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Taongi
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December 27, 1956

FROM: Gaelen L. Felt

SUBJECT: TAONGI CONCEPTS

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UCRL is hopeful of establishing a firing capability at Taongi Atoll for HARDTACK, the next overseas test series, now thought of for the late Spring and early summer of 1958. Though at present it appears that neither LASL nor AFSWP has any immediate interest in such a facility, it would nonetheless become a part of the Eniwetok Proving Ground and should therefore be considered in the over-all Task Group and Task Force plans.

The arguments behind the UCRL interest, as I understand them, are a conviction that we should have a minimum of two firing sites for large devices and a hunch that Bikini is no longer possible for one of the sites. I share the conviction about two sites, but am not yet willing to share the hunch about Bikini. With regard to Bikini, UCRL believes the AEC will either take action itself to curtail its use or be obliged to as a result of outside pressure.

By HARDTACK time it is expected that the natives will be repatriated on the atolls east of Bikini. This could lead to UN pressure on the US to curtail or discontinue testing at Bikini in order to guarantee no repeat of the CASTLE episode.

In view of these considerations, I have agreed with Jerry Johnson that members of the Task Group staff would undertake a study of the implications of developing a facility at Taongi. It is desirable that we study three separate situations:

- 1) that Taongi is included in the EPG merely as a third site,
- 2) that Taongi is included as a third site while the Bikini site is restricted as NTS is for PILGRIM, and
- 3) that Taongi is added to EPG while Bikini is completely inactive.

The concepts should be prepared in the light of what is known about the HARDTACK program. Generally speaking, I expect HARDTACK to be similar in scope to REDWING. From discussions with Johnson (UCRL), Frank Shelton (AFSWP), and several people at LASL, I expect the program will consist of the following shots:

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- 1) 4-5 surface shots larger than 2 MT
- 2) 6-7 surface shots between 0.2 and 2 MT
- 3) \approx 8 "small" shots, surface and tower
- 4) 1 balloon-borne 2 MT shot at 90,000 ft.
- 5) 1 10 MT shot at 150-ft. depth in Eniwetok lagoon

There is in addition some possibility of two more water shots and two missile-delivered high-altitude shots. In working out the concepts, I suggest using items 1-5 above plus one missile-delivered shot of a megaton range warhead burst at high altitude. This last may be regarded as a reduced version of Sandia's "STARDUST" proposal.

In determining the locations of the zero points, it may be worthwhile to recognize that the sponsorship of shots in items 1, 2, and 3 is approximately evenly divided between LASL and UCRL. Also, the Navy has indicated to AFSWP that they favor the southwest section of Eniwetok lagoon for item 5. This preference is based, however, on the idea that a deepwater shot 10 miles outside the southwest reef will be included in HARDTACK and that some land-based instrumentation could then be convenient to both locations. Finally, you may feel that shots larger than 2 MT should be fired at Eniwetok as well as elsewhere; at about this level the air Task Group will begin to fret about the safety of low performance aircraft on the ground at Eniwetok Island.

The scope of the instrumentation to be connected with the above program is somewhat more difficult to estimate. It is probably correct to assume for the most part that the instrumentation will resemble REDWING. There are, however, a few known modifications. There does not appear to be any shot in items 1 and 2 requiring extensive instrumentation along the lines of CASTLE Bravo or REDWING Zuni. AFSWP does not plan an area-wide fallout program nor, at the moment, does ABC. Apart from launching, radio tracking, and telemetering equipment, AFSWP will require no ground-based instrumentation on the high altitude shots. Furthermore, they do not intend to fire auxiliary instrument-bearing missiles, but they do intend to fly some instruments at 40,000 feet in two B-36 aircraft. The Raydist system will be replaced by a new manned system which will not require off-atoll stations. There will, however, be some off-atoll microbarographic stations.

There is not much to go on but perhaps you will be able by making some judicious assumptions to arrive at some estimates of where to locate the shots, how much new construction will be needed, where and how large the temporary and permanent camps should be, what will be needed in the way of water and air support, what communications are necessary, in what order the shots may or will have to be fired, etc.

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I would not expect that in the absence of status reports, project listings, etc., the resulting concepts would be accurate in detail. After all, this is a staff study based on a hypothetical situation. The "Concept of Operation HARDTACK" will come later. In addition to the many things which are not known about the program, there are many things you may not know about the capabilities, procedures, etc. of other elements of the Task Force. These other elements do, however, have planning staffs in existence and they will probably be charmed to offer opinions pertinent to this study.

Walter Gibbins plans to be here on the 3rd and 4th of January for the purpose of explaining what has been accomplished so far in connection with Taongi and of elaborating on the UCRL view of how they would like to operate in the area. Since, for the present, they would carry out this work within the 7.1 framework, it must be integrated into the over-all program of the Task Group. The current official position of LASL, AFSWP, and I expect also Sandia, is one of polite disinterest. This apathy might change, particularly if concept 3 becomes necessary.

There is a movement in progress to establish a Pacific Planning Board by the end of January. The indications are that this Board would like to consider the Taongi study at that time. Let's say the study should be available in rough draft on 28 January 1957.

Though this memorandum is directed primarily to the 7.1 staff sections, I feel it would be useful at the start of this study to obtain some general views also from Field Command and Sandia. These organizations are therefore cordially invited to send representatives here to coincide with Gibbins's visit.

HAPPY NEW YEAR!

Gaelen L. Felt
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