

MEMORANDUM

OFFICE OF THE SECRETARY

407446

27 July 1955

To: Mr. Richard Hirsch, OCB

From: Major Richard C. Orphan,
Assistant to Gen. Loper, Rm 3E1028

Attached is forwarded per telephone
conversation, July 27, 1955.



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HO/M

In a preliminary report on the results of Operation TRAPOT, the series of atomic tests held last spring at the Nevada Proving Ground, the Chemical Corps has announced the success of its TRAC project. TRAC (thermal radiation alternating clouds) involves placing a smoke screen produced by the Army Chemical Corps' smoke generators between the bomb and its surrounding target area. This has the same effect as clouds in the sky blocking the sun's heat and light. In this case, the cloud is not actually smoke; it is a vaporized petroleum product known as fog oil. The cloud does not absorb the heat. It reflects it from each tiny droplet. Because of this, the cloud itself is not appreciably heated.

The Army Chemical Corps report states that under special condition, the incident thermal radiation was reduced by 75 per cent to 90 per cent. This effect was obtained by interposing an "operational" smoke screen between nuclear burst and instrument stations ranged along the ground in a downwind direction from the smoke generators. Although the exact amount of fog oil used is classified, it was stated to be similar to the amount normally used for screening tactical operations from enemy observation.

The success of this simple method of protecting large areas from the searing heat of atomic weapons is of considerable interest to Civil Defense officials. The cloud has no effect whatever on the blast and shock of the bomb. However, by greatly decreasing the range of the thermal effects it reduces the range of damage from an A-weapon to the range of blast damage. With TRAC, thermal damage covers a larger area than blast damage.

Further study of the data obtained will provide additional information on the exact amount of oil required to reduce thermal radiation to safe levels over a given area.

An additional result of the test was confirmation of a theoretical study of "smoke" cloud scattering being made by the University of Michigan. The results obtained were predicted accurately by the mathematical models of this study.

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