

**Steven V. Cary
Deputy Assistant Secretary for Health
U.S. Department of Energy**

**Testimony
Before the Committee on Resources
and
Committee on International Relations
Subcommittee on Asia and the Pacific
United States House of Representatives**

**The United States Nuclear Legacy in the Marshall Islands:
Consideration of Issues Relating to the Changed Circumstances Petition
May 25, 2005**

Mr. Chairman and Members of the Committees:

I am pleased to be here to discuss the Marshall Islands environmental monitoring and special medical care programs administered by the Department of Energy (DOE). As you know, these programs were created in response to Congressional direction to help the citizens of the Republic of the Marshall Islands (RMI) with the environmental and medical consequences of the U.S. atmospheric nuclear weapons testing program.

The atmospheric nuclear weapons test, code-named *Castle BRAVO*, was conducted at Bikini atoll in 1954. This test inadvertently deposited radioactive fallout on 253 residents of Rongelap and Utrök. U.S. Navy physicians cared for these individuals in the days immediately following the test and continued this care when they moved to Brookhaven National Laboratory in 1956. Under the Compact of Free Association Amendments Act of 2003 (Public Law 108-188), DOE will continue to provide medical care in the years ahead. Additionally, Public Laws 95-134 and 96-205 require DOE to conduct environmental monitoring to characterize the radioactivity remaining at the four atolls of Bikini, Enewetak, Rongelap, and Utrök. These monitoring programs began in 1972-73 at Enewetak atoll and continue today.

DOE Marshall Islands Environmental Monitoring Program

For the past 33 years, the environmental monitoring program has been conducted for DOE by scientists from Lawrence Livermore National Laboratory (LLNL). The program has sponsored detailed environmental monitoring and agricultural research studies to characterize current radiological conditions at the Bikini, Enewetak, Rongelap, and Utrök atolls. Through 2004, the U.S. Government has expended more than \$69 million in this effort.

From 1974 until the 1990s, the goal of the environmental program was to characterize the extent and distribution of radioactive fallout contamination in the

Marshall Islands. This work has become the standard by which dose assessment and radioecology programs are measured today. The environmental monitoring process conducted by LLNL consists of extensive field sample collection and laboratory analysis of vegetation, marine organisms, soil and sediment, terrestrial animal samples, water samples, and aerosol samples. To date, more than 70,000 environmental samples have been collected and analyzed, providing essential knowledge and understanding about the unique behavior of fallout radionuclides in coral atoll ecosystems and associated pathways for human exposure.

The current mission of the environmental program is to provide high quality scientific data and understanding of radiological conditions in the Marshall Islands. This same information is important in assessing changes in radiological conditions in association with atoll development or land-use, and in providing fundamental scientific data in support of local remediation programs.

Key Accomplishments

Through the work at LLNL, we now have an accurate characterization and understanding of the nature and extent of radiation contamination in the northern belt atolls of Bikini, Enewetak, Rongelap, and Utrök. In addition, DOE has worked closely with local atoll governments to develop a network of whole body counting facilities and other state-of-the-art individual monitoring programs to accurately assess individual doses to island residents.

Whole body counting facilities have operated on Rongelap Island, Enewetak Island, and Majuro since 1999. These facilities, operated year round by trained Marshallese technicians under the careful guidance of our Livermore scientists, allow us to assess potential health risks from actual data rather than relying on assumptions derived from various dietary scenarios. In combination with environmental monitoring data, residents who receive a whole body count showing the presence of radioactive cesium can make informed decisions about their eating habits or life-style.

Although the work is still in progress in several areas, scientific data are now available that, along with agricultural research studies conducted on Bikini Island, support a number of recommendations for the possible cleanup and rehabilitation of islands. I emphasize that these conclusions are based solely on the scientific data and do not take into account other factors that will ultimately play a role in decisions of the Marshallese people, such as cleanup criteria and resettlement.

- The *Utrök* people can choose to live on their atoll without concern that their health will be adversely affected by exposure to residual fallout contamination. DOE has provided a whole body counter and locally trained technicians to provide a way for people to have confidence that living on Utrök Island and consuming local foods is not detrimental to their health. LLNL plans to conduct bioassay monitoring for Utrök islanders to provide an updated assessment of plutonium exposure in this community based on newly developed, state-of-the-art

measurement technologies. It is expected that these data will provide additional information to the community regarding whether residual plutonium in the environment is a significant long-term health hazard.

- The *Rongelap* people are engaged in an active resettlement program and have adopted cleanup methods developed by Livermore scientists. The cleanup method being employed includes (1) Replacing surface soils removed from village and housing areas with a layer of crushed coral, and (2) Adding potassium fertilizer to areas where food is growing. This mitigation technique, referred to as the “combined option,” is the basis for the resettlement program being implemented at Rongelap today. We continue to provide radiological monitoring for the ongoing resettlement activities, including plutonium urinalysis for workers involved in transforming the island into a safe habitat. To date, none of the construction workers and agricultural laborers, who have the most intense exposure to soil and dust, have demonstrated levels above that expected from exposure to world-wide fallout contamination.
- The *Bikini* people could choose to resettle if they, like the Rongelap, employ the combined option described above. The International Atomic Energy Agency (IAEA), at the request of the Bikini people, studied the issues and affirmed that the combined option would be appropriate for the situation on Bikini. Should Bikini choose to resettle, DOE would provide appropriate medical and environmental monitoring services.
- The *Enewetak* people have been resettled on Enewetak Island since 1980. Plutonium bioassay and whole body counting results have confirmed that radiation doses on Enewetak Island are below levels expected from exposure to world-wide fallout contamination and present no health consequences to the population. If the Enewetak people decide to resettle Enjebi Island, DOE has recommended using the combined option, as used on Rongelap Island and proposed for Bikini Island, for mitigation.

The scientific studies resulting from the LLNL environmental program have undergone eight extensive independent scientific peer reviews from groups of nationally and internationally respected scientists. Two of these reviews were from the National Academy of Sciences. Six independent scientific groups confirmed the methods and associated dose calculations used by LLNL.

We believe that the LLNL work has provided timely, relevant, and credible environmental data. The environmental data, together with the independent environmental reviews made possible by trust funds provided through the Department of Interior, have provided a firm foundation from which the RMI government and their 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 few years, we will continue to consult with the RMI and the local

atoll governments. We will continue our record of being responsive to their questions, concerns, and needs and hope to continue our part in answering scientific questions about radiological contamination in the Marshall Islands environment.

The DOE Marshall Islands Special Medical Care Program

In addition to the environmental monitoring program, the Department manages a Special Medical Care Program in response to Congressional direction. The program's primary objective is to provide annual medical screening examinations and cancer treatment to the 253 individuals who were in Rongelap and Utrök and exposed to fallout from *Castle BRAVO*. Today, 194 individuals remain in the program for medical screening and treatment.

Until June 1998, medical care was provided to the Rongelap and Utrök beneficiaries of the program by a team of United States doctors led by Brookhaven National Laboratory who would visit the Marshall Islands twice a year for medical missions lasting four to six weeks. From June 1998 through July 2005, the Special Medical Care Program was administered by a Honolulu-based research foundation with examinations conducted year-round in various clinics in the Marshall Islands.

In 2003, DOE, the RMI government, and the local governments of the Rongelap and Utrök atolls began a process to make the medical care program more responsive to the needs of the beneficiaries and be sustainable over the remainder of the lifetimes of the beneficiaries. This led to a revised program scheduled to begin in July 2005, the goals of which are: preventative and curative healthcare for the mandated population to improve their health status; delivery of healthcare near patients' homes; community involvement; delivery of healthcare in a culturally appropriate manner; and coordination with other health agencies in the RMI to improve overall service.

DOE clinics are currently located on Kwajalein Island and in Majuro. Local Marshallese physicians and nurse supervisory personnel see patients daily. Patients living in Hawaii and in the continental U.S. are serviced by a recognized nation-wide health care management organization. We feel that the DOE Special Medical Care Program will strengthen our ability to carry out the core congressional mandate without escalating the cost of the program.

DOE has committed itself 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 and giving them a voice in determining the future direction of the Marshall Islands program. Since 1990, DOE has engaged the local leadership and community members from Bikini, Enewetak, Rongelap, and Utrök in more than 40 community meetings to discuss the results of scientific reports as they were completed. In addition, DOE hosts an annual meeting with the RMI central government and representatives from Bikini, Enewetak, Rongelap, and Utrök to discuss program strengths and weaknesses. Regular RMI/DOE working group meetings are also held, the most recent being February 2005.

Since 1999, LLNL has published 11 scientifically peer-reviewed reports providing scientific information and conclusions on the radiological and chemical environment for the Bikini, Enewetak, Rongelap, and Utrök atolls. For example, RMI scientists had concerns about the health impacts of materials used in the nuclear devices such as thallium, a known neurotoxin. LLNL was able to review classified documents and prepare a report on the quantities of specific materials released and their potential public health impact. In addition, LLNL has published numerous technical documents intended for use by atoll officials and scientists supporting the U.S. and RMI governments.

Conclusions

DOE has worked closely with RMI to carry out successful and responsive Marshall Islands environmental and medical care programs in accordance with congressional intent and while achieving program efficiency and effectiveness. Both programs are funded at \$6.0 million in the Administration's FY 2006 budget request.

We believe that LLNL's environmental work provides a firm foundation on which the RMI government and their 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 few years, we will continue to consult with the RMI and the local atoll governments. We will continue to maintain a presence in the Marshall Islands as long as we can contribute to addressing scientific questions about radiological contamination on Bikini, Enewetak, Rongelap, and Utrök atolls.

Similarly, DOE's Special Medical Care Program will continue to provide sound basic preventative and curative healthcare for the selected population within communities where they live, using additional support from the U.S. Army command on Kwajalein Island and its hospital to improve overall delivery of medical services.

Mr. Chairman, I thank you for this opportunity to share the current status and progress of our programs in the Marshall Islands. I would be pleased to answer any questions.

1. Name: [Steven V. Cary](#)
[Deputy Assistant Secretary for Health](#)
2. Business Address: [1000 Independence Avenue SW](#)
[Washington, DC 20585](#)
3. Business Phone: [202-586-2575](#)
4. Organization representing: [U.S. Department of Energy](#)
5. Any training or educational certificates, diplomas or degrees or other educational experiences which add to your qualifications to testify on or knowledge of the subject matter of the hearing.

[M.S. in Environmental/Public Health Engineering, 1972, Tufts University](#)
6. Any professional licenses, certifications or affiliations held which are relevant to your qualifications to testify on or knowledge of the subject matter of the hearing:

[Professional Engineer States of New York, New Mexico, and Virginia.](#)
7. Any employment, occupation, ownership in a firm or business or work-related experiences which relate to your qualifications to testify on or knowledge of the subject matter of the hearing.

[30 years experience in Public Health and Environmental Engineering at local state and federal levels.](#)
8. Any offices, elected positions, or representational capacity held in the organization on whose behalf you are testifying.

[Deputy Assistant Secretary for Health](#)