

Adequate samples of fallout from the detonation of a nuclear device buried in desert alluvium at 635 feet below ground surface were obtained to delineate the eastern part of the fallout pattern from 7 to 70 miles from ground zero.

The distribution of radioactivity unit area, mass per unit area, and mass per unit area per particle size fraction were determined. No correlation between radioactivity and mass was found.

The time of arrival of fallout and radiation intensity histories were recorded by field radiation detection instruments. Considerable differences occurred in time of arrival of fallout and its duration across the fallout pattern beyond 20 miles from ground zero.

Radioactive decay of samples from five laterals of the fallout pattern showed negative slopes of about 1.4 for the time interval from H + 48 to H + 600 hours.

Enough shear of the cloud occurred to permit a comparison of the isotopic fractionation existing above 10,000 feet MSL; but the data is limited to incomplete results from only five samples, one from each lateral, submitted to NRDL. The radiochemical analyses indicated a distance relationship and provided evidence of fractionation that substantiated a difference between the fallout debris from two levels of the cloud.

The data indicated that topography had a significant influence on the activity per unit mass, the particle size distribution and the fractionation of the fission product nuclides.

The Aerial Radiometric Surveys, CETO Project 62.80, determined the distribution of Sedan fallout to a distance of more than 200 miles from ground zero. The dose rate contours show the pattern to be asymmetric with a steep gradient west of the midline with a very gradual gradient on the east.