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# DOENews

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## **Ultra-sensitive Techniques Detect Microscopic Quantity of Radioactive Particles in WIPP Air Samples**

### **Discovery No Cause for Concern**

**CARLSBAD, N.M., March 25, 2004** – Using extremely sensitive techniques, three independent laboratories detected a few microscopic particles of plutonium in one group of air filter samples collected from the exhaust shaft of the Waste Isolation Pilot Plant (WIPP) operated by the U.S. Department of Energy (DOE).

Roger Nelson, Chief Scientist of the Carlsbad Field Office, said, "The amounts detected are extremely small – well below regulatory limits that would raise concerns about worker, public or environmental exposure, or that would trigger changes in WIPP operations. In fact, they are 12,000 to 200,000 times lower than the Environmental Protection Agency's annual individual dose limit." He added, "In light of the laboratories' extremely sensitive analytical methods, the environmental conditions around the site, and WIPP's five years of operations, we anticipated that these types of particles would eventually be detected." He emphasized that WIPP continues to meet regulatory and safety requirements.

The Carlsbad Environmental Monitoring and Research Center (CEMRC), a division of New Mexico State University and the first to detect the radioactive particles, collects one of three filters that sample air from the underground disposal area on a daily basis. CEMRC combines and analyzes the filter samples from each calendar quarter. CEMRC's findings were

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issued earlier this month in a quarterly report that included samples from June 2003. CEMRC, established in 1991, operates an independent health and environmental monitoring program for residents near WIPP.

Washington TRU Solutions, the operating contractor for DOE at WIPP, and the New Mexico Environmental Evaluation Group (EEG), an independent oversight organization, also collect filter samples. Both analyze their samples on a monthly basis, and each independently confirmed the presence of minute particles of plutonium in their samples from this period.

A fact sheet issued this week by EEG about its findings concludes that the calculated dose to an individual member of the public is not significant and "well less than 1/3000 of the annual dose from naturally occurring background radiation."

All three laboratories use sophisticated radiochemistry extraction processes that allow the detection of extremely small radioactive particles. No radioactive particles have been found in prior samples since WIPP opened in 1999 or in subsequent samples. The levels detected in the samples from the second quarter of 2003 were barely above the detection limits of even the sensitive procedures used by these laboratories.

The air filters used by the laboratories for these scientific analyses are but one of a number of systems at WIPP that protect workers, the public and the environment. Continuous air monitors (CAMs) operate 24 hours a day to ensure that the air in the repository is safe. The CAMs, located strategically in waste handling and underground disposal areas, are designed to detect and immediately alert workers to the presence of any airborne radioactivity. In such an event, WIPP's ventilation systems would automatically force exhaust air through high efficiency particulate air filters that would trap contamination before it was released to the environment.

How the radioactive particles entered the facility's exhaust air stream is not yet known. They could have come from the exterior of a waste container sent to WIPP or from fallout of nuclear weapons testing, possibly from the Gnome test conducted near the WIPP site in 1961. No radioactive particles were detected in similar samples taken from the waste disposal area, and measurements indicate that the waste remains properly contained.

WIPP, the cornerstone of DOE's cleanup effort, is the world's first repository for the permanent disposal of defense-generated transuranic radioactive waste left from research and production of nuclear weapons. WIPP has safely and permanently disposed of more than 52,000 containers of waste.

Located in southeastern New Mexico, 26 miles east of Carlsbad, WIPP's facilities include disposal rooms excavated in an ancient, stable salt formation, 2,150 feet (almost one-half mile) underground. Waste disposal began at WIPP on March 26, 1999.