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16 December 1952

TO: Brig. Gen. K. E. Fields
Division of Military Application
Atomic Energy Commission
Washington 25, D. C.

THRU: N. E. Bradbury, Director, LASL

FROM: A. C. Graves

SUBJECT: OPERATIONAL CONCEPT OF CASTLE

SYMBOL: J-15163

[Handwritten Signature]

U.S. DEPARTMENT OF ENERGY
326 U.S. ATOMIC ENERGY COMMISSION
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1. General:

This concept is intended to indicate a feasible plan for a six shot Castle operation and to serve as a basic planning guide on which detailed plans can be formulated. Caution must be exercised to the extent that the devices to be tested are still quite tentative and changes in this concept may become necessary.

2. The Castle Schedule - The following is the proposed plan of detonations:

FIRST - ~~CONFIDENTIAL~~ (Livermore) - A thermonuclear device ~~CONFIDENTIAL~~

~~CONFIDENTIAL~~ to be detonated from a 200' tower or ground cab located on Eberiru Island of the Eniwetok Atoll.

SECOND - ~~CONFIDENTIAL~~ (LASL) - A ~~CONFIDENTIAL~~ thermonuclear device

~~CONFIDENTIAL~~ to be detonated from a tower or ground cab located on the northwest tip of Teiteiripucchi Island, Eniwetok Atoll or possibly on a barge or jetty located on or about the Ivy Mike Site.

THIRD - ~~CONFIDENTIAL~~ (Livermore) - A thermonuclear device ~~CONFIDENTIAL~~

~~CONFIDENTIAL~~ with a yield within the megaton region to be detonated from a tower located in the Eninman Island Area, Bikini Atoll. The actual firing control system will be located on an AGC type ship.

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SECURITY INFORMATION

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FOURTH - [REDACTED] (LASL) - A [REDACTED] thermonuclear-fission device [REDACTED]

[REDACTED] to be detonated from a cab located on a barge probably in the Bikini Atoll lagoon off Bikini Island. Pending instrumentation requirements in connection with the [REDACTED] there is the possibility it may be detonated first and, in such event, would be located on Runit Island, Eniwetok Atoll. B

FIFTH - [REDACTED] (LASL) - A thermonuclear device [REDACTED]

[REDACTED] with a yield in the megaton range to be detonated from a cab located on a barge in the Bikini Lagoon. Diagnostic instrumentation to be limited to yield by Radiochemistry and Ball-of-Fire methods, and such other experiments as do not require accurate collimation. The actual firing control system to be located on an AGC type ship. B

SIXTH - [REDACTED] (LASL) - A [REDACTED] thermonuclear device with a yield in the megaton range to be detonated from a cab located on a barge in the Bikini Lagoon. Diagnostic instrumentation to be limited as in Shot Five. The actual firing control system to be located on an AGC type ship. 7

NOTE - The detonation locations are predicated not only on yield and radiological considerations, but also on obtaining the maximum utilization of expensive test facilities now in acceptable condition in the forward area. It is planned in the case of barge shots to use Eniwetok base facilities to the maximum by assembling the respective devices and allied electronics systems at Parry Island and then tow, or carry in an LSD, to the desired location.

3. Operational Factors:

A. Safety Considerations - Personnel protection measures will be predicated on the maximum predicted yields of each shot. Protection measures for "things" will be based upon the respective design yields. Therefore, using the above as a guide, it will not be necessary to actually evacuate Parry and Eniwetok Islands for the Eniwetok Atoll shots, but because of radiological possibilities it will be necessary to have the capability of such evacuation. All Bikini shots will require complete evacuation either aboard ship or to Eniwetok Atoll.

B. Phasing - Preliminary consideration of a base facilities construction program, the design fabrication, shipment, etc. of the device indicates a schedule for the first detonation of about 1 March 1954. By maximum use of key personnel on instrumentation readiness subsequent detonations may possibly be scheduled at ten day intervals.

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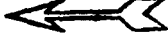
C. Requirements - A preliminary review of major requirements which will be needed from the Military Services indicates that those set forth in CJTF 132's report to JCS dtd 4 August (JCS series 2179), with adjustments, will be adequate even though the present Castle scope is much broader than that of August 1952. One such adjustment would be the need for a CVE of the Rendova class with the primary mission of furnishing a platform and support base for helicopters for both Bikini and Eniwetok shots. In addition, suitable barges for cab platforms will be needed; in this connection the SFOO, AEC is now investigating the availability of these from commercial or government sources. Moreover, the many undeveloped islands on Bikini Atoll which will almost certainly be instrumented for effects and development experiments will increase the number of helicopters required. The requirements will be continually reviewed by Task Group 132.1 with a view of presenting detailed requests as early as possible. Subsequent revisions will be submitted as necessary.

It is requested that the Commission approve the above concept at an early date in order that detailed planning can proceed.

Alvin C. Graves
 ALVIN C. GRAVES
 J Division Leader

ACG:vw

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 - cc. Pal. Greenberg*