



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

JUN 11 2001

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INFORMATION

May 31, 2001

Mr. Larry J. Elliott (R-45)
Acting Director
Office of Compensation Analysis and Support
National Institute of Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, Ohio 45226

Dear Mr. Elliott:

I am responding to your letter dated April 6, 2001, requesting comments and input from the U.S. Nuclear Regulatory Commission (NRC) concerning the development of guidelines and promulgation of regulations as specified in the Energy Employees Occupational Illness Compensation Act of 2000 (Act) and Executive Order 13179. The Commission has previously provided comments to the Office of Management and Budget on September 11, 2000 (Enclosure 1).

In addition, we are offering some technical comments and recommendations that may assist you (Enclosure 2). It is my hope that these comments will be of assistance to you and your staff. If additional information is desired, please contact Dr. E. Vincent Holahan at (301) 415-8715 or via e-mail at evh@nrc.gov.

Sincerely,

Ashok C. Thadani, Director
Office of Nuclear Regulatory Research

Enclosures: as stated

NRC Comments on Draft Bill on
Energy Employees Occupational Illness Compensation Act

The Commission understands that the proposed legislation is to provide additional compensation programs to the men and women who served our nation in the nuclear weapons complex and, in particular, to assure compensation of those workers who may have developed illnesses from exposure to dangerous chemicals and radiation in the course of their employment. We believe it is important that such legislation be consistent with the sound radiation standards that have been employed for protection of workers in a wide variety of workplaces, including dental offices, medical centers, and industrial and defense facilities since the 1950s. For example, the radiation standards established by the Nuclear Regulatory Commission are set at levels that are much lower than doses that would be likely to cause injury.

Thus, in our view, a provision for the compensation of radiation workers' illnesses should employ criteria that reflect consideration of dose and causality. The use of the nation's resources for new compensation programs should also be consistent with sound health and radiation safety standards, along with any special circumstances that can be integrated and justified as a matter of public policy. We believe that the provisions that would provide benefits to any worker at gaseous diffusion plants who had one year of service, contracted a specified disease, and were either monitored through the use of dosimetry badges, or received radiation exposures comparable to those who had monitored jobs, should be evaluated with all these objectives in mind.

Energy Employees Occupational Illness Compensation Act of 2000

The Energy Employees Occupational Illness Compensation Act of 2000 (Public Law 106-398, the "Act") and the accompanying Executive Order 13179 of December 7, 2000, allocate the responsibilities imposed by the legislation. In part, the Act directs the Secretary of Health and Human Services to establish guidelines to assess the likelihood that a former Department of Energy (DOE) contract worker diagnosed with cancer sustained the cancer in performance of duty at a DOE facility and establish methods for arriving at and providing reasonable estimates of radiation dose received by former workers applying for assistance.

Many of the provisions contained in the Act are based on provisions also contained in 38 CFR Part 3, Section §3.311 "Claims based on exposure to ionizing radiation." This Veterans Affairs rule can be used as a template on which to base the National Institute of Occupational Safety and Health (NIOSH) regulations. Furthermore, Section 3623 of Title 36--Energy Employees Occupational Illness Compensation Program describes those conditions that shall be met before an employee is determined to have sustained a cancer in the performance of duty. Section 3623 specifies those guidelines that shall be used in the compensation program and states that the upper 99 percent confidence interval of the probability of causation in the radioepidemiological tables published under section 7(b) of the Orphan Drug Act (42 U.S.C. 241 note) will be used to demonstrate that the cancer was "at least as likely as not" related to employment at a DOE facility.

The 1985 Radioepidemiology Tables are currently being revised by Dr. Charles Land, National Cancer Institute. The tables will be replaced with an interactive computer program that calculates "assigned share" or probability of causation for a individual provided that a complete record of occupational doses received by the former worker is available. It would be prudent to contact Dr. Land at (301) 496-6600 or landc@mail.nci.gov in order to familiarize NIOSH staff with the type and format of dosimetric data required for each worker for whom an estimate of the probability of causation is being sought. Although the 1985 Radioepidemiology Tables were developed for use by the Veterans Administration to compensate military personnel, the dose, dose rate, radionuclide exposure, and exposure pathways for occupational workers is not analogous to data required for military personnel who were exposed to ionizing radiation during nuclear weapons tests.

A major technical challenge will be reconstructing worker exposures for those situations where occupational exposure records are incomplete. DOE does not require that radiological dosimeters be issued to all workers. In general, only workers whose annual external radiation exposure is expected to exceed 1 mSv (0.1 rem) is required to be badged according to DOE regulations specified in 10 CFR 835. For example, an exposure assessment of workers at the Paducah Gaseous Diffusion Plant, conducted by the University of Utah, observed that many workers were not issued individual dosimeters because of a "failure to recognize the potential for worker radiation exposure." In other instances, workers failed to wear or lost the personal dosimeters issued to them.

When reconstructing worker exposure, the criteria and models for controlling and calculating internal dose developed by the International Commission on Radiological Protection (ICRP)

should be used. In particular, new values for weighting organ doses have been defined in ICRP Publication 60 (1991), a new lung model has been developed that provides a more realistic basis for radioactivity retention and is described in ICRP Publication 66, and new dose conversion factors are described in ICRP Publications 68 to 72. Federal Guidance Report 13 also provides additional guidance for metabolic information that has been adapted for the U.S. population, rather than the ICRP Standard Man (ICRP Publication 23).

A note of caution is offered for dose reconstruction for workers with incomplete or missing dosimetry records. For the transuranics, there are few *in vivo* (e.g., whole body or lung counts) or *in vitro* (e.g., urine or feces samples) measurements for a majority of the workers. Prior to 1989, intakes of radionuclides into the body were not recorded as dose, but as body burden in units of radioactivity of intake. As a result, few if any electronic databases will contain a complete dosimetric history before 1989. Although hard copy internal dosimetry records may be present at individual facilities, it will be difficult to verify or reconstruct these exposures.

Finally, comments are requested regarding the establishment and implementation of a process whereby additional classes of workers are included in the Special Exposure Cohort. The NRC has stated previously that there is no need for a Special Exposure Cohort within the compensation program. No epidemiological studies have been published for the workers at the Paducah Gaseous Diffusion Plant. Studies published for workers at the Portsmouth Gaseous Diffusion Plant indicate that no cancer death rate was greater than expected based on the U.S. general population rates. Furthermore, no non cancer cause of death has a higher rate than the U.S. general population rate. If a worker that is diagnosed with cancer, previously worked at a DOE nuclear weapons facility, either was monitored for exposure to radioactive material or can demonstrate the potential for such exposure, and demonstrates the cancer was "at least as likely as not" related to employment at a DOE facility based on actual or reconstructed personnel dosimetry, then this worker is entitled to compensation under the provisions of the compensation program.