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ATOMIC ENERGY COMMISSION
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MEMORANDUM FOR CHAIRMAN SEABORG
COMMISSIONER HAWORTH
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COMMISSIONER RAMEY
COMMISSIONER WILSON

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Deputy

THROUGH GENERAL MANAGER *MAP* JUN 4 1963


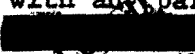
SUBJECT: BALLISTIC SHAPES FOR HIGH YIELD DEVELOPMENT AND TEST DEVICES

The purpose of this memorandum is to describe the various ballistic shapes that will be involved in either a specific high yield bomb development program or as a drop shape for use in a nuclear test program without orientation toward a specific operational delivery vehicle.

a. Bomb Development

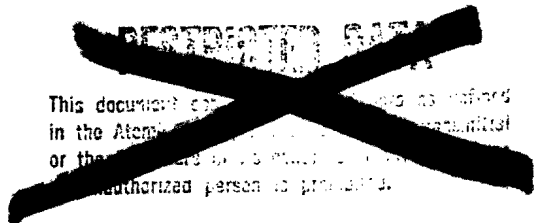
In the case where a ballistic shape (exterior bomb casing) is being developed as part of a specific over-all high yield nuclear bomb development program to fulfill a specific Department of Defense Phase 3 (engineering design) requirement, the shape will be designed to be compatible with the designated carrier(s). Such a ballistic shape will be of a size and shape compatible to its carrier-missile or aircraft. It will be carried internally in the bomb bay of the aircraft and will be relatively large, probably larger than the Mk-41, which is 149 inches in length and 50 inches in diameter. Although the shape will not protrude from the aircraft, its size may not escape notice during ground handling.

b. Nuclear Test Devices

The devices involved  have been designed primarily to demonstrate ^{new} principles or concepts and are not necessarily compatible with any particular carrier, although in the DOMINIC series the  devices were adapted to ballistic shapes that were compatible with the B-52 aircraft

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[REDACTED]

(normal internal carriage). However, in order to demonstrate the application [REDACTED] to very high yield designs, it now appears necessary to design a device that is too large to be carried normally by the B-52 aircraft. By special aircraft modifications the aircraft can carry the device (with its ballistic case) in a partially exposed manner.

As a matter of information, Sandia Corporation is developing a Universal Test Vehicle (UTV) that will be compatible for internal carriage by B-52 aircraft and will be able to accommodate all but the [REDACTED] devices. It is planned to use the UTV as a ballistic carrier for all the proposed 1964 atmospheric test series devices to be air dropped, with the exception of the [REDACTED] devices.

In summary, the exploration [REDACTED] regardless of application, will require, initially at least, the use of large shapes for testing. The shapes will be so large that it is unlikely that they will escape public notice.

A. W. Betts

A. W. Betts
Major General, USA
Director of Military Application

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