



BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC.

Upton, New York 11973

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Medical Department

May 12, 1978

William Stanley  
Director, PASO DOE  
P.O. Box 29939  
Honolulu, Hawaii 96820

REPOSITORY DOE/PASO  
COLLECTION DOE/NV  
BOX No. 122F "ERDA # 3"  
Bio-MED, Dr Conard  
FOLDER 10/1977 thru 9/1978  
FY 1978

Dear Mr. Stanley:

Trip report for the Annual BNL Medical Survey of the Marshall Islands.

Purpose: The medical surveillance and primary care of patients exposed to the 1954 nuclear accident and to a comparable control group on Rongelap. In addition, sick call was held whenever possible on Uterik, Rongelap, and Bikini.

Participants:	Agency	SCHEDULE				
		Maj.	Kwaj.	Utirik	Rong.	Bikini
Dr. Conard	BNL	3/25	3/30	4/12	4/18	4/22
		3/30	4/11	4/17	4/22	4/25
Dr. Pratt	BNL	3/22	"	"	"	"
		3/30				
Dr. Grant	BNL	3/25	"	"	"	"
		3/30				
Dr. Naidu	BNL	No	4/5	4/12	No	No
			4/11			
Dr. John Nicoloff	Univ. of CA	3/25	3/30	4/12	4/18	4/22
		3/30	4/11	4/17	4/22	4/25
Dr. Ruth Nicoloff	Kaiser Permanente	"	"	"	"	"
Dr. Krotoski	PHS	"	"	"	"	"
Dr. Lowrey	Ret.	"	"	"	"	"
Dr. Nelson	NIH	No	4/5	"	"	"
			4/11			
Masao Korean, M.D.	T.T.	No	3/30	"	"	4/22
			4/11			4/25
Januk Kabua, R.N.	BNL	3/22	"	"	"	"
		3/30				
W. Scott	BNL	3/25	"	"	"	4/22
		3/30				4/29
P. Heotis	BNL	"	"	"	"	4/22
						4/25

Participants: (Continued)	Agency	Maj.	Kwaj.	Utirik	Rong.	Bikini
R. Brown	BNL	3/25 3/30	3/30 4/11	4/12 4/17	4/18 4/22	4/22 4/25
D. Clareus	BNL	No	4/11	"	"	4/22 4/29
S. Shoniber	T.T.	3/25 3/30	3/30 4/11	"	"	"
N. Zetkeia	T.T.	"	"	"	"	4/22 4/25
L. Elanjo	T.T.	"	"	"	"	"
K. Gidion	T.T.	"	"	"	"	"

Logistic support:

The program was completed within two days of the pre-planned itinerary. However, the actual day-to-day logistic support plans required frequent and drastic changes.

The Caroline Islands, supplied under a lease agreement with the Trust Territory, proved to be unsuitable for a medical survey of this type. The discrepancies were discussed, at length, with Roger Ray, Harry Brown and Jim Miller in the PASO office on 4/26/78, and a two-page typewritten list of deficiencies and hazards identified by our chief engineer and first mate was submitted to them at that time.

The major problems encountered with the Caroline Islands were:

(A) Unreliability - Immediately prior to the beginning of the trip, the Caroline Islands (C.I.) was inoperative for a prolonged period due to a severe problem with a main reduction gear. It required the services of a Japanese engineer - flown in from Japan - to repair the problem. Spare parts - flown in from Japan - were discovered to be the wrong parts and were reordered - again with a significant loss of operational capability.

Both diesel engines have major mechanical problems - requiring frequent operation on one engine; cutting the cruising speed to 10 knots or less.

Since the ship was built in Japan, the human engineering aspects of maintenance and repair were designed for small Orientals. In other words, Occidentals would have a very difficult time reaching many important areas - and would be unable to reach some critical areas without cutting an access way.

During the survey, we repeatedly lost supercharger assistance on one or both engines. Luckily, one engine was always functional. A review of their operational history reveals that it has not been unusual for the C.I., in 14 months of service, to be unable to operate due to a variety of mechanical problems.

This survey depends upon the voluntary efforts of a number of nationally-known physicians who donate their time without pay to assist DOE/BNL in this effort. They usually come from a practice with a very tight schedule and are able to commit a limited and structured period of time to the study. For example, Dr. John Nicoloff was committed to a speaking engagement in Hawaii - half-way through the survey - necessitating air transport from Rongelap at a significant additional cost to DOE/BNL. If the original schedule had been maintained, this additional cost would have been avoided.

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It will be difficult in the future for the survey leader to recruit the same calibre of physicians if we are unable to give them some reasonable assurance of reliable transportation.

(B) Health hazards - The C.I. is in essence a floating box (for dry cargo) with a completely separate mechanical/living space aft. There is no communication between these two areas - except by the open deck. The only access to the hold is by vertical descent via inspection ladders. The holds themselves are overrun with roaches and rats.

Two days before we were due to sail - analysis of the ship's potable water supply revealed heavy contamination with coliform bacteria. The tanks were drained and superchlorinated, then drained, and the maximum amount of chlorine was added to allow human consumption. Even with these measures, we had an epidemic of gastrointestinal problems throughout the voyage. The G.I. problems with diarrhea were further complicated by the fact that there were no flush toilets available in the hold, where the vast majority of the medical survey team lived in trailers. Porta-Poties (chemical toilets) proved to be totally inadequate. They were set in an open area aft, were frequently sitting in several inches of dirty bilge water, and were a real health hazard - especially when we found that some of the inspection openings for the fresh water tanks were in areas that could be covered by bilge water.

One physician, Dr. Nelson, the pediatrician from National Institutes of Health, was sick for nine days with fever and shaking chills - yet he continued to perform his duties. I doubt if he will volunteer for a future trip. His stories of the trip to N.I.H. physicians will probably not enhance our recruitment in an institution where we have frequently been able to find volunteers.

Another area of health hazard lay in the crowded conditions in the hold. The heavy trailers were secured with large cables and turn-buckles that made passage fore-aft on the starboard side an obstacle course. Even though there was a cooking trailer, there was no available dining area. Meals were consumed, wherever possible, buffet style.

(C) Functional inadequacies - Even though this ship was designed to be beached with bow loading, we were only able to utilize this feature for about two hours a day - around mean low tide on one of the three island stops. On Bikini, we set up a rubber raft that was pulled back and forth from the beach with the patients. On one occasion a small child fell into the water and was landed back on the raft by his mother. This operation is hazardous for all hands - especially the very young or old.

The ship's radar and navigation dials were inoperative, making navigation essentially a dead-reckoning proposition. Because of this, we frequently missed the shortest approach to our specified island - adding many hours to our time at sea. The ship's radios were marginal and we were repeatedly unable to establish adequate communication with Kwajalein or Majuro.

In summary, the Caroline Islands and her sister ships are inadequate for their mission. The entire medical team would like to express their thanks to the Captain and crew of the ship. They did everything within their power to assist the team under marginal conditions. They did the best they could with what the ship provided.

William Stanley  
May 12, 1978

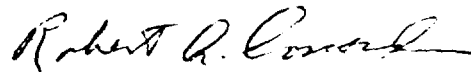
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In addition, Global Associates agreed to work two shifts on ship to make the necessary alterations to permit the survey to begin. We appreciate their sacrifices in this matter. We are most appreciative to Mr. Don McAfee and his department heads, who allowed double shifts to greatly reduce the time necessary to prepare the ship for sea.

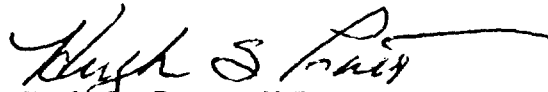
Mr. Ted Murowski, the DOE Coordinator, was of great assistance in helping to get the ship ready for the survey and in supporting the massive logistics, i.e., supplies, transportation, housing, etc., necessary for such a large operation.

The medical team saw 754 people during the survey (450 adults and about 300 children). The primary objective of the survey was accomplished.

Sincerely yours,



Robert A. Conard, M.D.



Hugh S. Pratt, M.D.

bwa

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**BATE NUMBER**

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**INADVERTENTLY SKIPPED**