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JOINT CROSSROADS COMMITTEE  
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4 June 1947

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MEMORANDUM FOR THE ATOMIC ENERGY COMMISSION:

Via: Military Liaison Committee

Subject: Scientific Resurvey of Bikini

1. By a memorandum to the Secretary of the Navy dated 16 May 1947 the Joint Chiefs of Staff requested that a scientific resurvey of Bikini Atoll be undertaken by the Navy Department during the summer of 1947 in order to complete studies and projects begun in 1946 in connection with Operation Crossroads. In a separate memorandum to the Secretary of War, the War Department was requested to cooperate in this resurvey and to furnish such facilities and personnel as might be needed and could be made available. Technical supervision of the project was assigned to the Joint Crossroads Committee and its successor organization.

2. In accordance with this request of the Joint Chiefs of Staff, the Chief of Naval Operations on 2 June 1947 directed the various bureaus and offices of the Navy Department to make arrangements for the resurvey and assigned operational control to the Commander-in-Chief, Pacific Fleet. Three vessels have been made available for the expedition; a large Attack Transport (USS CHILTON APA-38), a Submarine Rescue Vessel capable of deep diving operations (USS COUGAL ASR-8), and a Landing Craft, Infantry (LCIL-615). A target date of 15 July 1947 for commencing operations at Bikini Atoll is proposed. It is contemplated that the work at Bikini will occupy a period of six weeks.

3. It is contemplated that the scientific work of the expedition will include:

a. Determinations of the amount and nature of the radioactivity remaining in the water, the lagoon floor, and the reef and land structures of the atoll, wherever such radioactivity exceeds the normal level of natural radioactivity and cosmic rays. Particular attention will be paid to that portion of the reef between Amen and Bikini Islands, which was covered after test Baker by highly radioactive rain falling from the "Base Surge" cloud, and to the bottom sediments of the target area.

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DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
1ST REVIEW-DATE: 5/30/95	DETERMINATION [CIRCLE NUMBER(S)]
AUTHORITY: EAOC, ADC, ADD	1. CLASSIFICATION RETAINED
NAME: <u>W.D. Bennett</u>	2. CLASSIFICATION CHANGED TO:
2ND REVIEW-DATE: _____	3. CONTAINS NO DOE CLASSIFIED INFO
AUTHORITY: ADD	4. COORDINATE WITH:
NAME: _____	5. CLASSIFICATION CANCELLED
	6. CLASSIFIED INFO BRACKETED
	7. OTHER (SPECIFY): <u>EO 12958</u>

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
SINGLE REVIEW AUTHORIZED BY: <u>Jensen 7/31/90</u>	DETERMINATION [CIRCLE NUMBER(S)]
REVIEWER: <u>W.D. Bennett</u>	1. CLASSIFICATION RETAINED
NAME: <u>W.D. Bennett</u>	2. CLASSIFICATION CHANGED TO:
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b. Determinations of the concentration and kind of radioactive materials in the animals and plants of the atoll and the effects of this radioactivity on the organisms.

c. Physiological, geological and oceanographic studies of organisms and reef building processes in order to gain basic information for better understanding of the possible biological effects of Operation Crossroads.

d. Detailed observations of certain sunken ships including the *Saratoga*, *Nagato*, *Pilotfish* and *Apegon*, which could not be adequately examined during August 1946 because of difficult diving conditions resulting from high levels of radioactivity in the bottom muds and from other causes. Attempts will also be made to retrieve three pressure measuring instruments and one time recording ionization chamber from the *Nagato*. Detailed analysis has shown that records from these instruments are highly important to an adequate understanding of shock pressure phenomena and radioactivity concentrations resulting from test Baker.

In connection with the work outlined under sub-paragraph d. above, the U. S. Geological Survey, the Fish and Wild Life Service of the Department of the Interior, the Smithsonian Institution of Oceanography, have all indicated informally a desire to take part in the expedition.

4. The cooperation of the Atomic Energy Commission is requested in planning and conducting this resurvey. In particular it is considered essential that Dr. L. E. Donaldson and his associates of the University of Washington, who are carrying out radiobiological studies of fish and other organisms for the Commission, should participate in the expedition. These scientists took part in the work at Bikini during the summer of 1946; preliminary discussions with Dr. Donaldson indicate that they desire to undertake additional observations this summer in order to study possible long term effects of the radioactive materials released in the underwater burst on the organisms of the atoll.

5. In order to determine the distribution of different fission products and other radioactive materials and

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the processes involved in accumulation and transfer of these materials by organisms it will be essential to have the services of several competent radio chemists on the expedition. The radiochemical investigations should be undertaken under the leadership of scientists competent to deal both with the chemistry of radioactive fission products and with problems of plant nutrition and soil chemistry. Discussions with leaders in these various fields have shown that such a combination of scientific abilities is very rare. From these discussions it is evident that the outstanding specialists in problems of this type are Drs. R. L. Overstreet and Louis Jacobson of the College of Agriculture of the University of California. Dr. Overstreet participated in last summer's tests at Bikini and contributed results of major importance. Accordingly, the Secretary of the Navy has requested President Sproul of the University of California to authorize Drs. Overstreet and Jacobson to take part in the expedition. It would be very helpful if the chairman of the Atomic Energy Commission would endorse this request from the Secretary of the Navy; a proposed draft of a letter for Mr. Lilienthal's signature is enclosed.

6. If Drs. Overstreet and Jacobson can be made available by the University of California it is believed that financial arrangements for their services and procurement of necessary equipment could be most expeditiously handled thru the Atomic Energy Commission contract with the Radiation Laboratory of the University of California.

7. Estimates of the magnitude of the problems involved indicate that approximately four radio chemists in addition to Professors Overstreet and Jacobson will be required at Bikini. The cooperation of the Commission is requested in procuring the services of these scientists and equipment for their use from laboratories under its cognizance. If this request is agreeable to the Commission it is proposed that detailed arrangements be made directly between representatives of the Commission and the Joint Crossroads Committee Project Officer, Captain C. L. Engleman, USN, or his representatives. Captain Engleman's office is in Room T3-2038 of the Navy Department; his telephone extension is 3597.

/s/ W. S. PARSONS  
Chairman

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President Robert Gordon Sproull  
University of California  
Berkeley 4, California

Dear President Sproull:

I wish to endorse the request of the Secretary of the Navy that Professors R. L. Overstreet and Louis Jacobson participate in the Bikini recovery being undertaken by the Navy Department during the coming summer. As you know, the possible biological effects of radioactivity from nuclear fission products are of great concern to the Atomic Energy Commission, not only as they directly involve problems of human physiology but also in connection with possible effects on agriculture and fisheries. The enormous amounts of fission products deposited on the reefs and in the waters of Bikini Atoll as a result of the underwater burst last summer, and the very large accumulations of these materials by plants and animals, make this area an important and unique field experiment station for radiobiological problems of plant nutrition and soil chemistry.

Because of their special experience and mature competence, Professors Overstreet and Jacobson are widely recognized as leaders in these fields. It is believed that their participation in the expedition will insure the successful accomplishment of its most important objectives and that without them great difficulty may be experienced in attaining these objectives. I therefore strongly urge that you authorize the diversion of the time and energies of these scientists and whatever assistants they may desire from their present important work so that they may take part in the expedition.

Sincerely yours,

Attachment 45

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