



R

ANNEX A.

TECHNICAL STATEMENT ON THE EFFECTS OF NUCLEAR WEAPONS

The severe fallout of radioactivity from a few bursts of very high-yield nuclear weapons being considered as likely to occur after an atomic war. Such is not the case.

There are four basic effects from any nuclear explosion: heat, immediate nuclear radiation, residual radioactivity, and fallout. It should be understood that the extent of all of these effects has a definite relation to the energy yield of the explosion. Large explosions have large effects, and small ones have correspondingly smaller effects. For scaling factors, see the unclassified "The Effects of Nuclear Weapons" for a discussion of these variations.

The fallout patterns associated with the 1954 H-bomb test are the result of the detonation of the ground of a device with a yield in the range of millions of tons of TNT equivalent. The fall-out is the product of both the very large explosive power and the contact of the fireball with the earth. A 20 kiloton nuclear bomb detonated on the island surface would have produced only a small fraction of the fallout. Had the multi-megaton device been detonated high in the air, the fallout would have been drastically reduced. In all these considerations we may derive the following conclusions:

1. A nuclear weapon will cause a serious hazard to life and property at or near the surface of the earth in weapons of the kind being developed. The affected areas are small. The hazard increases with the yield of the weapon and becomes a serious problem with weapons of the megaton range.
2. A nuclear weapon, when exploded at an altitude sufficient to prevent the fireball from touching the surface of the earth, will produce at most only a very small fallout hazard.

These conclusions are not that there is no hazard of fallout, but rather that the purpose of classification is to emphasize the conditions under which the hazard occurs.

Approved: _____

 (U) _____

CONFIDENTIAL IN THE ORIGINAL DOCUMENT