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Nevada Site Office Environmental Management

EM NEWS FLASH

Sharing the Road with Radioactive Waste Shipments

According to a recently released study, a person walking along the sidewalk when a truck passes carrying radioactive waste to the Nevada Test Site is exposed to less radiation than x-rays at the dentist's office. This dose was estimated based upon one of the many scenarios presented in *Risks of Transportation Along Various Routes to the Nevada Test Site*, prepared by Dr. Ruth Weiner of Sandia National Laboratories.



RADTRAN, a nationally accepted computer program, was used to calculate the risk of radiation exposure to individuals and populations along low-level waste shipments to the Nevada Test Site through Clark and Nye County. The study included population and traffic density factors along multiple routes and considered exposures during truck rest stops and refueling, to people traveling, living, or working close to the routes, and in hypothetical accident situations.

Putting it into Perspective, Study Results Compared*

- The largest dose to an individual traveling or residing along the route would be less than 1 mrem
- Exposure to cosmic rays during a roundtrip airplane flight from New York to Los Angeles is 3 mrem*
- The maximum individual dose from an accident would be about 4 mrem
- One chest x-ray is 10 mrem*

*Comparisons are in mrem (one thousandth of a rem) which measures how much radiation is absorbed by the body - examples cited are from the Centers for Disease Control and Protection Emergency Preparedness and Response web site (www.bt.cdc.gov/radiation/measurement.asp)

A major theme of the study results communicated during the May 6, 2009, [Community Advisory Board for Nevada Test Site Programs \(CAB\)](#) meeting in Pahrump, Nevada was that doses of radiation from the shipments are exceedingly small. "The annual background exceeds any one of these scenarios," stated Dr. Weiner. Annual background is the average dose of radiation from soil or cosmic rays to which everyone is exposed. The average annual Nevada background dose is 400 mrem.

A recommendation by the CAB prompted the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office to fund the study. The recommendation was made in response to increased population and traffic as well as additional schools, hospitals, and retail businesses along routes used for low-level waste shipments to the Nevada Test Site. The complete study can be obtained on-line at <http://www.nv.doe.gov/emprograms/environment/wastemanagement/transportation.htm>

The primary routes analyzed in the transportation study are those the Nevada Site Office strongly urges shipment carriers to use in Southern Nevada. The [Nevada Test Site Waste Acceptance Criteria \(NTSWAC\)](#) provides requirements for radioactive waste transportation to include prohibiting low-level waste shipments through the Las Vegas metropolitan area.

In 1961, the U.S. government began using the Nevada Test Site to dispose low-level radioactive waste generated by the weapons testing program. Now most of the low-level waste disposed at the Nevada Test Site is generated by environmental restoration activities at U.S. Department of Energy and U.S. Department of Defense sites across the United States.

A combination of conditions makes the Nevada Test Site ideal for safely and effectively disposing low-level radioactive waste. The depth to groundwater under the disposal areas is a minimum of 700 feet below the surface and topography prevents external drainage of surface water. In addition, the arid desert environment and typically high temperatures serve to maximize evaporation which prevents the movement of any surface water down through the disposed waste.

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