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AUG 24 1973

Mr. John E. DeYoung
Territorial Officer
Trust Territory of Pacific
Islands and Guam
Department of the Interior
18th & C Streets, N.W.
Washington, D. C. 20540

BEST COPY AVAILABLE

Dear Mr. DeYoung:

Dr. Robert A. Conard of the Brookhaven National Laboratory received from Mr. Edward A. Collins, Health Education Specialist for the Trust Territory, a request for assistance in preparing answers to a number of questions to be used in an educational program for the people of Rongelap and Utrik. Dr. Conard felt that certain of the questions would be more appropriately answered by AEC and referred those questions to us. The AEC questions and answers are enclosed for your information and for transmittal to Mr. Oshiro. We have also enclosed a copy of Dr. Conard's questions and answers for information.

We regarded two of the questions referred by Dr. Conard as more appropriate for answering by the Department of the Interior. Dr. Sidney Marks discussed the matter of your answering those questions in a telephone conversation on August 8, 1973; they are also enclosed.

Please contact Dr. Marks if you need any more information regarding this matter.

bcc: Liverman
BP
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IP
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Sincerely,

Original signed by
W. W. Burr, Jr., M.D.

James L. Liverman, Director
Division of Biomedical and
Environmental Research

MC 6116
MC 7029

Enclosures:
As stated

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OFFICE ▶	BP	BP/ADP	ADSP	ADA	DD	DIRECTOR
SURNAME ▶	SMarks:lmh	Edinston	Barr	Whitnah	Burr	Liverman
DATE ▶	8/23/73	8/23/73	8/ 173	8/ 173	8/ 173	8/ 173

AEC Questions and Answers

If the people who were not exposed to radiation but are living on Rongelap and Utirik show any signs of radiation, will they be compensated? Why doesn't the U. S. compensate us for the ruination of our food?

As stated by Dr. Conard, newcomers to Rongelap and Utirik received very little radiation and should not show any sickness resulting from radiation. Questions of compensation would have to be decided by the U. S. Congress as they were for the Rongelap people in U. S. Public Law 88-485 in 1964. Compensation for contamination of the coconut crab would also be a matter for consideration by the Congress.

If the U. S. can reach the moon, how come they did not know that the wind was going to be shifted over to the islands?

The U. S. can reach the moon because the equipment used to get man to the moon is under his control. The direction of the wind is more difficult to predict because the wind is not controlled by man.

Why didn't the U. S. explain to the people the dangers of the fallout before the test? Why did the U. S. not take extra precautions?

The unexpected wind shift and a much greater energy release than anticipated made the precautions that were taken inadequate. The people were not warned of the dangers of fallout because the likelihood that fallout would occur outside the restricted area was considered too remote to justify warning the people. The occurrence of fallout in an unrestricted area after the Bravo test was the first accidental event of this kind to happen after a nuclear weapons test. The U. S. took the precaution of trying to keep people out of the area where they expected fallout to occur.

How long will the U. S. provide assistance? Will the U. S. in the future charge the people for the services?

It is anticipated that the medical and radiological surveys will continue year after year as long as they benefit the people. No positive commitment for the future can be made for this or any other program that is funded annually by the U. S. Congress. However, there is every likelihood that Congress will continue to support this program as it has in the past. There is no reason to believe that the people will have to pay for services provided during the surveys.

Why doesn't the U. S. pay the people who go through the trouble of being examined?

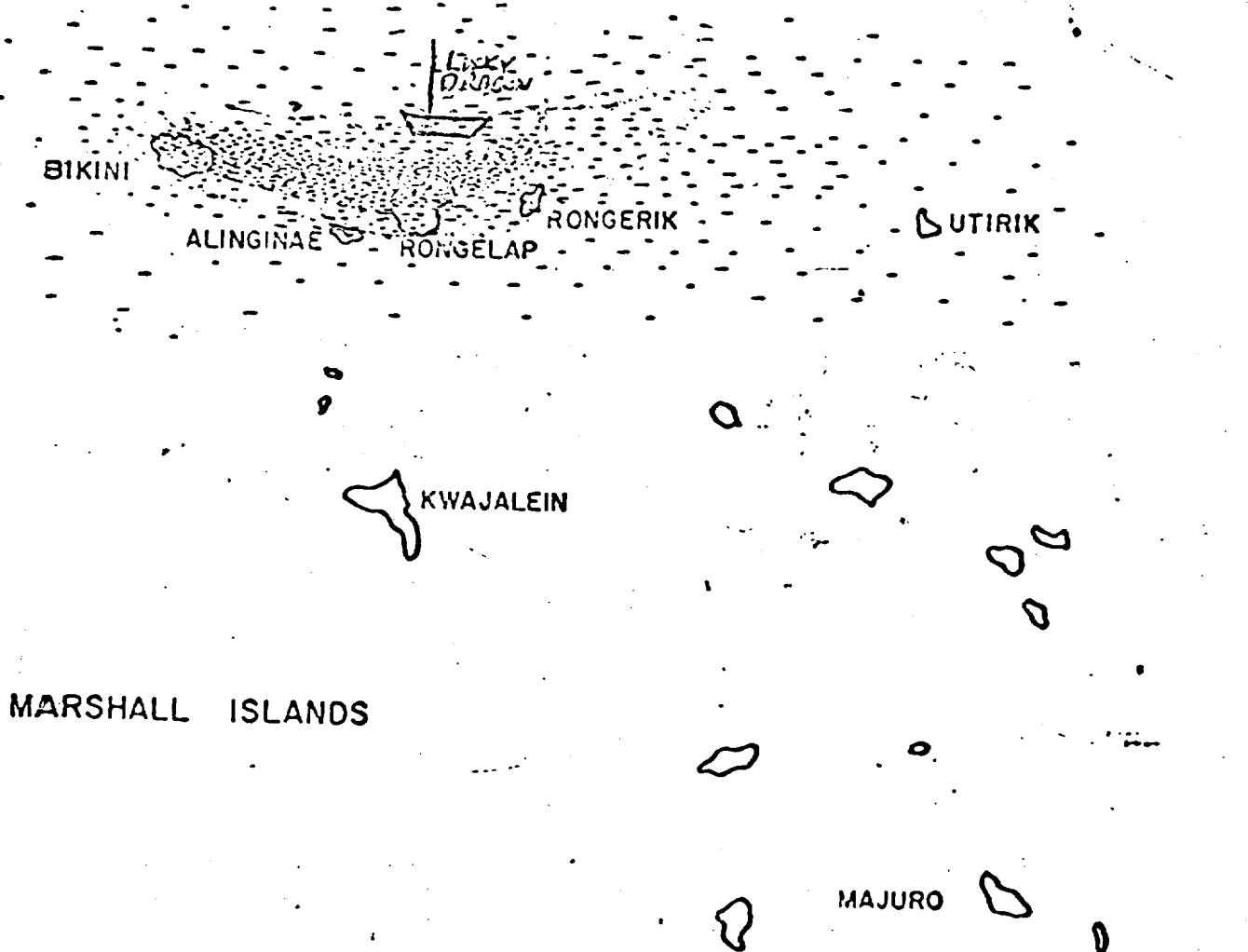
The people who are examined are helped by the examinations. If they are sick, their illnesses may be diagnosed. Many people who need treatment get the treatment because of the examinations. It should not be necessary to pay people for things which are done for them that will help them.

Will the U. S. take responsibility for future generations who suffer the effects of radiation?

Effects due to radiation exposure of the people on Rongelap or Utirik are not expected in future generations. However, if such damage were to occur and were demonstrated to be related to the radiation exposure to the satisfaction of the U. S. Congress, we are confident that the Government would assume responsibility for the damage.

RADIATION FROM THE FALLOUT ACCIDENT IN 1954. What is radiation? What kinds of radiation did we get? Did the people of Utirik get as much radiation as the people on Rongelap?

People on Rongelap, Ailingnae, Rongerik and Utirik were accidentally exposed to fallout radiation on March 1, 1954 during the U. S. atom bomb testing program. The bomb that caused the trouble was exploded at Bikini about 100 miles west of Rongelap and the bomb cloud went eastward in the direction of Rongelap instead of to the north over the ocean without islands as it had been expected to go. The Japanese fishing vessel, The Lucky Dragon, with 23 fishermen on board was also in the fallout. The map below shows the area of fallout.



The fallout was like dust or sand with radiation and fell from the dark cloud as it passed over the islands. As the map shows, the fallout radiation was heaviest near Bikini and got less and less as the cloud moved east. The people on Rongelap Island got the most fallout, those Marshallese on Ailingnae and 28 Americans on Rongerik received less than half the amount of the Rongelap people and the people on Utirik Atoll got only about 1/12 the amount of the Rongelap people. The table shows the people exposed and the amount of radiation they received.

SUMMARY OF FALLOUT EFFECTS

<u>Group*</u>	<u>Composition</u>	<u>Fallout Observed</u>	<u>Estimated Gamma Dose (Rads)</u>	<u>Extent of Skin Burns</u>
Rongelap	64 Marshallese	Heavy (snow-like)	175	Many
Ailingnae	18 Marshallese	Moderate (mist-like)	69	Few
Rongerik	28 Americans	Moderate (mist-like)	78	Very few
Utirik	157 Marshallese	None	14	None

*Also exposed were 23 Japanese fishermen who received a sublethal dose

The people living on these Islands received almost all of their radiation during the first day with very little after that. When they were evacuated from the Islands they had some radiation in their bodies and they also had small amounts of radiation on their bodies, which was washed off at Kwajalein.

What is radiation? In some ways radiation is like ordinary light except it cannot be seen, felt or smelled, but unlike light it may penetrate into the body and cause harm. The radiation came from the sand and dust that fell out of the bomb cloud. Some of this radiation

penetrated deep into the body (called gamma radiation; see the wavy lines in the picture) and some penetrated only into the skin (called beta radiation; like the dots seen in the picture). Some of the fallout got into the body with food and water and caused radiation from the inside. Some of the radiation to the thyroid gland (neck) and bones was from this.

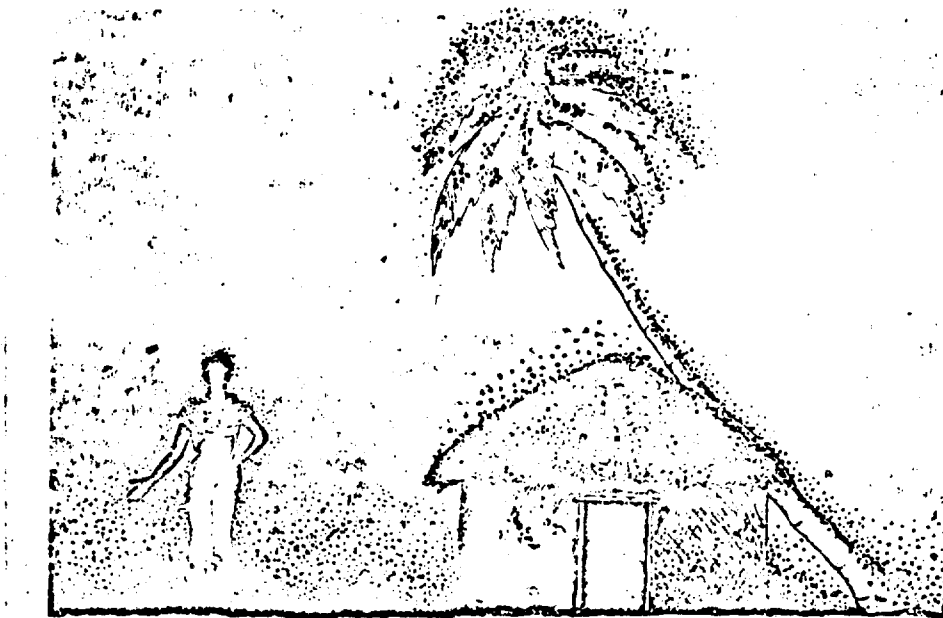


Fig. of Man Showing Fallout Radiations

WHAT HAPPENED TO THE RADIATION AFTER THE FALLOUT? Is there still radiation on the ground? How long will it last? Why doesn't the AEC remove radiation from the soil and plants? How can we get rid of the radiation from the trees, ground, etc.?

Fallout radiation that was left on these Islands gradually became weaker and weaker with time since all radiation gets weaker as it gets older and since the fallout was being washed away from the soil on the Island by rainstorms. Utirik Island was considered safe almost

immediately and the people were moved back within several months. The AEC carried out surveys for radiation on Rongelap and after three years had passed the radiation had become so weak on Rongelap - in the soil and plants - that it was considered safe to move the people back to the new village that had been built. By now most of the radiation left on the Islands has become old and essentially harmless. There is no need to worry about getting rid of the little bit of radiation that is left on the Island. It disappears by itself with time. People all over the world have a little bit of radiation and everyone has to live with it.

WHAT ABOUT RADIATION IN THE FOOD? Why can't we eat coconut crab and arrowroot? Is there anything else that we are not supposed to eat?

On moving back to the Island many people thought that because of radiation the fish, clams and arrowroot starch could not be eaten. This was not true. No sickness from radiation developed from eating any of these foods. The only food that was not supposed to be eaten was the coconut crab which still contained some radiation. However, coconut crabs from the southern part of Rongelap Atoll may now be eaten and there is now nothing edible on these Islands that may not be eaten.

WHAT ABOUT RADIATION IN OUR BODIES? How can we tell if radiation is in our bodies? How can we get rid of radiation in our bodies? What will happen to the people who were not exposed to radiation but are now living on Rongelap and Utirik?

The radiation in the bodies of the people living at Rongelap and Utirik have been carefully measured by the Brookhaven team over the years since the people returned. Plant, soil and fish have been measured by another group from the University of Washington. There has been little radiation in people from living on the Island - far less than is known to cause sickness. You cannot tell ^{that} you have this little bit inside you since it takes special tests by the doctors. The amount

of radiation in your body has been getting less and less. It is no use to worry about trying to get rid of the little bit left. The newcomers to the Island got very little radiation - far too little to cause sickness. So there is no restriction on people moving to these Islands. All of the sickness seen in the Rongelap people was due to the radiation they got before leaving the Island in March 1954 and it is believed that the Utirik people received too little radiation to cause sickness. But the Utirik people should be checked to be sure.

SICKNESS DUE TO RADIATION. How does radiation affect our bodies? Cause diseases? What kind of radiation caused thyroid lumps and leukemia? Why are some people becoming sick 20 years after the test?

Radiation in very large amounts can burn your skin and eyes and it may get into the bones and thyroid glands. If it causes enough damage the body cannot do its job properly and this may cause sickness. This sickness may come early (within a month) like the blood effects and skin sores in the Rongelap people. The people were soon well from this early sickness. Some sickness may develop years later like the thyroid neck lumps and possibly the case of leukemia in the Rongelap people. These were due to the radiation to the body and that absorbed into the body during the fallout. It is not known why these sicknesses happen so long after radiation.

THYROID LUMPS IN THE RONGELAP PEOPLE. What is the thyroid gland? What is cancer? Why do we have to be taken away to the United States to be operated upon? Why do I need to take medicine for my thyroid? If I have trouble with my thyroid will I be healthy again?

The thyroid gland is in the neck and is necessary for growth and health. The radiation caused the gland to function poorly and caused lumps in some people and cancer in 4 people. Thyroid ^{cancer} ~~lumps or "nodules"~~ are a special kind of tissue that is harder than normal, and some may spread over the body and cause bad sickness so it is important to get

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rid of it. Because of thyroid injury some of the children did not grow as well as others. It was necessary to remove the lumps on many of these thyroid cases to be sure that they were not cancer. Some of the best doctors, nurses, hospitals and medicine are in the United States and so you were sent there for treatment.

The thyroid medicine is very important in the Rongelap people since this helps the exposed children to grow and helps stop lumps of the thyroid from happening. All of the people that had thyroid operations ~~should~~ ^{are likely to} remain healthy the rest of their lives as long as they are examined regularly and take thyroid medicine.

OTHER SICKNESSES. Are miscarriages caused by the testing? One man became blind after the fallout.....will I become blind too? Why do you have to drill into our bones? Why do people die after they have bones drilled? Will future generations suffer from radiation?

Rongelap People. The case of leukemia in _____ may have been due to radiation. Leukemia is like a cancer of the blood. The chance of any other exposed person getting leukemia is very low. It is sometimes necessary to drill into the bones to test for disease. But this should cause no harm and we do not know of any serious harm resulting from this. The early sickness in the Rongelap people was probably due to radiation. It is possible also that some of the miscarriages in the Rongelap exposed women may have been due to radiation. No effects on the children of the exposed people have been seen and it seems unlikely any effects will be seen in future generations. No cases of blindness have been seen due to radiation and we do not expect to see any blindness from radiation.

Utirik People. We have not seen any radiation sicknesses in the Utirik people and because of the small amount of radiation they received we do not expect to see any. All over the Marshall Islands some people develop thyroid neck lumps which are not due to radiation

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and some of these have been seen in the unexposed Rongelap people and Likiep people. Also, we have seen a few neck lumps and one person with cancer in the Utirik people but we do not think that radiation caused them.

EXAMINATIONS. Why do I have to be examined every year? I was not exposed to radiation so why do I have to be examined? Why do you have to take our blood? Urine? Why do you have to feel our neck for lumps? So far, what are our health findings? Are we healthier or sicker? What is our future in regards to health? Why doesn't the AEC provide all the information pertaining to the peoples on Rongelap and Utirik? Were the people on Rongelap and Utirik used for experimental purposes? Why doesn't the United States send a Rongelapese to learn about radiation, thyroid, cancer, etc.?

From our examinations, except for the thyroid lumps, the exposed Rongelap people are as healthy as other Marshallese people not exposed to radiation. Their future health should be good. It is necessary to continue the examinations regularly and take blood and urine samples so that we can be sure that everyone remains healthy and take care of any sickness if it happens. We have to feel the neck for lumps to be sure none are there. It is also necessary to do many other tests. This is not experimenting but trying to find if there is any sickness. Some people wonder why candy is given at the time the blood test is done. It is only because it has been found easier to give the children candy at that time.

It is also important to examine people who were not exposed to radiation because we need to know when the exposed people get sick if this sickness is caused by radiation or something else. If you were not exposed and got sick and your brother was exposed and got the same sickness, this indicates that the sickness was probably not caused by radiation.

Even though the Utirik people have not developed radiation sickness they should be checked to be sure they remain healthy.

Because of the special examinations the people of Rongelap and Utirik have probably had more extensive health care than other people in the Marshall Islands.

The Brookhaven team and Trust Territory medical personnel are working very closely together in carrying out their health responsibilities to the people of Rongelap and Utirik. It is planned to give the Health Aides on these islands special instructions on radiation effects. The reports of the health findings by the Brookhaven team have always been made available to everyone interested and published regularly.

Questions to Be Answered
by Department of the Interior

Compensation

4. Who will rebuild our houses? They are old and need to be replaced.
5. Why can't we get financial assistance when we are sent to the district center for treatment?