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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

APR 2 1968

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MEMORANDUM FOR CHAIRMAN SEABORG
COMMISSIONER RAMEY
COMMISSIONER TAPE
COMMISSIONER JOHNSON

THROUGH GENERAL MANAGER Donald C. Kull for

SUBJECT: ACTIVITIES CONCERNING THE RETURN OF THE NATIVES TO THE
BIKINI ATOLL

The letter of December 7, 1966, from the Secretary of the Interior, to the Chairman of the Atomic Energy Commission (copy attached), will reveal that Secretary Udall requested that the Atomic Energy Commission take steps to determine "whether Bikini and its lagoon are now safe for continued habitation and whether the Bikinians could have hazard-free use of the resources of the atoll and its adjacent water areas." In compliance with the request to the Divisions of Biology and Medicine and Operational Safety, as referred to in your letter of December 20, 1966, to Secretary Udall (copy attached), the Bikini Atoll was resurveyed in April-May 1967.

Attached is a report entitled "Meeting to Discuss Return of Natives to the Bikini Atoll." Perusal of this report will reveal that interested groups in the Atomic Energy Commission and in the Department of the Interior have taken steps which will lead to the development of a recommendation regarding the feasibility, from the standpoint of the radiation situation, of the return of the natives to the Bikini Atoll.

The Division of Biology and Medicine, the Division of Operational Safety, and representatives from the Department of the Interior, are now organizing a meeting to be held May 13-15 or 16, 1968, in which the members of the team which resurveyed the Bikini Atoll, together with a group of expert consultants, will review the findings and implications of the radiation measurements and analytical data which grew out of the survey. This group will be asked to prepare a recommendation to the Commission.

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R.E. O'BRIEN 8-21-85
REVIEWED BY DATE

By: Dick Koogle 3-4-87

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When the Commission has formed its opinion regarding the feasibility of resettlement, from a radiological health standpoint, an appropriate response could be made to the letter of December 7, 1966, from the Secretary of the Interior.

As a further attachment there is a letter which we propose might be sent to the Secretary of the Interior to acquaint him with current activities.

John R. Totter

John R. Totter, Director
Division of Biology and Medicine

Attachments:

1. Cy ltr dtd 12/7/66
2. Cy ltr dtd 12/20/66
3. Report
4. Proposed reply.

Handwritten note:
7/22/43/68

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cc: GM (2)

Secretariat (2) ←

AGMRD

DOS

BM (Dr. Lough)

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C O P Y

December 7, 1966

Dear Mr. Chairman:

In 1946 the people of Bikini Atoll in the Trust Territory of the Pacific Islands were removed from their home islands in order to permit the United States to use the atoll for test purposes. The Bikini people were moved initially to Rongerik Atoll and subsequently were relocated on the island of Kili in the southern Marshalls. The United States did not acquire title to Bikini Atoll; the arrangement with the Bikinians was one of indefinite use rights, with the atoll returning to them at such time as United States requirements for the islands should come to an end.

United States nuclear and thermonuclear testing in the Marshalls, and the movement of the Bikini and Eniwetok people from their islands, were viewed with great concern by the people of the Trust Territory. The Bikini people in particular have requested on numerous occasions to be returned to their home. The Trust Territory government has explained the hazards of living on Bikini and of using the resources of the atoll and its adjacent water areas, but the presence of Americans living in former test areas has made it difficult for many Micronesians to understand why the Bikini people cannot live safely in the same areas. The entire matter continues to place the United States in an unfavorable light throughout the Territory.

The population pressures on Kili, where the Bikinians now live, and the difficulties of maintaining a satisfactory level of living there are such that the High Commissioner of the Trust Territory believes that it may soon be necessary once again to relocate the Bikini people. Kili has been a most unsatisfactory home. The island is surrounded by a fringing reef. There is no lagoon and for much of the year it is difficult if not impossible to land on the island.

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***Classified paragraph deleted.

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C O P Y

If a further move is necessary, there is no guarantee that the next island will be any more satisfactory than Kili. There is a great scarcity of unoccupied habitable islands in the Marshalls group. Indeed there is a limit to how long we can perpetuate the odyssey of the Bikini people without a decidedly, and I might add justifiably, unfavorable reaction that could have far reaching implications.

Accordingly, we are most anxious to determine whether the Bikini people can now be returned to their homeland under arrangements which will be compatible with their requirements for a livelihood on the one hand and any continuing United States Government requirements on the other hand. A necessary preliminary step, of course, is a finding as to whether Bikini and its lagoon are now safe for continued habitation and whether the Bikinians could have hazard-free use of the resources of the atoll and its adjacent water areas. In the event that the Atomic Energy Commission should conclude that radioactivity levels are such that these people might safely return to their home atoll, we shall approach the Department of Defense with respect to the feasibility of their return from the standpoint of Defense Department requirements for the atoll.

We should greatly appreciate your having this question reviewed by the appropriate personnel of the Commission at the earliest opportunity and advising us whether, from the health standpoint, the Bikinians might be returned. If there should be some limitations, either as to specific areas or as to specific resources, we should appreciate your advice concerning these limitations as well.

Your sympathetic consideration of this request will be greatly appreciated.

Sincerely yours,

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Secretary of the Interior

Hon. Glenn T. Seaborg
Chairman
United States Atomic Energy Commission
Washington, D. C. 20545

[REDACTED]

C O P Y

December 20, 1966

Dear Stew:

I am writing in response to your letter of December 7 concerning your interest in returning the Bikini people to their home atoll.

We have for some time been aware of the difficult life of the Bikini people at Kili and would like to see them returned to their native atoll.

There was a scientific survey of both Eniwetok and Bikini in 1964 carried out on behalf of the Atomic Energy Commission by University of Washington scientists. Although it was not done with the specific purpose in mind of determining whether or not the atolls were habitable for normal Marshall Island living, the data collected will help us arrive at a conclusion in the matter even though it will in all probability have to be supplemented by some additional information.

I have asked our Divisions of Operational Safety and Biology and Medicine to study the matter and develop the information necessary to come to a decision.

Cordially,

Chairman

The Honorable Stewart L. Udall
Secretary of Interior

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1966
ENCLOSURE

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MEETING TO DISCUSS RETURN OF THE
NATIVES TO THE BIKINI ATOLL

A meeting was held at the AEC H Street office February 28, 1968, to discuss preliminary results of the Bikini Atoll survey of April-May 1967 and to consider actions by the Federal Government in returning the native population to Bikini Atoll in the near future. It was generally agreed that all agencies represented at the meeting would support authorizing a return of the Bikinians to the atoll if the studies indicate this is feasible and if the safety of the natives can be assured.

Attendees were:

Honorable W. R. Norwood, High Commissioner, Trust Territories
H. M. Holland, OSD, ISA
G. R. Milner, Department of the Interior
C. E. Johnson, NSC
A. R. Fritsch, AEC
J. R. Totter, DBM, AEC
P. F. Gustafson, DBM, AEC
R. D. Maxwell, DOS, AEC

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The problems discussed in some detail that would need solution before approval could be given for rehabilitation included the health and safety for a returning population, requirements for Air Force usage of the area (no decision on the future use has been stated) and agricultural rehabilitation which appears to entail a great deal of careful planning and work prior to a return of any inhabitants who will depend on the resources of the island for their livelihood. Dr. Fritsch indicated that the Commission generally favored returning the native population if conditions permitted. It was noted that the Air Force presently holds the atoll and their approval must also be obtained. Mr. Holland stated that the Air Force would be queried as to any future requirement for the atoll. Commissioner Norwood stated that

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from the viewpoint of the Trust Territories it would be highly desirable for the natives to return to Bikini Atoll.

Although there was no agricultural expert at the meeting, it was pointed out that a preliminary report submitted by Mr. James Hiyane, Office of District Agriculturalist, Marshall Islands, U. S. Trust Territory, last year discussed possible actions that could be taken and costs required to initiate proper rehabilitation. It was generally agreed that the cost estimate contained in the report was low, considering the work required, even though the rehabilitation efforts suggested were modest.

The question was raised as to what agency would fund for the rehabilitation or what agency would be responsible for specific portions of the work. Dr. Fritsch indicated that the AEC would probably be willing to consider supporting a portion of the necessary funding. Commissioner Norwood indicated that there could be some support from the Trust Territories. Mr. Johnson pointed out that possibly funding, which will be over and above normal departmental funding, might best be handled on the Congressional side by the JCAE. This point was not pursued. It was pointed out that return of the Bikinians would meet with a high degree of approval at the UN, however any action would necessarily depend on the Air Force requirements and the radiological situation of the environment.

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As background to a discussion of the radiological situation of Bikini Atoll it should be noted that when the 166 natives were moved from Bikini Atoll to Rongerik Atoll March 6, 1946, in preparation for Operation CROSSROADS,

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it was tentatively planned that when the U. S. no longer had a requirement for the atoll the area would be returned to the rightful owners. Due to insufficient natural resources on the Rongerik Atoll, the natives (then numbering 184) were moved to Kwajalein Atoll in March 1948 and housed in tents temporarily while a decision was made for a permanent location. The group moved to Kili Island in November 1948, where they now reside. It should be noted that Kili Island lacks a lagoon and that marine life as a source of food is not available in sufficient amount to supply the needs of the population. The forced change in diet has contributed markedly to their inability to adapt to Kili Island. Thus the strong desire on the part of many to return to their native Bikini Atoll remains alive. There are now approximately 500 people on Kili Island and when a poll was taken early in 1967, 146 of the group indicated a desire to return to Bikini Atoll.

In the ten years which elapsed from the last test series (1958) at Bikini to the present, the atoll has been essentially uninhabited. Dense vegetation has spread over the larger islands, and native marine and terrestrial animals have flourished in man's absence.

During the period from 1946 to 1958 the land mass and water in the lagoon at Bikini Atoll became contaminated from both atmospheric and underwater tests. Brief radiological surveys were made on several occasions to follow the decay of radioactivity on the atoll; however, an intensive, rather complete radiological survey was made during August 1964. The decision was made at that time that the health and safety of people returning permanently to the area might be endangered. A detailed resurvey was made during April-May 1967 as a result of a request by The Honorable Stewart L. Udall, Secretary of the Interior.

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Dr. Gustafson reported that the radiological resurvey of Bikini Atoll consisted of taking numerous radiation exposure measurements, and collecting representative samples of the prominent plant and animal species (including fish and birds). Particular efforts were made to sample those items likely to be consumed as food by the returning Bikinians. Several kinds of devices were used to measure radiation dose rate. Confirmation of dose rate by more than one instrument increased reliability, and the field γ -ray spectrometry provided detailed information on the radionuclide composition of the contamination.

The island of Bikini was surveyed most extensively. The former village was located here, and remains the most desirable location for permanent housing. The beach area, village site, and selected transects across the middle and both ends of the island were surveyed for radiation levels. The dose rate at or near the beaches was lowest due to leaching and wash off of radioactivity. Radiation levels were comparable to those found in the U. S. ($\sim 10\mu\text{R}/\text{hour}$). Higher levels (roughly twice to three times beach values) were present in the interior (densely overgrown) regions with some hot spots. A sizable area was cleared of vegetation, and dose rates remained essentially constant. Other measurements indicated radioactivity to be present in the vegetation. Hence one may conclude that as the shielding effect of plant material is removed, the dose from ground deposition compensates for the removal of radioactivity in plant material. Under habitation, the islands would be cleared of underbrush; hence, the plant source will be removed. Plowing under, or otherwise burying the top layers (inch or so) of soil

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should substantially reduce the dose rate. As expected, the residual radioactivity is all relatively long-lived: Cs¹³⁷ contributes 70-80 percent of the external dose. Thus only a slow decrease with time can be expected from radioactive decay.

Plant and animal tissue contained varying amounts of fission and activation products. Pre-1946 Bikinian diet consisted predominantly of fish, with pandanus fruit, coconut, arrow-root, and land crabs supplying a lesser intake. Imported foods such as dried milk, canned meats, flour, and rice were seldom used by the Bikini people prior to 1946. Contacts with the outside world doubtless have tended to alter former tastes. Fish fortunately showed low levels of radioactivity and could be eaten in normal amounts (1-2 pounds per day per adult) without reservation. Pandanus, coconut meat and milk, as well as coconut crabs (land crabs) all contain substantial amounts of Cs¹³⁷ and Sr⁹⁰. Further work must be done with raw data before a realistic evaluation of radiation risk due to consuming these foodstuffs can be made. Exclusion of some locally-produced food items from the diet may be indicated, as was done in the case of land crabs in the resettlement of Rongelap.

In summary, it appears that re-occupation of Bikini Atoll within the near future would result in an external radiation exposure about double that incurred by the average U. S. population but similar to that now incurred by residents of the Colorado Plateau area. The matter of soil burial or plowing would presumably reduce such exposure to near average levels. (It should be noted that the soil cover is thin--a few inches--and disruption of this might impair the fertility of the islands.) Consumption of local produce in normal amounts would yield radioactive body burdens of Cs¹³⁷ 20 to 50 times greater

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than those occurring in U. S. population during the high fallout period 1963-1964. None the less, these levels are below those currently experienced by some portions of the Eskimo population. By removing specific locally produced food items, and substituting important nutrients, the Bikini diet will contain about the levels of radioactivity deemed acceptable to world population in recent years.

Sources of exposure will have to be evaluated and decisions reached whether or not to take action to minimize exposure through the various pathways that may be present. In addition, one should weigh, with some compassion, the present socio-economic stress of displacement and the fact that life away from Bikini is quite depressing to say the least.

The following time-table was proposed for consideration of the radiological health aspects: 1. Completion by late March of a draft report synthesizing pertinent available data from the 1967 survey, and submission of this report to a working group. 2. Consideration of report by working group and presentation of a final report to panel of independent experts for review and recommendation after mid-April. It was agreed that the schedule recommended for completion of this evaluation was reasonable. It was pointed out that even when the health and safety considerations are met, and the USAF relinquishes title to the area, it will take some two or more years to complete the rehabilitation program (clearing land, planting coconut and other crops, building houses and the like). Thus an early finding regarding radiological safety would facilitate the entire program.

Prepared by:

John R. Totter, Director, DBM
Philip F. Gustafson, DBM
Roy D. Maxwell, OS

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