

American Nuclear Society

Carlsbad Chapter

<http://carlsbadans.com/>



Carlsbad Environmental Monitoring and Research Center
New Mexico State University
1400 University Drive, Carlsbad, NM

Thursday April 27, 2017

Pizza @ 6:00; Talk @ 6:30

The MAGNITUDE AND RELEVANCE OF THE FEBRUARY 2014 RADIATION RELEASE FROM THE WASTE ISOLATION PILOT PLANT IN NEW MEXICO, USA.

Punam Thakur

CEMRC- New Mexico State University

The recently reopened Waste Isolation Pilot Plant (WIPP) is expected to resume accepting new shipments of nuclear waste from across the DOE (Department of Energy) complex by April, 2017. There was no road map for cleaning up the nation's only deep geologic repository for defense nuclear waste when it was contaminated three years ago after two accidents in February 2014 shutdown the facility and contaminated 22 workers with very low level of radiation as some radioactive material escaped above ground. The dominant radionuclides released were americium and plutonium, in a ratio that matches the content of the breached drum. According to the source term estimation, the actual amount of radioactivity released from the WIPP site was less than 1.5 millicurie. From the modeling, monitoring, and air filter analyses, DOE calculated public doses from this radiation release event to be less than 0.01 mSv (<1 mrem/year), which is well below the 0.1mSv/year (10mrem/year) regulatory limit.

However, since the radiation release event, the WIPP ventilation system has been, and will likely remain in what is called "filtration mode," (i.e., exhaust air is routed through a HEPA filter system). Redirection of the ventilation system through the HEPA (High Efficiency Particulate Air) filter system was necessary at the peak of the radiation release event to protect aboveground workers at the site and the public in the surrounding areas; however, it has hampered recovery efforts and has exacerbated the inherent safety issues of working underground. Although most of the underground is expected to be free of contamination, the decontamination of affected areas is a key element of the WIPP Recovery Plan. This presentation aims to provide an update on the current radiological situation in and around the WIPP site. The data presented here are collected by an independent monitoring program conducted by the Carlsbad Environmental Monitoring & Research Center (CEMRC) and by a compliance-monitoring program conducted by the WIPP's management and operating contractor, the Nuclear Waste Partnership (NWP), LLC. in response to the accident.

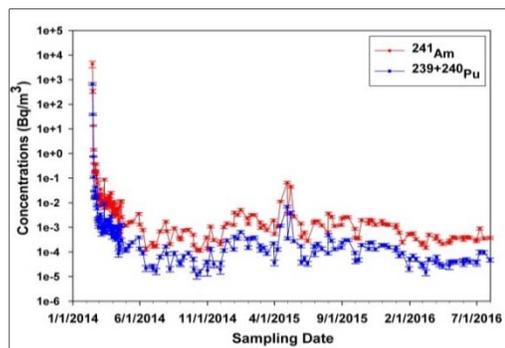


Fig. 1. Post-release concentrations of ²⁴¹Am and ²³⁹⁺²⁴⁰Pu in the WIPP underground air air.