National Institute for Occupational Safety and Health

NIOSH

Frequently Asked Questions

Dose Reconstruction

Energy Employees
Occupational Illness
Compensation Program Act

Q1. What is dose reconstruction?

Dose reconstruction is the scientific method NIOSH uses to determine the amount (dose) of radiation an energy worker likely received while conducting nuclear weapons production activities for the Department of Energy or its contractors. Dose reconstruction is a widely accepted practice used within the scientific community and emerged as a discipline in the late 1970s.

Q2. Why does NIOSH conduct dose reconstructions?

Under the Energy Employees Occupational Illness Compensation Program Act (the Act), NIOSH is responsible for conducting dose reconstructions to assist the Department of Labor in determining the likelihood that an energy worker's cancer was caused by his/her workplace exposure to radiation.

NOTE: According to the National Cancer Institute, roughly 4 out of every 10 Americans will develop cancer in their lifetime. Primary causes of cancer appear to be smoking, diet, and genetic factors.

Q3. How accurate is dose reconstruction?

NIOSH dose reconstructions are sufficiently accurate and provide the Department of Labor with the information necessary to reach the correct compensation decision.

Q4. What information does NIOSH use to complete dose reconstructions?

NIOSH uses personal radiation exposure information whenever possible. This may include film badge readings, medical x-rays, urine sample data, and incident reports. NIOSH may also use co-worker data, environmental exposure records, process records, and technical documents when little or no personal exposure data is available.

Q5. How can NIOSH complete a dose reconstruction if the energy worker was never monitored?

NIOSH can use exposure information found in co-worker data, site profiles, environmental exposure records, process records, and medical records to estimate radiation exposure when a worker's records are insufficient. This is a common scientific practice accepted among dose reconstruction experts and is permitted by the Act.

Q6. How long does it take to complete a dose reconstruction?

It is difficult to identify an exact timeframe for completing dose reconstructions. Each claim is unique and requires individual attention. In addition, NIOSH wants to ensure that it accounts for all possible radiation exposure the worker might have received. Therefore, the process may take several months to years to complete.

Q7. How are the results of a dose reconstruction used?

Under Part B of the Act, the Department of Labor uses the results of the dose reconstruction to determine whether an energy worker's cancer was "at least as likely as not" caused by workplace exposure to radiation. The Department of Labor uses this determination to assist in making its final compensation decision.

Under the Act, the Department of Labor must determine that there was at least a 50% possibility that the energy worker's cancer was caused by radiation exposure in the workplace in order to award compensation.

Q8. What happens if NIOSH cannot complete a dose reconstruction?

Under the Act, NIOSH is allowed to recommend adding a class of workers to the Special Exposure Cohort (SEC) when it cannot complete a dose reconstruction. Contact NIOSH's SEC Counselor for more information.

Contact NIOSH for more information about the dose reconstruction process under the Energy Employees Occupational Illness Compensation Program Act.

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