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Office of Occupational Medicine and Medical Surveillance

1995-1997 Triannual Report

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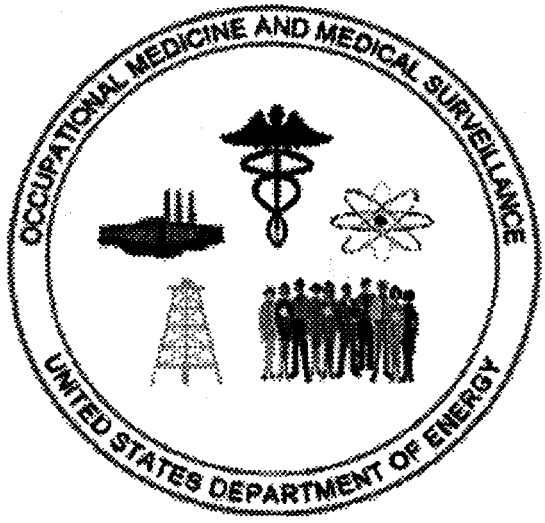
The Office of Occupational Medicine and Medical Surveillance (EH-61)



Environment, Safety and Health

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This document was prepared by the Office of Occupational Medicine and Medical Surveillance (EH-61). Additional copies may be obtained by contacting Gwen Poffenberger, EH-61, on (301) 903-8587. It is also available via the Internet from the EH-61 home page: *http://tis-nt.eh.doe.gov/med/*

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Director's Message

From 1995 through 1997 the Office of Occupational Medicine and Medical Surveillance (EH-61) has made numerous achievements that have enhanced the performance of the office and more importantly, the Department of Energy (DOE). This report provides specific information about our program activities and accomplishments, as well as individual contacts for each program.

The mission of EH-61 is the prevention of worker illness by fostering outstanding occupational medicine and medical surveillance programs within the DOE complex. This mission is being realized as a result of our efforts in four main business lines: (1) Surveillance; (2) Research; (3) Policy/Technical Support; and (4) Information/Communication.

The EH-61 staff is looking forward to the coming years and will continue to work toward common goals associated with developing and implementing relevant occupational medicine programs throughout DOE.

George R. Gebus

George R. Gebus, M.D., M.P.H.
Director
Office of Occupational Medicine
and Medical Surveillance

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SURVEILLANCE

In a perfect world, work-related illness would not occur. Our main objective, should work-related illness occur at a DOE site, is to detect and stop it at the earliest possible time.

Through the establishment of surveillance programs based on the routine collection and analysis of information generated by DOE occupational medicine clinics and the management of a medical surveillance information system, EH-61 strives to locate and eliminate work-related illness.

EH-61 supports three major medical surveillance activities that are intended to advance state-of-the-art occupational medicine programs and addresses Department-wide challenges to providing worker protection.

Former Radiation Workers Medical Monitoring Program

This program supports the medical monitoring of former radiation workers with occupationally incurred internal depositions of radionuclides. The purpose of the program is to provide health monitoring followup of Rocky Flats Plant retired and separated employees whose lifetime effective dose equivalent occupational exposure exceeds 20 rem. The program identifies, locates, and maintains a roster of former employees who qualify for participation. It collects a health and work history for each participant and provides a physical examination focused on cancers of radiological concern. Descriptive epidemiologic analyses are conducted to investigate whether the health events detected are work related. Seven hundred current and former workers have been invited to participate and 500 have been examined so far. The evaluations have revealed one case of pulmonary fibrosis in a former plutonium worker, leading to the hypothesis that pulmonary deposition of plutonium is associated with pulmonary fibrosis. DOE is currently funding a National Institute for Occupational Safety and Health (NIOSH) study, looking at the validity of this hypothesis.

Beryllium Workers Medical Surveillance Program

The Beryllium Workers Medical Surveillance Program (1) identifies

and locates workers exposed to beryllium; (2) provides enhanced medical monitoring for early identification of chronic beryllium disease (CBD); and (3) characterizes employees' occupational exposure to beryllium during current and past operations. The program is currently operating at the Oak Ridge Y-12 Plant, the Rocky Flats Environmental Technology Site, and the Los Alamos National Laboratory (LANL). More than 20,000 current and former workers have been contacted to date, with approximately 7,000 participants in beryllium screening. Over 100 cases of CBD have been detected Department-wide.

In addition, the validity and predictive value of the flow cytometry-based lymphocyte proliferation test (FLPT) in screening for CBD is being established at LANL.

Medical Surveillance for Former Workers Program

The Former Workers Program was created at DOE in response to Public Law 102-484, which was passed in 1992. Section 3162 of this law requires DOE to evaluate the long-range health conditions of current and former employees who may have been subjected to significant health risks resulting from exposure to hazardous substances as a result of their employment at DOE sites.

The Former Workers Program does not limit its focus to any particular kind of exposure, but instead considers the potential effects of exposure to any toxic substance or of any workplace condition (e.g., noise) that could lead to health problems in these workers.

When DOE first began to organize this program, there were several questions to address:

- Whether it would be possible to locate and contact the thousands of former workers from these DOE sites;

- How many of these former employees would want to participate in a medical monitoring program; and

- Whether the appropriate records could be found to provide information on the kinds of substances to which these former employees may have been exposed, as well as other aspects of their working conditions.

Because of the many uncertainties involved in addressing these concerns, DOE has taken an incremental approach to crafting this program.

Based on the recommendations of a panel of health experts, the program was divided into two major steps: Phase I and Phase II pilot projects, as described below.

Ten pilot cooperative agreements have been awarded to date; most of the studies are being conducted by large consortia consisting of unions and universities.

Phase I Pilot Projects

In 1996, DOE awarded funding for six Phase I pilot projects at DOE sites (Rocky Flats, Nevada Test Site, Oak Ridge, Paducah, Portsmouth, and Hanford). Another four Phase I projects were launched in 1997 (Idaho National Engineering and Environmental Laboratory, Los Alamos National Laboratory, and two at the Savannah River Site). Phase I is the needs assessment portion of the program and is designed to determine whether there is sufficient information at these sites to identify and contact former workers who may have been adversely affected as a result of their work at DOE.

Phase II Pilot Projects

The first six of the Phase I projects previously mentioned have already been completed and, following peer review, are now beginning the Phase II process at those sites. It is during Phase II that information gathered during the Phase I needs assessment will be used to identify and define those workers and worker cohorts at risk. These workers will be contacted and preparations will begin to set up medical screening programs based on the most important hazards and exposures that may affect the health of former workers from each site.

A Former Workers Website will be available the fall of 1998 at http://tis.eh.doe.gov/workers/.

RESEARCH

EH-61 supports research that is designed to help develop new techniques for medical surveillance at DOE sites. Results from research programs are expected to contribute to the development and implementation of a comprehensive DOE medical surveillance program.

Memorandum of Understanding (MOU)/NIOSH Grants Program for Research in Medical Surveillace

The MOU/NIOSH grants program for research in medical surveillance operates under an MOU between DOE and the Department of Health and Human Services and is intended to help DOE develop new techniques for medical surveillance at DOE sites. Results from this research are expected to contribute to the development and implementation of a comprehensive DOE medical surveillance program. Five medical surveillance projects have been funded under this MOU, and the grants are managed by NIOSH.

The five medical surveillance projects that are currently funded under this MOU include:

- Hazard surveillance in the Defense Nuclear Industry (University of California);
- Sentinel exposure event surveillance (University of Colorado);
- Work Histories--Evaluating new participatory methods (University of Cincinnati);
- Comprehensive Occupational Health Surveillance System (University of Washington); and
- Informational tools to complement existing worker exposure assessment programs (Oak Ridge Associated Universities).

Analysis of Injury Trend Data

An analysis of injury trend data for DOE security personnel from 1981-1994 has been completed. Results indicate that injuries occurred during physical fitness and training exercise programs. The greatest number of injuries was related to the use of motorized treadmills.

Telemetric Heat Stress Monitor (THSM)

The THSM was developed at LANL and supported by DOE. Demonstrations of the product have been completed, and testing was coordinated with NIOSH and the Department of Defense. This monitor can be used to sense the onset of physiological heat stress in hazardous materials workers. It is a small, lightweight telemetry system that enables a supervisor to monitor combinations of temperature, physical activity, and heart rate sensors in real time for up to 10 workers.

POLICY/TECHNICAL SUPPORT

EH-61 is responsible for the development of occupational medicine policies, rules, orders, standards, and guidance. The emergence of managed health care created an interest in the development of national consensus standards for the operation of occupational medicine programs. This office plays a pivotal role in encouraging and supporting this trend and fosters the participation of DOE and DOE contractor occupational medicine specialists.

By identifying major health issues of concern to the Department and the public, these needs can be translated into DOE policies and standards that are consistent with public and industry standards.

Another important goal within EH-61 is to provide DOE line managers with the best medical expertise available for identifying and correcting potential problems before they occur. The office also strives to maintain open and ongoing communication with line management in order to help provide workable, cost-effective solutions for carrying out its worker health and safety missions.

Radiation Emergency Assistance Center/Training Site (REAC/TS)

The REAC/TS program assists DOE by maintaining state-of-the-art, ready-to-go expertise in radiation medicine and biodosimetry. This program provides DOE with a national and international 24-hour response capability for evaluating and managing victims of radiation accidents occurring at its facilities or among the public. Although this program is usually associated with radiation incidents, it can provide other useful public services. For example, REAC/TS recently responded to a request for help from Washington University in St. Louis, Missouri, where a woman was near death due to Thallium poisoning. REAC/TS shipped sufficient quantities of an antidote to the physicians involved. The woman recovered and was discharged from the hospital.

Quality Assurance of Medical X-ray Facilities

EH-61 provided quality assurance of medical x-ray facilities to those site DOE contractor occupational medicine programs with such facilities via an MOU with the Food and Drug Administration.

Survey of Workplace Violence in DOE Facilities

This survey was completed and has been distributed to contractor occupational medical programs. This document provided an overview of workplace violence that occurred at various DOE sites.

Workplace-related Violence--Potential Legal Implications

The document entitled "Workplace-Related Violence--Potential Legal Implications" was distributed to the DOE contractor occupational medical programs. This study surveyed a variety of statutes, regulations, cases, and other sources to identify legal issues that might confront DOE contractors in dealing with possible workplace-related violence by employees. This document can be located on the Occupational Medicine Website at the following address: *http://tis-nt.eh.doe.gov/med/viol.htm*

Workplace Violence Policy Directive

A policy directive on "workplace violence" has been prepared in conjunction with the Office of Worker Health and Safety (EH-5) and the Office of Human Resources and Administration (HR). This directive focuses on preventing acts of violence in the workplace. The document has been prepared for the signature of the Secretary of Energy and is now in the final DOE concurrence stage.

Protective Force Personnel--Medical Standards

Medical standards for protective force personnel, consistent with the Americans with Disabilities Act of 1990, have been developed for incorporation into 10 CFR 1046, "Medical Standards for Security Police Officers." EH-61 is supporting the Office of Safeguards and Security in this effort, which is in the final rulemaking stage, and is currently being reviewed by the Office of the General Counsel.

Personnel Assurance Program's (PAP) Medical and Psychological Standards

Rulemaking for the PAP medical and psychological standards is nearing completion. The Rule will provide medical and psychological standards for DOE and DOE contractor employees assigned to nuclear explosive duties at DOE facilities. EH-61 is assisting the Office of Weapons Surety, which has the lead in this effort.

DOE Occupational Medicine Order and Implementation Guide

The revision of the DOE Order 5480.8A, "Occupational Medicine Program," created a refined, streamlined Order containing only the essential requirements for a contractor occupational medical program as part of DOE Order 440.1, "Worker Protection Management for DOE Federal and Contractor Employees." An implementation guide was created for use in conjunction with DOE Order 440.1.

Support of Operations Offices

- At the request of the Savannah River Operations Office (SR), EH-61 reviewed the Westinghouse Occupational Medicine Program (OMP) against the reality of decreasing site population and budget. Recommendations were made to SR providing a strategy for the cost-effective delivery of necessary OMP services and functions.

- At the request of the Paducah Site Office, EH-61 provided a needs assessment of occupational and emergency medical services appropriate for DOE federal and contractor personnel.

- At the request of the Oak Ridge Operations Office (OR), EH-61 provided a quality assurance review and response to an Inspector General request for a review of the OR OMP.

INFORMATION/COMMUNICATION

The availability of information related to worker health at DOE is essential to providing better occupational medicine services. EH-61 is involved in several activities and programs intended to facilitate the collection and dissemination of various kinds of information. The Internet increasingly serves as a valuable tool in these efforts and currently provides wide public access to various materials that can be extremely valuable to current and former workers, members of the DOE occupational medicine community, and Congress.

In addition, the office hosts the annual DOE Contractor Occupational Medicine Conference, which is widely acclaimed as a major national forum for the discussion and development of current innovations in the field of occupational medicine.

Medical Surveillance Information System (MSIS)

The MSIS has been built through a partnership with the Office of Information Management (EH-72), Steve Scott, Director.

The purpose of the MSIS is to provide DOE with clinical performance indicators on the health of the Department's workforce. The MSIS program collects clinical information from each site and converts it into a relational form, which permits nurses, physicians, or line managers to ask complex questions about the various components of a site's workforce.

For example, the manager of a wellness program at site Y is targeting workers at risk for heart disease for intervention, and he or she wants to know if there are enough employees at the site for a program to be cost-effective. Using the MSIS, data analysis for specific queries such as this one may be site-specific or Department-wide. Such information can be used by the occupational medicine physician, epidemiologists, and DOE management to safeguard the health of the workers by identifying the health effects of exposures, leading to effective exposure risk management.

Specific accomplishments include:

- Establishment of a standardized employee demographic profile for MSIS use that will provide uniform clinical information for Headquarters and site use in

surveillance and epidemiologic activities. This was accomplished through a review of all DOE medical department forms and a recommendation from a "core data set" working group. The draft core data set was reviewed by all medical directors before being adopted as the standardized employee profile. (1992)

- Through an Interagency Agreement with the Veterans Administration, technical assistance was provided in the development and implementation of this large relational information system. (1993-1997)

- Construction of an entity relationship diagram built on DOE business practices for the interaction of various elements of patient (worker) encounters with the medical staff. (1994)

- Completion of the MSIS architecture in the spring of 1997.

- Construction of an electronic interface with the Y-12 facility to be completed in 1998.

Occupational Medicine and Medical Surveillance Website

Since the emergence of the Internet, it is estimated there are over 75 million users. By utilizing this medium, we have the ability to not only communicate extensively, but to disseminate information on a large scale. With these important factors in mind, the EH-61 homepage was established. This website has enabled the office to distribute information to members of the DOE occupational medicine community; current and former DOE workers; the academic community; unions; other Federal institutions, including Congress; and members of the general public. The EH-61 homepage is now available at the following address: *http://tis-nt.eh.doe.gov/med/*

Medical Testing at DOE Sites (Posted to the EH-61 Website)

In support of Secretarial commitments, in August 1997, EH-61 sent a survey to all DOE sites asking for information regarding preplacement and periodic testing procedures. The compiled survey of site responses was then posted in November 1997 on the EH-61 homepage to ensure an accurate reflection of each site's medical testing activities. Sites have also been asked to periodically review

the posted information and send comments, updates, or corrections to EH-61.

Annual DOE Contractor Occupational Medicine Conferences

Each summer, EH-61 hosts the annual DOE Occupational Medicine Conference, which serves as an important forum to identify and discuss the issues that are relevant for the DOE occupational medicine community. These meetings are widely acclaimed as intellectually stimulating and highly informative. The 1996 conference was held in Denver, Colorado, and the major theme was "Prevention and Protection: The DOE Occupational Medical Challenge." The 1997 conference was held in Portland, Oregon, and the major theme was "Changing Needs in Occupational Medicine."

Biomarkers Publications

In the last 3 years, EH-61 has been involved in the preparation of two major publications related to the uses of biomarkers in occupational medicine. The first of these books, "Biomarkers and Occupational Health," was published in 1995.

The book entitled "Medical and Workplace Applications of Biomarkers," edited by Dr. John Peeters of EH-61, was published in 1998. Using material presented in the DOE-supported 1997 Biomarkers Conference, it presents state-of-the-art information on such issues as: the prospects that compound-specific or diagnostically useful biomarkers can be developed and used for the benefit of workers like these and their employers; the promise which biomarkers of susceptibility offer for reducing risk to occupational exposures; the legal and ethical issues associated with the use of such biomarkers; and the effects on the workplace of new genome-related capabilities for characterizing individual differences. This volume provides both a background on the use of biomarkers and examines the contribution of the most recent discoveries in genetics to provide a "real world" assessment of the significance of biomarkers.
The book also explores the societal and ethical issues of using biomarkers in the workplace, the military, the courtroom, and other settings.

Use of Potassium Iodide (KI)

Information related to the use of KI by workers exposed to radioactive iodine was distributed to the DOE operations offices and the occupational medicine programs. The information resulted

from discussions by an expert panel convened by the Secretary of Energy in 1997. The sites were asked to accomplish the following:

- Determine whether there is a potential for the release of radioactive iodine as a result of any site activities, including unanticipated events such as sabotage, terrorism, or accidental releases.

- Review and revise as appropriate evacuation and emergency response plans to minimize the number of individuals potentially exposed to radioactive iodine during a release.

- In collaboration with the site medical director, design and implement a strategy for distribution of KI to workers during a release of radioactive iodine.

- In the context of overall emergency preparedness, engage in training and drilling to prepare for an appropriate and effective response to the release of radioactive iodine.

Risk Communication Program

The Risk Communication Program, a collaborative project between EH-61 and the Environment, Safety and Health's Office of Technical and Environmental Support, is developing a prototype for health risk communication that integrates current knowledge of effective risk communication practices into a framework for dialog about a level of workplace health risks that is acceptable to current workers, retired workers, health professionals, and others. A health risk communications package, "Communicating Health Risks: Working Safely With Beryllium," has been drafted and will be pilot tested in 1998. A symposium entitled "Communicating Risk in a Changing World" was organized by EH-61 in December 1996 as a collaborative effort by DOE, the Consortium for Risk Evaluation with Stakeholder Participation, and the Environmental Health Policy Committee's Subcommittee on Risk Communication and Education, U.S. Public Health Service. Its purpose was to ensure that programs directed at improving risk communication are delivering a consistent health risk message to workers and their communities. Conference proceedings are being developed for publication, and recommendations will be used to develop guidelines for risk communication for use by Federal Agencies.

Occupational Medicine Residents Program

The training of occupational medicine residents continues to be part of EH-61 activities. In past years, learning opportunities have been provided for physicians from the University of Alabama, the University of Cincinnati, and the University of West Virginia. In 1997, for example, a resident from the Johns Hopkins program participated in a site review at Savannah River and attended the Annual DOE Occupational Medicine Conference in Portland, Oregon.

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Former Radiation Workers Medical Monitoring Program	Paul Wambach, Janet Normandy
Medical Surveillance Information System (MSIS)	George Gebus, John Peeters
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