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LOS ALAMOS SCIENTIFIC LABORATORY DOCUMENTS

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IN REPLY REPER TO:

DIE-806

20 February 1953

2ND REVIEW-DATE: 10 22-91 NAME: FOLCOA

DEPARTMENT OF ENERGY DECLASSIFICATION REMOVE 2. CLASSIFICATION CHANGED TO:

3. CONTAINS NO DOE CLASSIFIED INFO
4. COORDINATE WITH:
5. CLASSIFICATION CANCELLED
6. DASSIFICATION CANCELLED
7. OWER (SPECIPY):

1/1991(u)

Via: C L. Tyler, Manager, Senta Pe Operations Office

Sanitized by NN-523 on 2/5/98

Dear General Fields:

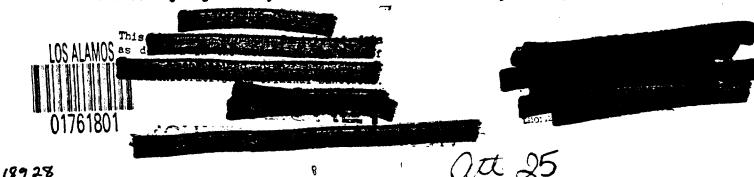
Washington 25, D. C.

Brig. General E. B. Fields

Director of Military Application

U. S. Atomic Energy Counission

- Reference is made to THE 8-125 deted 17 February from Buston to Tyler quoting Bethe on the question of the advisability of substituting an air drop for a surface shot of Runt or Jughesd in Operation CASTLE. We find ourselves in strong disagreement with this suggestion for Operation CASTLE although we have, of course, so objection to a DOD effects progrem at a later date under appropriate sircumstances if this seems necessary to them. Our reasons for preferring the present operational plan follow.
- In spite of the fact that the devices to be tested in Operation CASTLE are being designed with "emergency espebility" in mind, the operation is primarily an experimental test progress in the field of vespon development. Accordingly, the diagnostic experiments are still of the highest importance for it is not expected that the design of radiation implosion weapons or their further improvement will stop with this test program. Therefore, we strongly believe that no step should be taken which diminishes the amount of appropriate and relevant experimental information which can be obtained. Every effort is being made to simplify the experimental progrem and to include only those experiments which are essential and have a proper belance between their cost and the information which they give. | However, all shots presently are expected to carry as a minimum some experimental observations including the behavior of the primary bomb (alpha), the radiation transit time to the secondary bomb, and the photographic behavior of the ease.
- The Justiced is presently planned not as a barge shot but as an island shot and it is likely that the most extensive instrumental observations will be carried out on this experiment. The remainder of the Los Alamos shots are planned as barge shots located near stoll islands so that photographic and other observations can be made on them. We would regard it as absolutely impossible, were it otherwise desirable, to drop the Jughesd



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at the time of the presently planned test shot imamuch as the associated eryogenic logistics and test drops are actually coming to completion at or shortly after the test date.

4. The dropping of the Best or the Alara Clock would, prosumbly, be a task within Air Force expabilities. However, the Best is the last of the devices echeduled for final Seeign Freezing and will be the last to be constructed. This is necessarily so in view of the state of knowledge of systems of this nature. Accordingly, only the Alara Clock is actually available as a device for consideration for a drop test. DELETED

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Actually, emergency espability is far more easily, sheeply, and effectively demonstrated by methods other than using a live book.

MELETED DELETER

Such a priori ignorance would seem to be extremely unfortunate for any effects instrumentation and might seriously jeopardise its effectiveness.

- 5. It should be recalled that the developmental status of the EX-16, and 17 in emergency especiality closely parallel the status of the Magasaki and Miroshium bombs in the sense that the actual reliability of any of the components will be far from exactly known. Thus, there will exist the possibility of failure or malfunction due to completely minor and extraneous reasons. These reasons will not be known, but an unnecessary stigms will be attached to the device which may be impossible to remove and which would not have consurred had a proper experiment been made. It must be recalled that the definition of "emergency capability" is that only non-known characteristics of the device will prevent its delivery by existing aircraft in time of war. Models of these devices that have the same reliability now expected of conventional weapons will require long and arduous further study, development, and field testing of the Sandia Corporation type.
- 6. The certainty of any air drop cannot be guaranteed at this time. Thus it would be necessary for J-Division to plan on both an air drop and a barge capability for a given test if this philosophy were agreed upon. Accordingly, for this reason alone, the introduction of an air drop does not simplify the test program but rather complicates it. Even were it certain that an air drop were possible, the resulting operation is not necessarily less complicated except for the fact that few observations are made. Not to do a test at all, of course, is a simplification of the same sort. That air drops themselves present

