

Office Memorandum

CLASSIFICATION: UNCLASSIFIED

BY AUTHORITY OF: DDC

DATE: 23 Dec 47

DATE: 6/12/73

TO : PCF

FROM : WAS

SUBJECT: Recollections re Bikini

THIS DOCUMENT CONTAINS RESTRICTED DATA WITHIN THE MEANING OF THE ATOMIC ENERGY ACT OF 1946 AND THE REGULATIONS THEREUNDER. THE REVELATION OF ITS CONTENTS IN ANY MANNER TO UNAUTHORIZED PERSONS IS PROHIBITED AND MAY RESULT IN SEVERE CRIMINAL PENALTY.

411331

Explanation: You raised various questions re Bikini. These are answered below, with the information I have in my head. Better answers could be obtained from Admiral Parsons, or from Dr. H. P. Scoville, Rm. 2A314, Pentagon (re radioactivity), Comdr. Vaux of Office of Naval Research (re remote detection as by earth shock), or Comdr. Roger Revelle (Navy ext. 2060) re analysis of mud.

1. Bikini Lagoon was entirely deserted for many months in the autumn of 1946 and the first few months of 1947. It was in charge of officials located at Kwajalein, about 200 miles away.
2. Seismic methods were unable to detect Test Able at any appreciable distance.
3. By determining radioactive materials in the air, it was found possible, according to some physicists, to detect Test Able in western USA; but according to other physicists, the signal to noise ratio was not sufficient to accomplish such detection-- using the imperfect equipment and procedures then available.
4. Seismic methods were able to detect Test Baker. My recollection is that sensitivity was sufficient for making the detection at several thousand miles. But it is my recollection also that detection in this instance does not necessarily mean distinguishing an atomic bomb explosion from natural seismic effects.
5. A fair fraction of the radioactive materials in Test Baker were thrown into the air, and drifted to leeward. It is my recollection that the value of this fraction was determined with very unsatisfactory accuracy; also that detection of the explosion by measuring amount of radioactive materials in air was found not to be feasible at distance of, say, a few thousand miles.
6. Some analyses were made, shortly after each explosion, to show the efficiency of the bomb; these analyses were capable of revealing the identity of the fissionable material used. It is my impression also that, in the year-later expedition to Bikini, further analyses were made, capable of showing the efficiency and the identity of the fissionable material. I do not know whether any analyses of this type were made on radioactive materials found specifically in the mud.

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In the three-day conference starting Feb. 3, 1947, on the results of Operation Crossroads, it was brought out very clearly that the remote detection problem is a complicated one. Distinguishing signals from noise is a major question. Also, some methods might show suggestion that an atomic bomb explosion had occurred, but not proof; other methods might be good for proof once the suggestion had been advanced. Some methods might show the existence, but not the location, of an atomic explosion. A full answer involves many kinds of information. The whole matter is beyond the extent of my knowledge. One would do well to confer with the persons mentioned above, or with Dr. E.S. Gilfillan, Technical Director of the Joint Crossroads Committee.

DECLASSIFIED

DATE 973106

By 57/mrm Date 5/22/80

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By [Signature] NARS, Date 5/29/87