Health Bulletin

Mortality Study of Rocketdyne/Atomics International Workers

00-04

The Department of Energy (DOE) and its predecessor agencies engaged in developing nuclear reactors at the Rocketdyne/Atomics International (RAI) Santa Susana Field Laboratory (SSFL) facility near Los Angeles, California. The last test reactor was shut down in 1982. In response to requests from people living near SSFL, concerning the health impacts of the facilities operations, DOE provided a grant to the State of California. State officials and local citizens jointly decided to conduct worker health studies.

Scientists conducted studies of two major occupational exposures; radiation and asbestos. The studies included 4,563 workers who were in the Rocketdyne/Atomics International radiation monitoring program between 1950 and 1993. Rocketdyne radiation records were reviewed to determine each worker's total radiation dose from external and internal sources of radiation. Records from other employers were not available for this work.

Compared with the mortality rates for the U.S. general population, the workers had lower rates for all causes of death combined and for all cancers combined. Of 38 cause-of-death categories, five had rates that were slightly higher than for the general population although none was greater on a statistical basis.

Scientists reported a clear increase in the risk for three cause-of-death categories among workers with more than 200 mSv (20 rem): all cancers combined, all cancers of the blood and lymph system combined, and lung cancer.

When asbestos exposure was considered, no excess lung cancer deaths were found.

The total external dose received after age 50 years was associated with an increased risk for radiosensitive solid cancers, a collection of nine cause-of-death categories that have been linked to ionizing radiation, and for lung cancer. A 100 mSv (10 rem) exposure would increase the risk of radiosensitive solid cancers about three times and lung cancer about four times. When researchers excluded radiation received during the time when cancer was present but not yet detected, this effect was reduced.

The highest internal total dose category - greater than 30 mSv (3 rem) - was associated with an increased risk for cancers of the blood and lymph system combined, and "upper-aerodigestive-tract cancers." This is the first radiation study to group upper-aerodigestive-tract cancers and these findings need to be confirmed in other studies.

The studies were presented to workers and community members soon after completion of each study. Portions of the studies have been published in the January 1999 issue of the American Journal of Industrial Medicine, the March 1999 issue of Epidemiology, and the January 1999, Final Technical Report to the California Department of Health. Copies of the articles are being made available through the DOE reading rooms. The results of this study have been provided to committees that review and make recommendations regarding radiation health protection standards in the United States. If you have any questions you may contact Dr. Gerald Petersen on (301) 903-2340.