

Proposed revision of paragraph on Fallout Studies for Annual Report to the National Security Council, based on suggestions made by Commissioner Libby on October 6 and 10.

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Fallout Studies

The distribution of radioactive fallout from nuclear test detonations has been given careful attention for the past six years. Recent research has emphasized two aspects of the problem:

- a. Determining the distribution of fallout from thermonuclear detonations, especially that resulting from the CASTLE tests in the spring of 1954.
- b. Determining the concentration of strontium 90 and other critical radioisotopes in soils, plants, milk, animals, and humans in various parts of the world.

All the evidence accumulated to date serves to strengthen the belief that for surface detonations the effects of fallout within a distance up to 200 or 300 miles, depending on the size and nature of the weapons, would greatly exceed in importance the longer term effects of fallout over the earth's surface from the same weapons.

Debris from the CASTLE tests continues to fall out all over the world, apparently because considerable amounts are still in the stratosphere. Complete precipitation will probably require many years. For this reason, most of the short-lived radioactivity is dissipated in the atmosphere. The long-lived strontium 90 is under close scrutiny. Its average content in soils throughout the world is about one one-thousandth of the concentration at which the first noticeable effects ~~are~~ are expected to appear in human beings. Vegetables and fodder assimilate strontium 90 from the soil and also collect it as fallout on the surfaces of the leaves and stems. The milk from cows contains strontium 90 at about the same relative levels as the soils. Human bones contain it at somewhat lower levels than the soil, children and young people having more than older people, presumably because of the more rapid growth.

From studying the fallout from tests we learn much about what to expect from wartime nuclear bombing. World-wide fallout from test activities, though not dangerous, is readily measurable and can be used to study such questions as the persistence of fallout contamination, methods of contamination, and the effects of weathering on fallout contamination. The results of such studies should be useful to the Federal Civil Defense Administration.

REPOSITORY NARA - College Park

COLLECTION RL 326/51-53 Secretary

BOX No. 96 (NN3 326-93 c18)

FOLDER SAM Program Stan. Report

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 5/2/95  
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