[redacted]

Dr. Ben Susskolz
Space Technology Laboratories

June 10, 1959

John Malik

GAMMA RADIATION FROM NUCLEAR WEAPONS (U)

J-13-317

The gamma radiation behavior from nuclear weapon explosions is outlined in LA-1620 which includes the data available through 1953 and attempts to describe a model to explain that data. There have been additional data since that time, notably that of Peter Brown of Evans Signal Laboratory obtained during Castle (ITR-913) and Redwing (ITR-1311), which has not been used to test the model.

For the pressure range of 25 to 1000 psi which you are interested in, there is a scarcity of data; scaling and extrapolation are dangerous since blast and radiation scale differently. Prediction of the gamma radiation, particularly for situations involving collimation and shielding, must be based on some model and that outlined seems to work.

Briefly, the description is as follows: The initial pulse of radiation is of gamma rays rising from neutron inelastic processes involving materials of the outer layers of the device (neutron transmission-wise).

[redacted]

DOE b(3)

[redacted] Contribution to the total dose is only 1 or 2 percent.

Following the nuclear reactions, the explosion leaves neutrons, fission fragments and other bomb debris. [redacted]

DOE b(3)

RESTRICTED DATA

This document contains Restricted Data as defined in the Atomic Energy Act of 1954. Unauthorized disclosure subject to Administrative and Criminal Sanctions.

[redacted]

COPIED/DOE