines."
- Nonsparking equipment and tools.

NIOSH also recommends that employers conduct an aggressive industrial hygiene monitoring program to determine the nature and extent of worker exposure to the substances stored at the site. Initially, monitoring may consist of area sampling or sampling at sources of particular concern. However, the operator of a hazardous waste site should institute a program of personal monitoring if the area monitoring reveals exposures in excess of the NIOSH REL, or the OSHA or State PEL or ACGIH TLV®. Sampling and analysis should follow methods identified in the NIOSH Method for Analytical

Methods, 3rd Edition or other methods that are equivalent in precision and accuracy.

If a worker is found to be exposed to any specific contaminant in excess of the NIOSH REL, the OSHA or state PEL or ACGIH TLV®, the operator should institute controls and require the use of appropriate personal protective equipment. In addition, the worker shall be notified of the results of the monitoring and the control measures being implemented to reduce those exposures.

Having summarized our recommended standard, I would like to address several specific aspects of the OSHA proposal that we believe should be modified in order to provide the best possible protection to all workers.

First we believe that the proposal should require that each hazardous waste site operator should have a written safety and health plan that in general addresses operations at all sites under the operator's control. In addition, the operator should have a specific safety and health plan for each site.

The overall safety and health plan, at a minimum, must describe the following:

- The monitoring program.

- The medical surveillance program.

- The decontamination program.

- Plans for emergency response.

- Elements of the training program.

- Elements of the site plan.

- Lines of authority.

- Circumstances requiring the use of personal protective equipment and clothing.

This overall plan must be tailored to fit the circumstances for individual waste sites. The employer should also be prepared to modify the plan as the situation dictates to ensure that proscribed procedures are providing adequate worker protection.

Second, we are concerned that this proposal does not provide adequate medical surveillance for all workers who may be exposed at a hazardous waste site. For example, the OSHA proposed rule would exclude from medical surveillance those workers who are exposed at or above established exposure levels for less than thirty days per year. NIOSH urges OSHA to reconsider this position.

The provision assumes that unless a worker has exhibited signs or symptoms of exposure within 30 days, there is no reason to anticipate that the worker

will ever suffer adverse effects. This assumption is particularly faulty when considering exposure to those substances frequently found at hazardous waste sites that may manifest their effects years after the exposure occurred. For example, data from the Agency for Toxic Substances Disease Registry (ATSDR) shows that 7 of the 11 most frequently found substances at hazardous waste sites are carcinogens. Lead--another substance on the ATSDR list--was the second most frequently found substance. Unless OSHA extends coverage to all workers, regardless of the duration of their exposure, employers can adopt the unacceptable practice of employing workers for only 29 days at a time, or use this time period as a basis for worker rotation as a means of complying with the standard.

Other workers are exempt from the medical surveillance provisions either because they are not exposed above established exposure limits or because they are not required to wear personal protective equipment. It must be kept in mind that the established exposure limits that will be proscribed for many substances at a hazardous waste site will be the TLVs® of the ACGIH. Since, as the ACGIH states, their TLVs® are not intended to protect all workers, NIOSH believes that all workers at a hazardous waste site must be given the benefit of participation in the medical surveillance program.

Still other workers are excluded from the medical surveillance program because they work at sites that handle less than one ton of hazardous waste each month or because they work at sites that store hazardous materials for less than 90 days. Exclusion of these workers from the medical surveillance provisions appears to be based on the assumption that toxicity is a function

of the total amount amount of material being stored or the duration of its storage. This is clearly an inappropriate assumption and should not serve as the basis for exclusion from medical surveillance.

In addition to our concerns with the proposed medical surveillance, we are also concerned with the OSHA proposal for testing totally-encapsulating chemical protective suits.

OSHA proposes that in order to test fully-encapsulating suits, that the suit be donned and tested in an ammonia atmosphere between 1,000 and 1,200 ppm, a concentration 2 to 2 1/2 times the concentration believed to be immediately dangerous to life or health (IDLH). Though the proposed test method requires that the person wearing the suit also wear the appropriate respiratory protection, NIOSH does not believe that it justifies exposure to an IDLH atmosphere. We realize that the failure of both the respirator and the TECP at the same time is unlikely; nevertheless, the possibility remains. Furthermore, we have reservations with the quantitative leak test procedure because we believe there may be significant in-suit sampling error due to improper mixing of any test gas within the suit cavity. This concern is based on research conducted by NIOSH that demonstrated significant in-facepiece sampling error when measuring airborne concentrations of organic vapors within the facepiece of half-mask respirators. A major cause of this sampling error proved to be improper mixing of vapor within the facepiece cavity. It is reasonable to conclude that this sampling error will only be exaggerated by the larger space of a fully-encapsulating suit.

We are also concerned that ammonia gas at such a high concentration may degrade the suit material. For example, the National Research Council (NRC) monograph, "Ammonia" states that ammonia causes natural rubber and some synthetics to swell, and that it causes degradation of polyvinyl chloride and nylon. It is therefore reasonable to assume that the permeation resistance of the suit may be altered and it may afford less protection than believed. We urge OSHA to reconsider this decision and to seek an alternative test method or less noxious test agent. NIOSH will, of course, welcome the opportunity to work with OSHA to find such an alternative.

Finally, I would like to spend a few minutes discussing the issue of training. Certainly, a well trained management staff and a trained work force will have a very positive impact on the safety and health of hazardous waste site workers. The elements of such a training program have been described in the NIOSH/OSHA/EPA/Coast Guard document, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. We believe that the basic training program described in that document and in this proposed rule are adequate to ensure that all workers and management personnel are properly trained. However, we believe that this provision will be greatly strengthened if OSHA and the EPA assume the responsibility of certifying that the training has been conducted and that both workers and management have successfully completed the training. Such a certification process will ensure that the Nation's hazardous waste work force has been trained to the same level of competency. If a worker or a manager of a hazardous waste site chooses to relocate, a copy of the OSHA/EPA certification of training will give the future employer confidence that the

potential worker has the requisite experience and training. NIOSH recommends that at a minimum the certification of training should include:

- Date and place of training.
- Duration of training and name of the instructor.
- Outline of the training course contents.
- Evidence that the training has been successfully completed.

Protecting the Nation's hazardous waste site workers requires a strong well-thought-out program of occupational safety and health. NIOSH believes that the OSHA proposed rule forms a strong foundation for such a program. Once again, I want to commend the OSHA staff for their efforts.

My colleagues and I will be happy to respond to any questions that OSHA or other hearing participants may have.

Thank you.

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