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~~OPERATION CASTLE (DOCUMENT NUMBER Log 53-884)~~ 8

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**PROJECT NUMBER:** 7.1

**PROJECT TITLE:** Electromagnetic Radiation Calibrations

**SPONSOR:** Headquarters USAF **ORGANIZATION:** AF-OAT-1

**PROJECT OFFICER:**

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**OBJECTIVE:**

a. To study pulse shape, frequency distribution, and other characteristics of electromagnetic pulses emitted at the time of an atomic explosion particularly with reference to bomb yield for different types of test weapons and experimental nuclear explosions for evaluation of the significance of the signals received in the Atomic Energy Detection System.

b. To determine the requirements for specific detection equipment for deployment and use in the Atomic Energy Detection System.

**STATUS:**

Electromagnetic pulses from atomic detonations have been recorded at various locations up to several hundred miles from the test site and in various ranges from a few kilocycles up to several megacycles beginning with BUSTER/JANGLE (Restricted), but so far little is known of correlation between pulse characteristics and bomb characteristics. It is expected that the data to be obtained from Operation IVY (Secret) and UPSHOT/KNOTHOLE (Secret) will furnish additional information which may considerably change the experimental plans for Operation CASTLE (Secret).

**PROCEDURE:**

BEST COPY AVAILABLE

It is planned to operate several electromagnetic stations at various distances up to a few thousand miles from the test site. Participating agencies will be Air Weather Service, the Central Radio Propagation Laboratory of the National Bureau of Standards, and the University of Texas.

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activities of the national defense of the  
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1ST REVIEW DATE: <u>6/16/77</u> DETERMINATION (CIRCLE NUMBER(S))	
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DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW
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Since adequate close-in stations are not available for proper interpretation of data recorded at distances, it is suggested that in addition to the distance station, there will operate one close-in station unless arrangements can be made. The necessary measurements can be made with Los Alamos Scientific Laboratory.

SUPPORT REQUIRED:

Only the close-in station mentioned above will be in the area defined as coming under the jurisdiction of the Task Force. An essential requirement in support of this project is listed below as Item (f).

- a. Personnel: Forward echelon - 3 civilians
- b. Instrumentations: None
- c. On-site Construction required from AEC Contractors: None
- d. Air & Rail Transportations: Air and rail transportation from the East Coast of the U.S. to the close-in site for three (3) civilians and 1.5 tons of equipment
- e. Funds:

	R&D	Extra-Military
Total Estimated Cost	\$125,000	0
Funds Available	0	0
Test Agency Funds Required	\$125,000	0

- f. Others: For the success of this project it will be necessary to have in operation an alert system similar to the IVI ARPACAS. It will also be necessary to know the time of detonation to within 1 ms in world time, after the fact.

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