712112

BIOMEDICAL FIELD TEST OF PLUTONIUM INHALATION

J.N. Stannard

The inhalation hazard from a plutonium contaminated field is being investigated at NTS by direct exposure of animals. The acute phase involved exposure of 26 dogs and 43 rats preplaced at 500, 1000, and 2000 feet from ground zero along lines parallel to it. In addition, a few rats were flown from balloon cables in the cloud. The rats and 10 dogs were removed at 1/2 to 2 hours post-detonation for determination of the plutonium content of tissues and its localization therein. Most of the remaining animals for the acute phase will be sacrificed serially, but some retained for study of long-term effects.

A chronic exposure array was prepared by placing 24 dogs and 3 burros on each of three "isodose" lines, nominally 1000 $\mu g/m^2$, 100 $\mu g/m^2$, and 10 $\mu g/m^2$. They were placed in groups of 8 dogs at west, center, and east of the line of prevailing southwest winds. A portion will be sacrificed serially at times extending to 165 days post-detonation. The balance will be returned to the laboratory for long-term observation (tumor incidence, fertility, life span). Sheep will be placed in the field as the dog pens become available.

The total experiment includes 109 dogs, 9 burros, 43 rats, and an indeterminate number of sheep and should provide a check of the inhalation hazard under very severe conditions of dust and resuspension. No quantitative results have been obtained to date since they await radiochemical plutonium analyses. The animals out to 1000 feet from ground zero carried quite high pelt counts as measured by monitoring instruments.