

To The Chiefs and All The People in Utirik Atoll:

Your letter to Mr. Roger Ray, dated July 1976, has been received in this office and we wish to thank you for bringing your thoughts to our attention. We have carefully considered your views and the opportunity to answer your questions is appreciated.

Following the accident in 1954 the American physicians and scientists involved, based on knowledge of human radiation effects available at that time, did not believe that the dose estimated to have been received by the Utirik people would lead to diseases caused by radiation. Also, since they had shown <sup>2</sup>acute effects and only a slight statistical depression of platelet counts, they were returned to their home island. However, it was considered prudent that the Utirik people should be examined at regular intervals and they were given complete physical examinations in 1957, 1959, 1963, 1966, 1969, 1972 and 1975. During the past six years special attention has been paid to thyroid examinations on an annual basis and all of the people on the island have been encouraged to be examined and treated by the physicians at sick call. Since 1973 the resident physician has visited Utirik on a quarterly basis. Dr. Kotrady was employed by Brookhaven National Laboratory to continue and expand the program initiated by Brookhaven and first carried out by Dr. Knudsen.

In conducting the medical examinations on the Marshallese, a comparison (control) group was selected so that the exposed and non-exposed people could be compared. This comparison group was selected in 1958 from the unexposed people of Rongelap. A separate unexposed group of comparison people from Utirik was not considered necessary since the Rongelap group was considered adequate for comparison with both the peoples of Rongelap and Utirik. The slight genetic difference between the two exposed populations


11409

5009661

and differences in doses received were not considered sufficient reasons to select a separate comparison group for Utirik.

One of the questions concerned the fact that the children of the exposed islanders have not been included in the regular examination list. This was done because large groups of children of radiation-exposed parents have been studied in Japan. Since these studies, including examinations of Marshallese children of exposed parents, revealed no distinct genetic effects, it was felt that regular examinations of the Marshallese children born of exposed parents <sup>were</sup> was not necessary. To quote from a letter from one of the foremost human geneticists, Dr. J. V. Neel, Professor of Human Genetics at the University of Michigan: "... there is no evidence that genetic change was induced in children born of the exposed Marshallese any more than there is unequivocal evidence of damage in the children born of the exposed Japanese." He pointed out, however, that there are some 15-20 dominantly inherited syndromes that might possibly be related to radiation exposure. Even if one of these occurred, it would be impossible to say it was due to radiation. It is most unlikely that any Marshallese child would develop such a syndrome. Nevertheless, if any child of an exposed Marshallese did, they would receive special treatment. A program for examination of all children on Utirik is discussed later in this letter.

Several of your questions suggest that the dose received by the Utirik people might have been higher than calculated. Although the estimated doses received by both Rongelap and Utirik people are inexact, a review of the data indicates that the dose estimates are reasonable estimates. There were marked early effects in the Rongelap people, but the lack of acute symptoms and the minimal blood changes detectable by statistical means in Utirik individuals is consistent with a small dose. The fact that the Utirik people were returned

 5009662

to their home island several months after the fallout would ~~not~~ have contributed <sup>only a very slight</sup> ~~to any significant~~ increase in dose since surveys of the island revealed that the radiation levels were very low, ~~the gamma exposure less than~~ <sup>\*</sup> ~~m rads per day, not significantly higher than many places in the world and the levels of radioisotopes in soil and plants were well below the accepted permissible levels.~~

The radiation dose to the thyroid glands was higher than the dose to the rest of the body because of selective absorption by the thyroid of radioiodines inhaled and ingested from contaminated food and water at the time of the fallout. The radiation dose to the thyroid glands of the Utirik people was estimated to be about 30 rads for adults and between 30 and 90 rads for children compared with 335 rads for adults and up to 700 - 1400 rads for children exposed on Rongelap. By the time the people returned to Utirik the radioiodines had virtually disappeared so that no further significant thyroid exposure was possible to anyone living on the island at that time.


The development of thyroid cancer in the Utirik people within the past few years was unexpected. Statistical comparison of thyroid cancer incidence at Utirik with the larger experience of the United States indicates that radiation very likely was involved. Accordingly it was recommended to the Department of Interior that all Utirik people who have thyroid operations be considered for compensation similarly to the Rongelap people. Compared with limited data on the unexposed Marshallese populations there has been only a very slight increase, if any, in non-cancer thyroid nodules in the Utirik people. The three cases of thyroid cancer in the Utirik

---

\* If used this statement should be completed and checked out.

people compared with four in the Rongelap people is definitely higher than expected based on the estimated dose. However, we have reviewed the data and have found no reason to change the estimates of the dose to the thyroids of the Utirik people. The number of cases observed may vary above or below the average number expected - the variation being larger as the population size decreases. In a small population such as Utirik the difference between the predicted and observed number of cases may be substantial. Of course, thyroid cancer occurs in populations not exposed to radiation above the natural background. The incidences of thyroid cancer varies with different population groups. For example, in children the risk rate (in number of cases per million people per rad per year) varies from 0.5 to 1.5 reported by the United Nations to 5.5 for a group of Americans in New York. It is essential to know the natural incidence in the Marshallese and larger studies of such incidence have been initiated.

Even though it was known that the dose to the thyroid glands was higher than to the rest of the body, what was not known during the earlier years was the degree of sensitivity of the thyroid gland to radiation. Even today, there are many facts about radiation that are not known, despite the large number of scientists that have studied this subject for the past twenty or thirty years. Even less was known about radiation in 1954 at the time of the exposure to the people on Rongelap and Utirik. Only relatively recently has the degree of sensitivity of the thyroid for developing tumors from radiation exposure been appreciated. Therefore, the physicians examining you in past years, based on the best possible medical information available at that time, were being truthful when they said that they did not expect radiation effects to develop in the Utirik people.


  
5009664

At this time it is impossible to predict whether more thyroid nodules will develop in the Utirik population. It is therefore of the greatest importance that the regular medical examinations be continued in the future. By having regular medical examinations, signs of thyroid disease can be detected early, and prompt treatment will avoid unnecessary suffering on the part of the Utirik people.

The medical team has been studying diabetes in the Utirik people and other Marshallese people. Though a study of this disease was not considered a responsibility of the medical team since the disease is not related to radiation exposure, it was considered important to help the Trust Territory with this disease which is such a serious problem in the Marshall Islands. With regard to the use of Diabenase in the treatment of this disease Dr. James Field, an expert on diabetes from the University of Pittsburgh who had been studying diabetes in the Marshall Islands with the medical team, states that "there would be inherent risks in the use of the drug Diabenase in treating diabetes on Utirik or other outer islands in the Marshalls since long term medical supervision and laboratory tests are necessary to insure its safe and effective use."

With regard to your comment about the reduced size of arrowroot plants on Utirik, we can state that the results of studies of radiation effects on plants would not support radiation exposure as being responsible for a reduction in size of arrowroot or of any other plants growing on Utirik Atoll. Numerous studies of radiation on Utirik show the levels have been too low to result in such effects.

We believe Drs. Conard, Kotrady, and Knudsen to be very capable and conscientious physicians who are deeply committed to the health and welfare

  
5009665

of the people of Utirik. Moreover, the report by the Special Committee on Rongelap and Utirik, which was formed by the Congress of Micronesia, was favorable with regard to the examinations. In view of the above, we were greatly surprised to learn about the apparent displeasure on the part of the people of Utirik as expressed in your letter. One possible explanation for this difference in sentiment with regard to Drs. Conard and Knudsen, as expressed in your letter, could possibly be a misunderstanding as to their role and reasons to come to the islands. I would like to repeat that it is my firm conviction that the principal concern of Drs. Conard and Knudsen is the welfare and well-being of the Utirik people. It is possible that such a misunderstanding could easily result from the difference in language. Again, I would appeal to the Chiefs of Utirik to impress upon their people the importance of the medical examinations and the necessity to trust and cooperate with the American physicians.

We would like to inform the Utirik people that we anticipate introducing an expanded health care program for people living on Utirik, Rongelap, Bikini and Eniwetok. Such a program would include annual examinations by the physicians of everyone living on Utirik island, including unexposed people and children. *\* As in the past, everyone at Utirik would have* ~~and~~ the opportunity to be seen at sick call during the quarterly visits of the physician. We plan on holding a meeting with a limited number of Marshallese representatives from each atoll in the near future to discuss these plans. We believe that such a meeting could result in understandings that will provide a basis for better health care for the people of Utirik.

(salutation)

Dr. James L. Liverman

*\* It should be pointed out that only the exposed Utirik people would be eligible for the benefits of PL-5-52*

5009666



BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC., UPTON, L.I., N.Y. 11973

MEDICAL DEPARTMENT

TELEPHONE: (516) 345-3577

October 25, 1976

Dr. James L. Liverman  
Assistant Administrator for Environment and Safety  
U.S. Energy Research and Development Administration  
Washington, D.C. 20545

Dear Jim,

Enclosed is a suggested revision of your draft letter to the Utirik people. I have gone over this carefully with Vic Bond and Gene Cronkite to incorporate our combined changes and additions. You will note that the letter is written in a more scientific vein in view of possible legal involvement.

I hope that you have approved the meeting with the Marshallese representatives and if so have been able to get out the necessary letters to instigate the meeting. It would be desirable to hold this meeting as soon as possible and in view of the logistics problems involved it may be early December before it could be held. On the letter to Mr. Coleman I suggest you add for copies the names of Congressman John Haglelgam, Congress of Micronesia, Siapan Mariana Islands 96950 and Dr. Ezra Riklon, Director of Health Services, Majuro, Marshall Islands 96960.

Sincerely,

Robert A. Conard, M.D.

RAC:gc

CC: Drs. W. W. Burr, Jr.  
W. H. Weyzen  
V. P. Bond  
E. P. Cronkite  
K. D. Knudsen

To The Chiefs and All The People in Utirik Atoll:

Your letter to Mr. Roger Ray, dated July 1976 has been received in this office and we wish to thank you for bringing your thoughts to our attention. We have carefully considered your views and the opportunity to answer your questions is appreciated.

Following the accident in 1954 the American physicians and scientists involved, based on knowledge of human radiation effects available at that time, did not believe that the dose estimated to have been received by the Utirik people would lead to diseases caused by radiation. Also, since they had shown us acute effects and only a slight statistical depression of platelet counts, they were returned to their home island. However, it was considered prudent that the Utirik people should be examined at regular intervals and they were given complete physical examinations in 1957, 1959, 1963, 1966, 1969, 1972 and 1975. During the past six years special attention has been paid to thyroid examinations on an annual basis and all of the people on the island have been encouraged to be examined and treated by the physicians at sick call. Since 1973 the resident physician has visited Utirik on a quarterly basis. Dr. Kotrady was employed by Brookhaven National Laboratory to continue and expand the program initiated by Brookhaven and first carried out by Dr. Knudsen.

In conducting the medical examinations on the Marshallese, a comparison (control) group was selected so that the exposed and non-exposed people could be compared. This comparison group was selected in 1958 from the unexposed people of Rongelap. A separate unexposed group of comparison people from Utirik was not considered necessary since the Rongelap group was considered adequate for comparison with both the peoples of Rongelap and Utirik. The slight genetic difference between the two exposed populations


1439



and differences in doses received were not considered sufficient reasons to select a separate comparison group for Utirik.

One of the questions concerned the fact that the children of the exposed islanders have not been included in the regular examination list. This was done because large groups of children of radiation-exposed parents have been studied in Japan. Since these studies, including examinations of Marshallese children of exposed parents, revealed no distinct genetic effects, it was felt that regular examinations of the Marshallese children born of exposed parents was not necessary. To quote from a letter from one of the foremost human geneticists, Dr. J. V. Neel, Professor of Human Genetics at the University of Michigan: "... there is no evidence that genetic change was induced in children born of the exposed Marshallese any more than there is unequivocal evidence of damage in the children born of the exposed Japanese." He pointed out, however, that there are some 15-20 dominantly inherited syndromes that might possibly be related to radiation exposure. Even if one of these occurred, it would be impossible to say it was due to radiation. It is most unlikely that any Marshallese child would develop such a syndrome. Nevertheless, if any child of an exposed Marshallese did, they would receive special treatment. A program for examination of all children on Utirik is discussed later in this letter.

Several of your questions suggest that the dose received by the Utirik people might have been higher than calculated. Although the estimated doses received by both Rongelap and Utirik people are inexact, a review of the data indicates that the dose estimates are reasonable estimates. There were marked early effects in the Rongelap people, but the lack of acute symptoms and the minimal blood changes detectable by statistical means in Utirik individuals is consistent with a small dose. The fact that the Utirik people were returned

 5009669

to their home island several months after the fallout would not have contributed to any significant increase in dose since surveys of the island revealed that the radiation levels were very low, the gamma exposure less than m rads per day, not significantly higher than many places in the world and the levels of radioisotopes in soil and plants were well below the accepted permissible levels\*.

The radiation dose to the thyroid glands was higher than the dose to the rest of the body because of selective absorption by the thyroid of radioiodines inhaled and ingested from contaminated food and water at the time of the fallout. The radiation dose to the thyroid glands of the Utirik people was estimated to be about 30 rads for adults and between 30 and 90 rads for children compared with 335 rads for adults and up to 700 - 1400 rads for children exposed on Rongelap. By the time the people returned to Utirik the radioiodines had virtually disappeared so that no further significant thyroid exposure was possible to anyone living on the island at that time.

The development of thyroid cancer in the Utirik people within the past few years was unexpected. Statistical comparison of thyroid cancer incidence at Utirik with the larger experience of the United States indicates that radiation very likely was involved. Accordingly it was recommended to the Department of Interior that all Utirik people who have thyroid operations be considered for compensation similarly to the Rongelap people. Compared with limited data on the unexposed Marshallese populations there has been only a very slight increase, if any, in non-cancer thyroid nodules in the Utirik people. The three cases of thyroid cancer in the Utirik

---

\* If used this statement should be completed and checked out.

people compared with four in the Rongelap people is definitely higher than expected based on the estimated dose. However, we have reviewed the data and have found no reason to change the estimates of the dose to the thyroids of the Utirik people. The number of cases observed may vary above or below the average number expected - the variation being larger as the population size decreases. In a small population such as Utirik the difference between the predicted and observed number of cases may be substantial. Of course, thyroid cancer occurs in populations not exposed to radiation above the natural background. The incidences of thyroid cancer varies with different population groups. For example, in children the risk rate (in number of cases per million people per rad per year) varies from 0.5 to 1.5 reported by the United Nations to 5.5 for a group of Americans in New York. It is essential to know the natural incidence in the Marshallese and larger studies of such incidence have been initiated.

Even though it was known that the dose to the thyroid glands was higher than to the rest of the body, what was not known during the earlier years was the degree of sensitivity of the thyroid gland to radiation. Even today, there are many facts about radiation that are not known, despite the large number of scientists that have studied this subject for the past twenty or thirty years. Even less was known about radiation in 1954 at the time of the exposure to the people on Rongelap and Utirik. Only relatively recently has the degree of sensitivity of the thyroid for developing tumors from radiation exposure been appreciated. Therefore, the physicians examining you in past years, based on the best possible medical information available at that time, were being truthful when they said that they did not expect radiation effects to develop in the Utirik people.

At this time it is impossible to predict whether more thyroid nodules will develop in the Utirik population. It is therefore of the greatest importance that the regular medical examinations be continued in the future. By having regular medical examinations, signs of thyroid disease can be detected early, and prompt treatment will avoid unnecessary suffering on the part of the Utirik people.

The medical team has been studying diabetes in the Utirik people and other Marshallese people. Though a study of this disease was not considered a responsibility of the medical team since the disease is not related to radiation exposure, it was considered important to help the Trust Territory with this disease which is such a serious problem in the Marshall Islands. With regard to the use of Diabenase in the treatment of this disease Dr. James Field, an expert on diabetes from the University of Pittsburgh who had been studying diabetes in the Marshall Islands with the medical team, states that "there would be inherent risks in the use of the drug Diabenase in treating diabetes on Utirik or other outer islands in the Marshalls since long term medical supervision and laboratory tests are necessary to insure its safe and effective use."

With regard to your comment about the reduced size of arrowroot plants on Utirik, we can state that the results of studies of radiation effects on plants would not support radiation exposure as being responsible for a reduction in size of arrowroot or of any other plants growing on Utirik Atoll. Numerous studies of radiation on Utirik show the levels have been too low to result in such effects.


We believe Drs. Conard, Kotrady, and Knudsen to be very capable and conscientious physicians who are deeply committed to the health and welfare

of the people of Utirik. Moreover, the report by the Special Committee on Rongelap and Utirik, which was formed by the Congress of Micronesia, was favorable with regard to the examinations. In view of the above, we were greatly surprised to learn about the apparent displeasure on the part of the people of Utirik as expressed in your letter. One possible explanation for this difference in sentiment with regard to Drs. Conard and Knudsen, as expressed in your letter, could possibly be a misunderstanding as to their role and reasons to come to the islands. I would like to repeat that it is my firm conviction that the principal concern of Drs. Conard and Knudsen is the welfare and well-being of the Utirik people. It is possible that such a misunderstanding could easily result from the difference in language. Again, I would appeal to the Chiefs of Utirik to impress upon their people the importance of the medical examinations and the necessity to trust and cooperate with the American physicians.

We would like to inform the Utirik people that we anticipate introducing an expanded health care program for people living on Utirik, Rongelap, Bikini and Eniwetok. Such a program would include annual examinations by the physicians of everyone living on Utirik island, including unexposed people and children, and the opportunity to be seen at sick call during the quarterly visits of the physician. We plan on holding a meeting with a limited number of Marshallese representatives from each atoll in the near future to discuss these plans. We believe that such a meeting could result in understandings that will provide a basis for better health care for the people of Utirik.

(salutation)

Dr. James L. Liverman

 5009673