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September 28, 1978

TRIP REPORT - NORTHERN MARSHALLS SURVEY - FIRST SERIES

The USNS Wheeling (T-AGM8), operational base for the DOE radiological survey of the Northern Marshalls, departed the dock at 1830, September 16, 1978, and at 1930 cleared the deep water pass in the southwestern reef of Kwajalein Atoll. The 10 hour trip northward to Rongelap Atoll was the first leg of a 22-day mission to survey Rongelap, Utirik, Rongerik, and Taka Atolls. This was the beginning of the Northern Marshalls survey.

The first day off Rongelap Atoll (September 17) was a difficult one. No small boats were operational for various reasons such as engine malfunctions and human error (two starter keys were broken in ignition switches). One helicopter was launched and two EGG battery powered transponders were placed and put into operation. These island based transponders provide the positioning data for the aerial survey. A conflict between boat and helicopter operations was immediately evident. The ships crew at Flight Quarters for launching and recovery of helicopters contained the same personnel as are needed to launch and recover boats. The helicopter fueling detail also used these same people. Further, the ships communications equipment had to be shut down during helicopter launch, recovery, and fueling operations due to the danger of fire from high level RF energy.

The major task of the survey technical director, Vic Noshkin of LLL, was to work out a schedule for conflicting operations to get the best utilization of people and equipment. All activities involved in the ships operation from meal service to positioning the vessel, were on a learning curve. Times as short as fifteen minutes were at issue in the evening staff meetings.

Enclosure 1 is a sample of a plan for daily activities. Vic Noshkin, Roger Ray, and Bob Keller did an exceptional job of negotiating and arbitrating between the various interests. An overriding and helpful factor was the spirit of cooperation and desire by all concerned to see the survey successfully done. Capt. Robert Jones from the Chief of Naval Operations (CNO) and Capt. Taylor, ships master, were most cooperative and helpful and interested in the job being done.

There was a difficulty in contacting Rongelap by radio to announce our intensions and to explain why a boat had not come ashore. The Trust Territory radio in Majuro Atoll to the south was contacted and a broadcast band radio station made an announcement that the Wheeling was trying to contact Rongelap. A few

minutes later, contact was made. The idea for calling Majuro came from Bima Akake, A TTPI staffer who acted as interpreter for the survey party. The sophisticated electronics on the Wheeling not withstanding, its helpful to have people arround who can improvise.

Enclosure 2 is a listing of survey participants provided by DOE, a total of 33. The total number on the ship including the crew and others maintaining equipment, was about 160 (never saw this in writing). The Wheeling was a very comfortable platform from which to work with considerable onboard resources. However, the fact that the ship could not enter the lagoon due to its deep draft, size, and the many coral heads, made more difficult the job of getting ashore for those performing terrestrial and marine sampling. However, the ships ability to speed up and turn into the wind benefited helicopter takeoff and landing operations.

The second day (September 18) two small boats were operational. The first, loaded with a survey crew and their gear, was away at 0730. The second survey crew was launched 15 minutes later. These boats off loaded men and equipment on the beach of the first island to be surveyed and returned to the Wheeling to carry a party ashore on Rongelap Island.

With Bima Akake acting as interpreter, Roger Ray, Tom McCraw, Bob Keller, Dr. Grant, Jan Naidu, Evely Craighead, and Frank Cogswell met with Magistrate Nicktemos and about 70 Rongelap people. The reception was cordial. One of the Marshallese opened with prayer. Roger Ray made introductions and gave a presentation on the survey plan. There were questions about how helicopters would be used and expressions of uncertainty as to what restrictions applied to use of islands in the north of the atoll. Enclosure 3 is a summary of the meeting and a listing of questions.

Following the introductory meeting, the visitors looked for a helicopter landing site. The local ball field, a cleared area within the village surrounded by coconut trees and about 80 feet in diameter, appeared suitable. All loose materials were picked up. In landing the helicopter kicked up a lot of sand and was very noisy, but was of great interest to the Rongelap people, particularly the children. Some of the DOE visitors returned for our first helicopter landing on the pad of the Wheeling. The space seemed very tight but was quite acceptable to the aircraft crew. The remaining visitors including Dr. Grant, his nurse, Naidu, and Craighead (affectionately known as Evie Rongelap from Peace Corp days) remained ashore. See footnote next page. One aerial survey was

accomplished this day and one small boat, out of fuel, was provided a full tank lowered from a hovering helicopter.

After dinner, the first day's activities were critiqued and plans made for tomorrow. Processing of the aerial survey data began and continued into the night. The first day's sample collection ashore were in bags and in the freezer.

On September 19, two small boats were away at 0700 and 0720. A third deisel powered boat belonging to the Wheeling was still not operational. Roger Ray accompanied by Bima Akake and several others went ashore to negotiate the purchase of pigs and chickens for food samples. The people are to be paid for all foods collected. I went on the first "around the Atoll" helicopter trip scouting the islands looking for possible boat and aircraft landing sites. Upon returning to the Wheeling the first gross-gamma-count overlays were reviewed in the EG&G data processing lab. Very preliminary data indicates islands in the north of the atoll have the highest external radiation levels. Islands in the south have very low levels - like Seattle Washington. One island in particular, Naen, had considerably elevated values. These data came from a single monitoring pass around the entire Atoll. We will see later whether these higher values are confirmed by the detailed surveys of these islands. These initial reviews are in accord with the basic planning of the survey which said that the aerial data are to be used as screening data which will quickly show any problem areas where sample collection efforts would be concentrated.

On September 20, the two small boats (commonly referred to as "whalers") were away at 0600. This earlier time resulted from efforts to get a longer day ashore. The ship had provided an early "mess" for survey teams. This day, collections began on Rongelap Island, the village island of the Rongelapese. On the 19th samples had been collected along the eastern side of the atoll. The logistics helicopter 722 (724 is equipped with the EG&G aerial survey equipment) made a logistics run back to Kwajalein. The distance was about 180 miles and took

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*One other person remained ashore who was not a part of the DOE survey. This was Frank Cogswell who had requested and been granted transportation to and from Rongelap Atoll for the purpose of irradicating internal parisites in some of the people.

roughly 1.5 hrs. Radar on the Wheeling tracked the helicopter till they had the Kwajalein reef in sight. 722 returned with spare parts and the first mail.

Sample collections of coconut, pandanus, and breadfruit, from Rongelap Island went well. 30 soil pits were dug down the middle of the island and vertical profile samples to 60 cm, where possible, obtained. Soil sampling in plant root zones began in locations where fruit was obtained. The EG&G data analysis work was reviewed. The available iso-intensity contours for gross-gamma levels plotted to scale fit the island shapes as determined by aerial photography. The detected radiation is almost entirely from ^{137}Cs.

The weather so far has been excellent. The sea is calm. The first situation report draft was reviewed.

On September 21 two whalers were away early, about 0600. The first EG&G aerial survey mission was off at 0900. Two aerial survey missions are possible each day, one in the morning and one in the afternoon. The terrestrial and marine survey teams are away all day, returning about 1600. Sample collection teams are averageing about 6 1/2 to 7 hrs ashore per day. The survey helicopter, 724, is getting two 4 1/2 hour survey flights per day using two groups of scientists and two aircraft crews with refueling and crew changes at noon. A gift of food was carried ashore in a sling beneath helicopter 722. There was some rain shower activity over Rongelap Atoll in the early afternoon.

There is good progress and good news with the EG&G data reduction efforts. The detailed survey of Rongelap Island shows very low external gamma radiation levels ranging from 3 to 6 uR per hour. A TWX was received indicating Nat Greenhouse will make the second leg of the survey. Roger Ray indicated they could use Jay Beaufait's help on the third leg.

Ashore, Dr. Grant referred a lady patient for transport back to the hospital on Kwajalein on the next available flight. She would be accompanied by her husband and 5-year old son.

On September 22, the whalers were away about 0600. Roger Ray and I made plans for a clearance meeting with the people ashore arriving at 1400 and departing at 1530. This was followed by efforts to arrange for an emergency medical evacuation of a two-month old infant that was seriously ill. Dr. Grant indicated this morning the child was comatose and asked for an immediate evacuation to the hospital in Kwajalein. The evacuation

helicopter landed at the ballfield about 0945. Word was received that the child died about 1000 and the mission to Kwajalein was scrubbed.

The weather turned sour about noon with heavy rain showers. The aerial survey work was terminated shortly thereafter as the signals from transponders became weak and unreliable. Shore parties returned to the Wheeling about 1300, wet and bedraggled.

By radio the Magistrate indicated the Rongelap people would be entering a three-day period of morning for the baby that died, that on the first day mostly the family of the child would be involved, and if we planned to come ashore for a closing meeting it should be today. We kept to the assigned schedule and arrived at the ball field mid-afternoon. Some of those that remained ashore plus much luggage was returned to the Wheeling on this flight. By all appearances, the closing meeting went well but with a much smaller group of Rongelapese. I counted 24 adults. There were questions indicating considerable uncertainty about eating coconut crabs caught in the atoll. Enclosure 4 is a summary of this meeting and the questions that were asked. Following this meeting, the DOE visitors including Dr. Grant plus the lady and her husband and son that were to be taken to Kwajalein, returned to the Wheeling.

The EG&G data were again reviewed. The data collection effort at Rongelap Atoll was almost complete with one island in the north yet to be surveyed and one other requiring some resurvey. The preliminary information (there is still some calibration work to be done) indicates that islands in the south including Rongelap have external gamma levels of 3 to 6 uR per hour. Islands in the north of the atoll have some locations as high as 30 to 60 uR per hour.

After dinner and the evening planning session, Jan Naidu provided a copy of his report on work he and Evie Rongelap had done on Rongelap Island to gather information of dietary habits and preferences. See Enclosure 5. He estimates that with current availability, imported foods count for 85% of the current Rongelapese diet.

On September 23, the whalers were away by 0700 and the 724 aerial survey helicopter departed at 0900. Helicopter 722 was launched shortly thereafter to replace batteries on the EG&G transponders. Those returning to Kwajalein today packed, paid their bills for food and lodging, turned in film badges, and said farewell. Helicopter 722 with the patient, husband and child, and several DOE passengers including myself left the Wheeling at 1000. Upon arrival at Kwajalein at 1130, an ambulance was awaiting the patient. I heard later the patient delivered a still born baby during the night and is recovering satisfactorily.

This concluded my participation in the first part of the first leg of the DOE Northern Marshalls radiological survey. This shakedown phase of technical and logistical operations has set the pattern for other atolls yet to be surveyed. I am convinced a most satisfactory job will be done in the field portion of these surveys. My concern is that adequate time will be available to perform the extensive work required for analysis of collected samples and the additional effort to assess the resulted, and for development of radiation exposure predictions.

The final statement that needs to be made is that the contacts with the Rongelapese were at the same time rewarding and depressing. I sensed good feelings among those contacted in discussions on our survey mission. I know that the most advanced technology is being applied to the radiological survey of this environment, and that given time to assess the data, the final results will be technically defensible. I am depressed by what we experienced with seriously ill Rongelapese. While it was not the mission of the Wheeling to provide medical assistance beyond that of Dr. Grant's quarterly visit or an emergency response capability, once the plight of the young child was known, the highest priority was given to the evacuation. Our visit to pay respects to the young parent's home will be long remembered. The experience with medical emergencies may be repeated at other populated atolls in the survey where the Wheeling will bring a capability for communications and rapid transportation not often available at these remoted locations.

Tommy F. McCraw

Tommy F. McCraw
Surveillance Projects Branch
Division of Operational and
Environmental Safety
Department of Energy

Enclosures:
As stated

ENCLOSURE 1

USNS WHEELING (T-AGM 8)

PLAN OF THE DAY No: 007 Day: Monday Date: 18 Sept.

LOCAL TIME	EVENT
0600	Early Breakfast
0700	Launch Boston Whalers - Commence loading & shore trips
0800	Communications - Voice circuits up for flight ops
0830	Flight Quarters
0900	Helicopter #724 - Launch #1 - Survey Flight
1215	Fuel Detail on Station
1230	Helicopter #724 - Recovery #1
1240	Secure from Flight Quarters
1245	Secure Fuel Detail
1330	Flight Quarters
1400	Helicopter #724 - Launch #2 - Survey Flight
1430	Helicopter #722 - Launch - Personnel & Logistics Flight
1600	Helicopter #722 - Recovery
1630	Boston Whalers start returning shore parties & materials
1715	Fuel Detail on Station
1730	Helicopter #724 - Recovery #2
1745	Secure Fuel Detail
1800	Hoist Boston Whalers
1900	Staff Meeting - Conference Room
NOTES:	Do Not throw any trash overboard while the ship is near any land.
	There will be no C-Band radar tracking of survey flights except when specifically requested.
	All notes from preceding POD's remain in effect.

DISTRIBUTION: Capt. Jones, CTG 30.5; DOE (8); PMTC Rep; HC-1 (10); Dyn (6) MSC-Bridge; Master; 1st Mate (4); Chief Engr (3); Chief Steward (1); Purser

POSTING: All Ship's Bulletin Boards (3)

NORTHERN MARSHALL ISLANDS SURVEY PARTICIPANTS

FIRST SERIES

	NAME	SOC SEC NBR	AGENCY
1.	Ray, Roger	320-34-8105	DOE
2.	Keller, Robert	567-38-5372	DOE
3.	McCraw, Tommy	251-30-0989	DOE
4.	Noshkin, Victor	550-36-8242	LLL
5.	Eagle, Rodney	543-38-4811	LLL
6.	Holladay, Gayle	926-28-2171	LLL
7.	Dawson, Jack	557-58-1660	LLL
8.	Phillips, Bill	569-36-3671	LLL
9.	Stuart, Marshall	554-60-9456	LLL
10.	Burke, William	568-46-7655	LLL
11.	Rehder, John	559-42-9374	LLL
12.	Koranda, John	374-24-2922	LLL
13.	McIntyre, David	541-32-4727	LLL
14.	Martin, Walter	545-50-4854	LLL
15.	Naidu, Jan	537-46-3947	LLL (BNL)
16.	Craighead, Evelyn	040-48-1488	LLL (BNL)
17.	Johnson, Art	538-50-8989	LLL (U of W)
18.	deBrum, Reynold	04-14371	LLL (TTPI)
19.	Boyns, Phillip	529-54-6668	EGG
20.	Villaire, Alfred	559-34-4922	EGG
21.	Hendricks, Thane	518-32-9041	EGG
22.	Ebeltoft, William	530-26-5207	EGG
23.	Mazurkewiz, Robert	209-30-0171	EGG
24.	Davidson, Gerald	519-40-0085	EGG
25.	Verheyden, William	560-42-0446	EGG
26.	Pell, Samuel	106-32-8129	EGG
27.	Shipman, George	267-68-1779	EGG
28.	Cogswell, Frank	228-62-5249	Public Health
29.	Grant, Dr. W. J.	524-34-8444	BNL (KMR)
30.	Kabua, Jaenute	none	BNL (KMR)
31.	Akake, Bima	04-03002	TTPI
32.	Keogh, Rob	136-38-8640	MLSC
33.	Loiak, Christopher	575-92-8162	MLSC

ENCLOSURE 3

INITIAL MEETING IN RONGELAP VILLAGE SEPT. 19, 1978 *

Survey Party Participants:

Roger Ray
Robert Keller
Bima Akake
Tom McCraw
Jan Naidu
Evelyn Craighead
William Grant
Frank Cogswell

Magistrate Nicktemos Antak opened the meeting with a welcome followed by an opening prayer by Deacon Jodai.

The Magistrate expressed the hope that the survey will benefit the people, "The survey on land, the water, the sea." He hoped that the results of the survey would be provided to the people to guide them. He thanked us "for coming here today."

After Deacon Jodai's prayer Roger Ray made the following opening statement:

"First I would like to thank all of you for being here and for permitting us to visit. I am very sorry that we spent all day yesterday trying to get here from the boat, but our small boats were not working and so we had to have them worked on last night to come in this morning.

"I am Roger Ray. I am with the Department of Energy. I have for some years been working with the survey teams in the Marshall Islands.

"I'm pleased that I have a chance to visit Rongelap for the first time. Although I have met some of you in other places, I am glad to have a chance to meet all of you here.

"I'd like for you to know some of the rest of the people in our party. On my right is Bob Keller and Bob will be in charge of the work that is done here and at Utirik, Taka, Bikar and Rongerik.

"Next to Bob is Tom McCraw. Tom has worked in the Marshalls for many many years. He is from our Washington Headquarters of the Department of Energy.

"I'm sure that Jan Naidu needs no introduction to you. I know he is pleased to be back, and we are very pleased to have him with us.

"An Evie is no stranger, either. I am sure she is very happy to be back at Rongelap.

(A warm response from the audience)

"And Dr. Crant is no stranger. He has been a colleague today, Frank Cogswell. (Colleague was a difficult word: "Friend who works with him" was the solution)

"For some time, as you know, the Atomic Energy Commission and then the Energy Research and Development Administration (translator quite readily made that "ERDA") and now the Department of Energy has had various scientific groups visit Rongelap and other atolls in the Northern Marshalls.

"During the last 25 years the scientists who have visited here have made measurements of radiation and have collected samples of the food and other things that are here: The water and the soil".

"By taking these things back to the laboratories in the United States they have been able to learn about the radiation here and to give you advice about the foods and about your life on this atoll.

"During the last few years we have developed new instruments and new methods - new ways of making radiation measurements - that permit us to learn in much more detail the conditions of these atolls.

"Most of these new methods and new instruments have been used at Enewetak recently to make the surveys of that atoll.

"For about two years we have been planning the survey that we are starting now, which will extend that work to many other atolls in the Northern Marshalls.

"Rongelap is the first of those atolls that we are now starting to survey.

"I want to be sure that you understand that we have no new reason to be concerned about Rongelap.

"But we have these new methods to be more sure than we have ever been before.

"And so we ask that you permit us to spend this week here making measurements and collecting more samples to go back to the laboratories in order that we may give you more and better advice in the future.

"This is the first time that we have tried to do this kind of survey from a big ship.

"And we have a lot to learn about how to do that.

"Yesterday we learned that the first thing we have to know how to do is to get off the ship.

"some of the things that we will do during this week will use helicopters.

"For most of this work the helicopter will not land but will fly above the land.

"That work we hope to start today. We hope to cover every island of the atoll with the survey from the helicopters in the air.

"In some places we would like to have the helicopter land so that men can come down and do the work on the islands.

"Where we cannot do that the men will come ashore in the small boats that we used this morning.

"The work on land will include collecting foods:, breadfruit, pandanus, coconut, fish.

"We will pay for those foods that we take and we would like to discuss that with the Magistrate and work out how that will be done.

"We would also like to take samples of the water that you drink and use for cooking.

"And then we would like to take samples of the soil - the dirt - that is around the roots of the plants.

"In a few places we will want to dig some large deep holes to get samples of soil and water from down deep.

""To do that we have a small machine - a tractor - aboard the ship that can be carried ashore by the helicopter.

"If we want to dig those holes anywhere near the village area we will certainly ask your permission for the place that we would like to dig and we will fill the hole back in when we are finished.

"We expect the work here at Rongelap to take about six days.

"And before we leave, if we may, we would like to come back and tell you what we have done and give you any new information which we have at that time.

"Most of the information from this survey will come after a long period of work in the laboratories back in the United States.

"We do not expect to be able to make a written report on the survey for about two years.

"But if there are things that you should know right away, you may be assured that we will get that information to you immediately.

"Our report when it is finished will be available to everyone.

"And as the Magistrate knows I have promised at an earlier meeting that it will be sent to him direct immediately after it is written.

"Before we go on and ask Dr. Grant to discuss what he will be doing perhaps if there are questions I should take them now."

Q. I understand that the helicopters will fly to make measurements. What is the helicopter measuring?

A. The helicopter will measure the radiation on the ground. The reason that we use a helicopter is that it can fly high enough that it can "see" over a wide area on the ground. (demonstrate with gestures.)

Q. How high will the helicopter fly?

A. Between 100 and 150 feet above the ground.

Q. How can they know the level of radiation ?

A. The helicopter has in it the same kinds of instruments that are used to measure radiation down on the ground, but they are very much larger and very much more sensitive. It can detect radiation at very very low levels. It's lik e a telescope that can "see" in close.

Q. (An exchange of words with the Magistrate wherein he was trying to help to develop the explanation.)

A. It can be compared with a camera that takes pictures from a long distance - a telescope camera. By being high above the ground it can measure a whole island rather than just what can be seen from on the ground.

"We expect to be here several more times before we leave and perhaps it is easier to ask questions individuall or in small groups; we welcome that any time when we are on the island."

Q. The north and western islands, where we would like to get food. We need to know as soon as possible the results of the survey. In years past these islands were important food sources. We want you to expedite the results of the survey of the northern islands.

A. Yes, I understand, and we will do that. We intend to give the first attention - earliest attention - to atolls such as this, where people do have questions about their food.

At this point, Dr. Grant was introduced. He extended brief greetings from Drs. Knudsen and Conard. He then discussed his plans for a medical visit on Rongelap and the plans of Frank Cogswell for his parasite eradication program.

Jan Naidu was introduced and he briefly described the visit he and Evelyn would make.

Another question period ensued.

Q. We understand that some of the helicopters will land but some will not land. What is the difference?

A. The helicopters that land will be to put men down to do work on the islands. The helicopter itself will not be making radiation measurements on the ground.

Q. We expect this afternoon that the helicopter may come and take some of us back to the ship. We hope to talk to the magistrate later after this meeting and find out where the helicopter may land.

Q. We thank you for all the words you have said and we understand that you will send some information and advice to us later. We thank you for all the information you have given us, but request that you show us a movie (much laughter). Thank you.

A. I am sorry but we do not have movies with us. We could dance or act a play for you. (more laughter)... or perhaps Bima would sing (and more).

"We will be back in a day or two if anyone has more questions, and we will be in touch with the Magistrate by radio if there is anything you want to ask us. Thank you."

Evelyn Craighead, who planned to stay on Rongelap for the week with her Marshallese family spoke briefly to say that she would like to help with any questions the villagers might have. She invited anyone with a question to come and see her. Responding one of the men said, with a mock-threatening clenched fist. "If that old man there comes to see you, his wife will come to see you, too." Much laughter from all. The Magistrate served drinking coconuts and the meeting adjourned.

*Prepared by Roger Ray, NV Project Manager, for the survey.

ENCLOSURE 4

CLOSEOUT MEETING AT RONGELAP - SEPT. 23rd *
1400 RONGELAP TIME

Work has gone well and all complete in the South.

Ship moved north last night, now off Meller. Tomorrow will be near Naen. Expect the ship to leave Monday for Utirik.

Work has gone very well and we appreciate all the help.

We have left money with the Magistrate to pay the owners for foods we have taken as samples and also to pay the men who helped with the collection.

Yesterday we sent packages of food by helicopter. This food is a gift from the survey party and is meant to say thank you for your help and for permitting us to be here.

As said earlier, most of the survey results will come after lab work. However, we have the radiation information from the helicopters for most islands and can give you that information now.

This island - Rongelap - is entirely satisfactory for a residence island. There is no more radiation here than there is in many places in the U.S. - in my home for example.

Radiation levels on Enewetak and on Mellu and on all of the small islands in between - between here and Mellu - are very low also. We have no reason to suggest any restrictions on those islands.

To the west of here - as far as Burokku - radiation levels are very low also. No restrictions are needed on those islands at this time.

In the north it is allright to visit the islands, but we recommend that you not gather food from the Northern islands at least until we can complete the laboratory work.

This is the last time we will visit you before the ship leaves for Utirik.

After Utirik Taka and Bikar, we will visit Rongerik. If any of the owners of Rongerik have any advice or questions for us we would like to hear them now.

In October we expect to visit Ailinginae. Do any of the owners of Ailinginae have questions?

Questions the people of Rongelap have asked

1. Will we be moved from Rongelap - like the Bikinians?
2. Why have the scientist come to Rongelap now?
3. Will radiation ever increase or does it just decrease?
4. Why can't we go live on the Northern Islands of Rongelap when can we live and take food from this island.
5. How come the trees - coconut, pandanus - don't grow well on the Northern Islands - does the radiation affect trees?
6. How come America doesn't give us food if the trees are already radiated.
7. If the soil is already radiated, how come they don't change it?
8. Will the radiation affect our children that are being born now?
9. How come the reason the AEC comes to these islands?
10. Is it good to eat coconut crab now?
11. Do you understand about how much radioactivity is on Rongelap? or Rongelap, Rongelap?
12. Can you tell us the results of the survey earlier than next year?
13. Is there a lot of radiation in the air?
14. If you take us from Rongelap no one will make copr~~a~~ because of no land. They said that they have seen the people on Ugelang, Enewetak, and Bikini not make copra. So the Rongelap won't now if moved.
15. Why does it seem that the fish people eat now get fish poisoning from when they used to eat them and not get poisoning.
16. What about the arow root - how come when we eat a lot we get sores in the mouth, and a stomach ache followed by diarrhea. Also on the lips - the outer layer of skin dries up and peels.

*Prepared by Roger Ray, NV Project Manager for the survey.

ENCLOSURE 5

DIET AND LIFE STYLE STUDY Jan Naidu & Evie Rongelap

Prog-am objective:

To develop internal & external exposure patterns to known amounts of radiation.

Major Constraints

1. Time allotted for Rongelap, Utirik, Likiep and Ailuk is short. However, previous visits to Rongelap (6 weeks, Jan-Feb 1977) and Utirik (April 1978 2 weeks) will help in that initial observations have already been done. In addition, the presence of the ship and activity so associated has affected the normal life pattern.

2. At the time of this survey it must be recognized that members of Rongelap and Utirik population will receive $1000 per head (exposed) and some will receive $25,000 per head (exposed, unexposed - with thyroid nodules). This influx of money will definitely affect their diet and lifestyle pattern especially in terms of locally grown food consumed.

3. Lifestyle and diet pattern for Rongelap has been severely disturbed. Following compensation in the past, our observations indicate lack of predictability.

4. Utirk has a fairly reasonable and predictable lifestyle and diet pattern, area of concern is the impending compensation and also the fact that they have been tutored in the effects of radiation. The latter can affect the type of answers that will be elicited from our questions.

5. It is expected that in Likiep and Ailuk the conditions would be normal and thus indicate a reliable report. However, the presence of the boat may affect the quality of information derived from the islanders. It also should be noted that on Likiep there is also the presence of an Australian who manages their copra plantation.

6. The typhoon relief food supply program has added a significant quantity of imported food, 85 percent of food consumed is imported.

Procedures

A. Stay on the island and possibly live with a family.

B. Request assistance of a knowledgeable (English and Science) resident.

Rongelap: Principal Amos or Science Teacher Isaw: or Magistrate - Nick Utirik: Principal : Harold

C. Gather basic information - document conversations (tape)

i. Population distribution
ii. Family size
iii. Seasonal distribution of locally grown food.
iv. Food from other islands (in atoll)
v. List of activities.

D. Visit various families at meal times and do the following:

a. Partake in fare but request an equal amount - 1/2 and weighed or volume measured.

b. Exchange your own food in order not to diminish their total food for this day.

c. Photograph the setting.

E. Spend the rest of the day moving around the village and do the following.

a. Locate activity and photograph.

b. Approach person and engage in conversation on the activity.

c. Document conversations. (Tape).

f. Information will be presented as follows:

I. Data tabulation:

A. Individual data

Individual	sex	age	Activity (hours)	food (grams or ml)

B. Average data

sex	age group	activity (hours) range, mean	food (grams or ml) range mean

REPOSITORY PNNL

COLLECTION Marshall Islands

BOX No. 5686

FOLDER Enewetak Oct Sept 1978

DOCUMENT **DOES NOT** CONTAIN ECI

Reviewed by R L Schuette Date 4/30/97