

DT# 44997

QA: N/A

7/11/05

MOL.20050831.0057

Future studies at Pena Blanca: radionuclide migration in the vadose zone of an alluvial fan.

Goodell, P.(UTEP); Walton, J.(UTEP), Rodriguez-P., J.(IE,A.C.)

The pathway to the accessible environment at Yucca Mountain contains volcanic rocks and alluvial fill. Transport properties in alluvial fill, specifically retardation and dispersivity, may be significant in determining the overall performance of the repository. Prior relevant studies, with the exception of the Nye County Tracer Test, are almost entirely in bedrock material. The proposed study will provide field data on radionuclide migration in alluvial material.

High grade uranium ore was mined at the Nopal I deposit. This mined ore (60,000 tons) was moved in 1994 to its present site as open piles on an alluvial fan in the Boquilla Colorado Microbasin. Precipitation is approximately 20 cm/year, and has caused migration of radionuclides into the subsurface. We propose partial removal of an ore pile, excavation into the alluvial fan, sampling, and determination of radionuclide mobilities from the uranium decay chain.

The proposed research would be taking advantage of a unique opportunity with a known time frame for migration.