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NLE Date 5/10/79

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UNITED STATES

ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C.

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Dear Mr. President:

On August 2, 1957 I wrote you concerning Operation **HARDTACK**, the nuclear test series planned for the Spring of 1958 at the Eniwetok Proving Ground. I pointed out that the then estimated number of nuclear shots for the series was 25, that it was planned to initiate the series as early as possible and that this date appeared to be April 1, 1958. My letter also requested that you note that the Atomic Energy Commission and Department of Defense were proceeding with preparations for the series. On August 9 you discussed the matter of **HARDTACK** with me and approved starting the series as early as possible, directing that the number of nuclear shots be held to the minimum necessary for attaining the essential defense objectives.

Pursuant to your approval we have gone forward with preparations for the series. It is apparent now that, if the necessary scientific objectives are to be realized in the shortest test period and at least cost, the first shot should be fired on or about April 15. The remaining shots would follow as quickly thereafter as devices could be emplaced and desired weather conditions occur.

The Atomic Energy Commission and the Department of Defense have reviewed individually and collectively our planned firings with the objective of reducing the number to the minimum consistent with fulfilling essential defense objectives. Approximately 17 laboratory diagnostic shots will be required to fulfill needed Department of Defense weapons applications.

In addition, the Department of Defense must conduct five weapons effects tests. Three of these are intended to determine high altitude detonation phenomena connected with missile and counter-missile design. Two are designed to examine the effect on vessels of a detonation.

One additional proven "clean" design may have to be fired for United Nations observation. This latter matter is under intensive study and you will be asked to review our plans at an early date.

*Original returned
to Adv. Struss
12/57. approved.
193*



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The President

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Three other laboratory diagnostic shots will be readied on a contingent basis. One, a conservative backup for the ICBM-IRBM warhead, will be fired only if the more advanced version scheduled earlier in the series does not come up to expectations. One, a [redacted] will be fired only if its [redacted] scheduled earlier does not give the desired results. The final contingent shot [redacted] will be fired only if it can lend significant improvement [redacted]

The design of several of the devices concerned is not yet firm and it is not possible to specify at the moment the exact amounts of nuclear materials to be expended. In January I shall submit to you a listing of the shots planned, their individual objectives, and the amounts of nuclear materials concerned.

As you know, it has been customary in the past to conduct safety tests of certain designs nearing stockpile to establish that, if detonated accidentally, no nuclear reaction would occur. It is important that two designs being fired in their final version at HARDTACK be safety tested in advance. We would plan to fire these safety shots in Nevada during December 1957. No significant nuclear reaction is expected from the firings and no hazard offsite. In the two shots, up to [redacted] of plutonium and [redacted] Uranium-235 would be expended. I request your authority to expend this material for the purpose described.

The Atomic Energy Commission is making every effort to insure that the offsite fallout is held to the minimum. To this end the higher yield shots are being fired in [redacted] wherever possible. The following table lists the total yield and fission yield resulting from the CASTLE and REDWING test series (1954 and 1956, respectively) and the estimated total and fission yields to be expected from the 17 diagnostic, 5 effects and one demonstration shots of HARDTACK:

YIELDS IN MEGATONS

	<u>Total</u>	<u>Fission</u>
CASLE		
REDWING		
HARDTACK		



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The President

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The contribution to world-wide fallout from these 23 firings would be slightly greater than from REDWING, but of that from CASTLE. This increase of world-wide contribution over that of REDWING results from the fact that two of the high altitude effects shots must be and the fact that at this altitude all of the fission yield is presumably deposited world-wide. The contingent shots would have another of fission yield but little offsite in view of the fact that all would be surface bursts.

In the interest of reducing to the minimum the number of shots in HARTACK and of minimizing overall testing costs, we would plan to fire two or three very small yield nuclear shots in the existing tunnel at the Nevada Test Site after HARTACK has been completed. These would be of the same or lesser yield than the shot fired there on September 19 and under conditions where the radioactivity would be totally confined within the earth.

During the preparation for this test series, there will be a continual and further review, particularly from a technical point of view, of the necessity of each shot. This review will include an examination by the General Advisory Committee of the scientific necessity for the laboratories' exploratory and developmental tests.

Respectfully yours,

(Signed) Lewis L. Strauss

Chairman

The President
The White House



I have noted the plans for testing described in the above letter and approve the expenditure of plutonium and of Uranium-235 for the conduct of two safety tests to be held at the Nevada Test Site late in calendar year 1957.

Dwight D. Eisenhower

December 3, 1957
The White House

Dwight D. Eisenhower

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