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SPECIAL RE-REVIEW  
FINAL DETERMINATION  
UNCLASSIFIED, DATE: 8/21/80

THIS DOCUMENT CONSISTS OF 2 PAGE(S)  
NO. 3 OF 3 COPIES, SERIES A

FINAL DETERMINATION  
UNCLASSIFIED  
L. M. Redman  
AUG 21, 1980

27 June 1945

322 Trinity Measurements  
MED OFFICE  
EX. 13  
12/17/84

VERIFIED UNCLASSIFIED  
JFW 8/13/80  
Ems 8/21/80

Major General L. R. Groves,  
P. O. Box 2610,  
Washington, D. C.

Dear General Groves:

You have asked that, before carrying out the Trinity test, I give you in writing my views as to the safety of this test from the point of view of earth shock, air blast, and radioactive toxicity. I need not go into the question of the safety of personnel engaged in the test, except for an assurance that all steps which we regard as necessary are being taken to insure this safety.

1. On the basis of measurements made with the 100-ton trial shot, and on the basis of known scaling laws and of prior experience with large explosions, it can be stated that there is no danger whatever of damage due to earth shock to property or personnel outside the area under our control. In making this statement we are taking into account the possibility that the reaction may proceed more completely, and therefore more violently, than is anticipated, but that the energy produced cannot in any case exceed the energy content of the material used, which is equivalent to about 100,000 tons of TNT.

2. The situation is similar to that outlined above in the case of air blast, No over-pressures will exist outside the territory controlled by us which can cause harm to personnel or property. The possibility cannot be excluded that there will be some rather marked sound effects as far away as fifty or sixty miles, but these will be freakish in nature and should not be accompanied by shattering of windows.

3. In the matter of the distribution and effect of the radioactive products of the explosion, experience is much more meager. The activities artificially introduced into the 100-ton shot behaved as expected, but this test cannot be used to give a detailed prediction of what will occur in the actual firing. We intend, however, to fire under circumstances that will allow the cloud of active material to rise very high in the atmosphere, and this will prevent its spreading at low levels. We further intend to fire when the

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Ltr to General Groves

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wind directions high in the atmosphere will not carry it over any towns for at least 100 miles. Finally, we intend to fire at a time when there will be many hours before down drafts will bring the cloud, or parts of it, to earth. Under these conditions even the most extreme assumptions indicate that no community will be exposed to lethal or serious doses of radiation, and it is my opinion that no personnel outside of the area controlled by us will in fact be measurably exposed. Emergency stand-by precautions will, as you know, be instituted should there be (contrary to our almost certain expectations) a reason temporarily to evacuate personnel in order to eliminate danger.

Measurements will be made at the time of the shot to establish the validity of the statements made above.

Sincerely yours,

J. R. Oppenheimer

atw

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