Department of Energy
Washington, DC 20585

December 8, 1999

Mr. Allen P. Stayman
Special Negotiator
Office of Compact Negotiations (EAP/OCN)
U.S. Department of State, Room 2895
2201 C Street, N.W.
Washington, D.C. 20520

Dear Mr. Stayman:

At the request of Mr. Ralph Boyce, Deputy Assistant Secretary for East Asia and Pacific Affairs of the Department of State, the Department of Energy has identified points-of-contact at the Secretarial, Congressional Affairs, and programmatic levels within the Department to support you in the upcoming Compact negotiations with the Government of the Republic of the Marshall Islands.

They are:

Ms. Ellen Livingston, Senior Policy Advisor to the Secretary for Environmental Affairs (202-586-9500);

Ms. Linda A. Lingle, Principal Deputy Assistant Secretary for Congressional and Intergovernmental Affairs (202-586-5450); and

Dr. Paul J. Seligman, Deputy Assistant Secretary for Health Studies (301-903-5926).

In addition, I have enclosed an updated summary of the Department's program in the Marshall Islands per your request.

Printed with soy ink on recycled paper

Dr. Seligman, the programmatic point of contact, would be pleased to brief you, at your convenience, if you have any questions about our program. In particular, we have instituted a number of management practices over the past 4 years that have strengthened the program to ensure its success.

Sincerely,

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health

2 Enclosures

OVERVIEW OF THE DEPARTMENT OF ENERGY (DOE) MARSHALL ISLANDS PROGRAM – FISCAL YEAR 1999

Basis for the DOE Marshall Islands Program

The U.S. atmospheric nuclear weapons test code-named "Castle Bravo," conducted at the Bikini atoll in 1954, inadvertently deposited radioactive fallout on 253 residents of the Rongelap and Utrik atolls. Over the years, Congress appropriated monies for the medical care of these persons. Since January 1986, the statutory basis of DOE's medical care program for the exposed population of Rongelap and Utrik has been section 103(h) of the Compact of Free Association Action (COFAA), by which Congress approved the Compact of Free Association between the Government of the United States and the Government of the Marshall Islands. Section 103(h) provides as follows:

> ...the President (either through an appropriate department or agency of the United States or by contract with a United States firm) shall continue to provide special medical care and logistical support thereto to the remaining 174 members of the population of Rongelap and Ut[i]rik who were exposed to radiation resulting from the 1954 United States thermonuclear "Bravo" test, pursuant to Public Laws 95-134 and 96-205. Such medical care and its accompanying logistical support shall total $22,5000,000 over the first 11 years of the Compact.

Public Law 95-134, enacted in 1977, directs the Secretary of Interior to provide, for the populations residing on Rongelap and Utrik on March 1, 1954, "adequate medical care and treatment...of any radiation injury or illness directly related to the ["Bravo"] thermonuclear detonation...." Section 104(a)(4) of the same statute states that "[t]he costs of such medical care and treatment shall be assumed by the Administrator of the Energy Research and Development Administration," a DOE predecessor.

The second statute cited in the COFAA section 103(h) addresses: (1) the entire 1946-1958 U.S. nuclear testing period in the Marshall Islands rather than just the 1954 "Bravo" test; (2) the atolls of Bikini and Enewetak, in addition to Rongelap and Utrik; and (3) environmental research and monitoring as well as medical care "for any injury, illness or condition which may be the result directly or indirectly of the [1946-58] nuclear weapons testing program," Public Law No. 95-206, section 102.

Section 102 of the Public Law 96-206, enacted in 1980, mandates for Bikini, Enewetak, Rongelap and Utrik atolls a program of "environmental research and monitoring" which includes:

> The periodic comprehensive survey and analysis of the radiological status of the atolls to and at appropriate intervals, but not less frequently than once every 5 years, the development of an updated radiation dose assessment, together with an estimate of the risks associated with the predicted human exposure, for each such atoll[.]

DOE, as requested by the Department of Interior (DOI) and funded by the U.S. Congress, has an environmental monitoring program to characterize the radioactivity remaining at the four atolls of Bikini, Enewetak, Rongelap and Utrik.

The two programs administered by DOE in the Marshall Islands are described below.

The DOE Environmental Monitoring Program

Program Mission and Scope

For 25 years, Lawrence Livermore National Laboratory (LLNL) has conducted detailed environmental monitoring and agricultural research studies to provide measurement data and assessments to characterize current radiological conditions at the Bikini, Enewetak, Rongelap, and Utrik atolls. Since enactment of the Compact of Free Association Act in 1986, the U.S. Government has expended more than $45,000,000 toward this goal.

The environmental monitoring process, conducted by LLNL and underway since 1974, consists of field sample collection and laboratory analysis of terrestrial foods, marine foods, soil, and water. To date, some 2,260 terrestrial food samples, 8,500 marine food samples, 7,500 soil samples, 600 animal muscle tissue samples, 100 clam samples, 80 water samples, and 85 lagoon sediment samples have been collected and analyzed by LLNL. About 45 percent of these samples were taken from in and around the Bikini, Enewetak, Rongelap, and Utrik atolls to identify and quantify exposure pathways for plutonium (Pu-239 and Pu-240), americium (Am-241), cesium (Cs-137), and strontium (Sr-90). The other 55 percent of these samples came from other atolls, such as Taka, Bikar, Rongerik, Ailinginae, Likiep, Jemo Island, Mejit Island, Ailuk, Wotho, and Ujelang. Also, agricultural research studies centered on Bikini Island have provided important insight into possible mitigation strategies that help reduce the uptake of radionuclides in locally grown food products.

Key Scientific Findings

In 1974, Dr. William Robison, Scientific Director of the Marshall Islands Dose Assessment and Radioecology Program at LLNL, was asked by the Atomic Energy Commission (AEC) to characterize the nature and extent of radiation contamination in the northern belt atolls of Bikini, Enewetak, Rongelap, and Utrik. Dr. Robison and his colleagues from LLNL joined together with other scientists and scientific organizations from around the globe to forge an international team of experts with the expressed purpose to answer questions about radiation contamination in the Marshall Islands.

Dr. Robison's work has led to a number of important conclusions and recommendations. Based on 25 years of environmental sampling data, analysis, and research, we have concluded that:

(1) The Utrik people can continue to live on their atoll without concern about radiological exposure. A final environmental report for Utrik was published in October 1999.

(2) The Rongelap people can resettle without concern about radiological exposure if they (1) scrape the village areas, and (2) apply potassium fertilizer to food growing areas. This

mitigation technique is referred to as the "combined option." The Memorandum of Understanding among DOE, the Government of the Republic of the Marshall Islands (RMI), and the Rongelap Atoll Local Government, effective June 3, 1999, is being implemented at Rongelap today based on this principle.

(3) The Bikini people can resettle without concern about radiological exposure if they, like Rongelap, (1) scrape the village areas, and (2) apply potassium fertilizer to food growing areas.

(4) The Enewetak people have been resettled on Enewetak Island since 1980. Bioassay and whole body counting results have confirmed that radiation doses are at or near world background levels and pose no health consequence to the population. If the Enewetak people decide to resettle Enjebi Island, DOE recommends mitigation using the combined option recommended for Rongelap and Bikini.

Credibility of the Science

During the entire 25 year period of environmental studies, LLNL's work has undergone numerous independent scientific peer reviews.

In the mid-1980's, the U.S. Congress (House Report 90-450) requested establishment of the Bikini Atoll Rehabilitation Committee (BARC) to review and report independently on the feasibility and cost of rehabilitating Bikini atoll. The BARC report was issued on March 31, 1986.

From 1992-1994, DOE funded the National Research Council of the National Academy of Sciences to evaluate the appropriateness of analytical techniques, ingestion and inhalation models, and proposed remedial actions to support resettlement of Rongelap. The report entitled "Radiological Assessments for Resettlement of Rongelap in the Republic of the Marshall Islands" was published in 1994.

In 1994, the Rongelap local government asked an international panel of experts (Scientific Management Team) to determine compliance with agreed limits for total annual dose-rate on Rongelap Island and actinide contamination of soils on Rongelap Island and neighboring islands. Their report entitled "Rongelap Resettlement Project Summary Report of First Phase" was released in April 1994 and revised in November 1994.

In response to U.S. congressional hearings on November 16, 1989, and May 4, 1990, a committee of renowned scientists, chaired by Henry I. Kohn, Ph.D., was convened to provide insight and recommendations on potential resettlement of Rongelap. Data from LLNL's environmental monitoring program was reviewed and became the basis for the committee's findings. Their report entitled "Rongelap Reassessment Project Report" is dated May 25, 1990. In 1995, the International Atomic Energy Agency (IAEA) established an IAEA Advisory Group to provide independent review of Bikini atoll environmental data generated by LLNL. The Advisory Group, convened at the request of Bikini Senator Henchi Balos, examined proposed actions to enable Bikini resettlement. Their report entitled "Radiological Conditions at Bikini Atoll: Prospects for Resettlement" was released in 1998.

Since 1995, Dr. Hertwig Paretzke, Director of the Institute of Radiation Protection, Neuherberg, Germany, has consulted with the Bikini people and LLNL's Dr. Robison to help the people of Bikini better understand the facts about residual radioactivity in the environment and in the foods at Bikini. They have explored numerous options that might best serve resettlement of Bikini.

The DOE Marshall Islands Special Medical Care Program

Program Mission and Scope

The mission of DOE's medical care is to provide preventive and innovative health care in accordance with the congressional mandate. The program's primary objective is to provide for the identification and treatment of radiogenic-related diseases that occur in the populations of Rongelap and Utrik atolls exposed to fallout from the Castle Bravo weapons test.

Of the 253 individuals exposed to fallout from Castle Bravo, 126 individuals remain. DOE provides medical care to another 96 Marshallese, not present on Rongelap or Utrik at the time of the 1954 "Bravo" thermonuclear test, but who roughly match the age and gender of the "Bravo"-exposed individuals identified by Congress, and who volunteered to receive annual physical examinations by DOE's special medical care providers. Today, DOE's patient population totals 222.

Key Program Strategies

Until June 1998 and for the previous 44 years, medical care was provided to the "Bravo"-exposed Rongelap and Utrik population by a team of U.S. doctors led by Brookhaven National Laboratory (BNL). The BNL team visited the Marshall Islands semi-annually for medical missions lasting 4 to 6 weeks. The BNL semi-annual mission model was a logistically complicated program that provided intermittent medical care to the DOE patients.

Beginning in 1996, DOE, the RMI government, and the local governments of the Rongelap and Utrik atolls began the process to design a new community-based year-round medical care program more responsive to the needs of the patients. Representatives from the RMI national government and local communities were involved at each critical juncture of the process, including the design of the new program, development of the Request for Applications, and review of the applications.

The new program, implemented in August 1998 and run by the Pacific Health Research Institute (PHRI) in Honolulu, Hawaii, is a multi-faceted medical care program that seeks to:

- Provide preventive and innovative health care for the DOE patients to improve their health status;
- Enhance health care delivery capability in the Marshall Islands;
- Involve the communities in the direction and governance of the program;
- Deliver health care in a culturally appropriate manner; and
- Coordinate with other health agencies to leverage assets and improve overall service.

PHRI clinics are located on Kwajalein Island and in the RMI capital of Majuro where DOE's patients can be seen daily by local Marshallese physicians and nurse supervisory personnel. Complementing the Marshallese physicians and nurses are a number of U.S. trained physicians working with Straub Clinic and Hospital, Kaiser-Permanente, Wahiawa General Hospital, and the University of Hawaii John A. Burns School of Medicine (UHJABSOM). These individuals provide program oversight and rotate through both of the clinics monthly for a 2-week duration to assist the Marshallese physicians in providing both primary and specialty care. PHRI also uses senior family practice residents on monthly rotations from the UHJABSOM's Department of Family Practice and Community Health to provide additional support and assistance.

Even though the new DOE/PHRI medical care program is still taking root, it assures the ability to carry out Congress' mandate in the COFAA while holding promise to build a Marshallese health care program with potential for long-term self reliance.

Public Involvement/Openness

DOE is committed to be responsive to the questions, concerns, and needs of the Marshall Islands people. DOE has worked toward this goal by actively listening to the central and local governments and their communities, giving them an effective voice in determining the future direction of the Marshall Islands program. DOE routinely publishes the results of its scientific environmental work in the public domain. DOE has an active program to declassify and make available documents related to the nuclear weapons testing in the Marshall Islands.

Since 1990, DOE has conducted over 30 community meetings with the local leadership and community members from Bikini, Enewetak, Rongelap, and Utrik to discuss the results of scientific reports as they were completed. Every year since 1993, DOE has hosted an annual meeting among the Department, the RMI government, and local atoll government representatives from Bikini, Enewetak, Rongelap, and Utrik to review the DOE program.

In October 1998, DOE and representatives from the RMI Government and the Bikini, Enewetak, Rongelap, and Utrik atolls agreed on an action plan to assist the four communities in their current or future resettlement plans. The framework for the Rongelap/RMI/DOE Memorandum of Understanding, now being implemented to assist in Rongelap resettlement activities, came from that meeting.

To date, LLNL has published 32 scientifically peer-reviewed reports providing scientific information and conclusions on the radiological environment at the Bikini, Enewetak, Rongelap, and Utrik atolls. Each report was provided to the RMI Government and to each of the affected atoll communities.

In 1997, DOE sponsored a special edition of the Health Physics Journal entitled "Consequences of Nuclear Testing in the Marshall Islands." This publication, a compendium of peer-reviewed articles by scientists from around the world who have worked in the Marshall Islands, is the first comprehensive collection of environmental and medical-related information related to the testing program in the Marshall Islands.

In 1996, DOE implemented an active program to make available on the Office of International Health Programs' website, over 1,000,000 document pages concerning nuclear weapons testing in the Marshall Islands. This electronic medium permits direct access by the RMI and the public to this important information.

In 1997, DOE provided a 2-year long, $45,000 grant to the RMI Embassy in Washington, D.C., to enable Marshallese personnel to access data electronically on the Internet and to access and use the DOE/Department of Defense Coordination and Information Center in Las Vegas, Nevada.

Over the past 5 years, DOE has provided in hard copy to both the RMI Embassy in Washington, D.C., and through the American Embassy in Majuro to the RMI Minister of Foreign Affairs and Trade, 78 boxes of declassified and other documents relating to nuclear testing in the RMI.

Conclusions

DOE believes that LLNL's work is providing timely, relevant, and credible environmental data. This information provides a firm foundation from which the RMI Government and its people can make informed decisions about resettlement and land use. As DOE completes the bulk of the environmental sampling and agricultural studies over the next 2 years, we will continue to work with the RMI and the local atoll governments. Our desire is to be responsive to their questions, concerns, and needs, and to maintain a presence in the Marshall Islands as long as we can contribute to resolving scientific questions about radiological contamination in the Marshall Islands environment.

Similarly, DOE's new special medical care program begun last year is providing preventive and innovative health care for the Rongelap and Utrik population exposed to the 1954 "Bravo" test, enhancing health care delivery capability, involving the communities, and coordinating with other RMI health agencies to leverage assets and improve overall health care service. Even though the new DOE/PHRI medical care program is still taking root, it guarantees our ability to carry out Congress' mandate, and it holds great promise to build a Marshallese health care program with potential for long-term self reliance.

Marshall Islands Program Overview
Department of Energy

Health Care Program

Past: For the past 44 years, Brookhaven National Laboratory (BNL) administered the Department of Energy's (DOE) medical surveillance and care program to the population of Rongelap and Utrik atolls exposed to radioactive fallout from Operation Castle's Test Bravo in 1954. There are currently 222 persons remaining in the program. BNL's approach to this program was to organize a team of doctors and related specialists for twice a year medical "missions." The purpose of these missions was to provide medical care to the patient population at designated locations in the Marshall Islands. Earlier variations of this approach included periodic leasing of a seagoing vessel that visited patients in their communities, again staffed with doctors and specialists from the U.S. mainland for the purpose of providing the medical surveillance and care. The cost of the BNL program varied over time and recently had risen to $1.5 million annually.

Present: On August 28, 1998, DOE awarded a 5 year, $5.5 million ($1.1 million annually) cooperative agreement to Pacific Health Research Institute (PHRI). The award of this cooperative agreement marks a significant change in DOE's health care delivery process. The PHRI program provides for a year round community-based health care system focused on education and preventive medicine and is designed to leave behind health care delivery infrastructure for the Marshallese. The PHRI program is also designed to solicit and promote community involvement in the health care delivery process through community advisory groups.

Future: Over the next decade, the number of people served by this program will diminish. As this change occurs, DOE and PHRI will be faced with the challenges associated with providing health care to a smaller but aging patient population. Thus, even as the size of the patient population diminishes, the per capita cost of caring for these patients likely will increase. The opposing demands of these two dynamics will have to be carefully weighed and balanced as the program matures. As the program's patient population shrinks, DOE will explore the practicality of combining the DOE health care program with other larger ongoing medical programs, such as the 177 Health Care Program (a Department of Interior program encompassing the people of Bikini, Enewetak, Rongelap and Utrik atolls - about 13,600 Marshallese) or the Republic of the Marshall Islands' health care delivery program (encompanssing all 67,000+ Marshallese).

Environmental Monitoring Program

Past: For the past 25 years, the Lawrence Livermore National Laboratory (LLNL) environmental monitoring and ecological assessment program has characterized the residual radioactivity existing in the soil, water, air and locally grown foods on the four atolls of Bikini, Enewetak, Rongelap and Utrik affected by the 1946-58 U.S. nuclear testing program in the northern Marshall Islands. LLNL has also devised mitigation strategies based on agricultural studies and environmental half-life studies that provide effective ways to reduce the uptake of ^{137}cesium in local foods and to permit monitoring for potential inhalation or ingestion of residual $^{239\&240}$plutonium. National and international expert panels have used these data to provide guidance and recommendations for resettlement of the affected atolls.

Present: LLNL is in the final phase of completing its agricultural, dose assessment, and environmental half life studies in the Marshall Islands. LLNL is preparing final environmental reports (to be finished in the next 2 years) for Bikini, Enewetak, Rongelap and Utrik atolls. Based on the scientific data and recommendations provided by LLNL, DOE is now focusing on its environmental monitoring efforts in support of resettlement and land reuse activity on the four atolls. DOE is developing a Memorandum of Understanding with each resettling community to define what resettlement-related technical support is needed and can be provided within DOE's statuatory mandate.

Future: The majority of work associated with the resettlement of Rongelap atoll is projected to be complete by 2002, Engebi Island (part of the Enewetak atoll) by the year 2005, and Bikini by the year 2010. Utrik is successfully resettled. As these efforts conclude, the LLNL environmental monitoring program will begin to wind down. Sometime late in the next decade, environmental monitoring work in the Marshall Islands will be minimal, consisting primarily of long-term periodic monitoring and maintenance.